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SOME IMPLICATIONS OF RESEARCH ON LANGUAGE DEVELOPMENT FOR PRESCHOOL EDUCATION.

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RECENT RESEARCH ON LANGUAGE DEVELOPMENT WAS REVIEWED, AND THE DIFFICULTIES OF TRANSFORMING DEVELOPMENTAL RESEARCH INTO PRESCRIPTIONS FOR EDUCATION WERE DISCUSSED. RESEARCH FINDINGS AND RECOMMENDATIONS FOR PRESCHOOL TEACHING WERE MADE UNDER THE FOLLOWING HEADINGS--(1) THE ACQUISITION OF GRAMMAR, STRUCTURE OF LANGUAGE, (2) THE ACQUISITION OF VOCABULARY, (3) THE ACQUISITION OF MULTIPLE FUNCTIONS OF LANGUAGE, (4) THE ACQUISITION OF A STANDARD DIALECT, (5) THE RELATION OF LANGUAGE TO NONVERBAL BEHAVIOR, (6) BEGINNING READING, AND (7) ELEMENTARY EDUCATION. THE AUTHOR SUGGESTS THAT THE PRESCHOOL CHILD, ESPECIALLY THE DISADVANTAGED CHILD, MAY BE HELPED MOST IN LANGUAGE DEVELOPMENT BY ENLARGING HIS LINGUISTIC REPERTOIRE RATHER THAN BY TRYING TO CORRECT HIS NONSTANDARD FORM. THE NEED FOR ELEMENTARY SCHOOL PROGRAMS TO PROVIDE REINFORCEMENT FOR THE INNOVATIONS OF PRESCHOOL PROGRAMS WAS EMPHASIZED. THIS PAPER WAS PREPARED FOR THE SOCIAL SCIENCE RESEARCH COUNCIL CONFERENCE ON PRESCHOOL EDUCATION, CHICAGO, FEBRUARY 7-9, 1966. (AL)

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Some implications of Research on Language Development for Preschool Education*

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Some Implications of Research on Language Development for Preschool Education

Courtney B. Cazden

The purpose of this paper is to explore the implications of research on language development for preschool education. Thinking about how to derive such implications has made me conscious of difficulties which inhere in the transition from developmental research to prescriptions for education. Before turning to the main topic, I want to talk about two of these difficulties, namely limitations on our understanding of the role of environmental assistance in the acquisition of language, and the lack of any necessary relation between developmental findings and education.

First, the limitations on our understanding. We have available a growing set of descriptive analyses of the course of language development. These analyses range from older data on increase in mean length of sentence, size of vocabulary or percentage of phonemes pronounced correctly to present attempts to write grammars - sets of descriptive rules - for the progressively more complex utterances which children make. We also have a large body of correlational data on the relation between measures of language development and measures, at least very gross ones, of the child's environment. So we can say with a good deal of confidence that the first-born of college-educated Jewish parents will be a very verbal child. The circumstantial evidence is strong that the salient feature of such an environment is the opportunity for lots of conversation with a warm and verbal adult. Even at this level of analysis, however,

correlational data leaves important questions unanswered. For instance, what is the relative weight of "lots of conversation" and "warmth"? And when one attempts a finer grained analysis of parent-child conversation itself, other variables are confounded. Is it amount of conversation alone which matters, or is a particular kind of verbal interaction uniquely beneficial? The limitations of correlational data are at least twofold. Attributes tend to cluster together in the natural environment, and teasing - or even prying - them apart is not easy. Furthermore, even when one feature can be isolated, correlations can never prove causation. What we need, as we acknowledge so often, are manipulative experiments which can isolate environmental variables and test their effect.

In language development research there are few manipulative experiments. Three studies have been done with infants: Rheingold, Ge wirtz & Ross (1959), Weissberg (1963) and Casler (1965). But it is still an open question whether any results can be generalized across the dis continuity which may exist between pre-linguistic babbling and true verbal behavior. Two studies have been done with children from 1 - 3 years old: Irwin (1960) and my own research (Cazden, 1965). With so few studies, our understanding of the role of environmental assistance is bound to be tentative and incomplete.

But even if our understanding were greater, there would still be the second difficulty: the lack of any necessary relation between developmental findings and education. Let us assume that we know what produces healthy language development in natural environments. We could then design educational programs modeled as closely as possible after those natural environments which have been proved beneficial. Or, better

still, we could design a program which contains the critical features in more concentrated doses, as we use vitamin pills to treat malnutrition. What we must keep in mind is that such a design is not the only one possible. Theoretically, one could gain the same objective by the administration of some artificial substance, unlike anything naturally occurring. Such a possibility can not be ruled out on any a priori grounds. As Bruner reminds us in Towards a Theory of Instruction (1966), the deliberate pedagogy of formal education goes beyond the unself-conscious pedagogy of parents at an early age.

Carl Bereiter's experimental preschool program at the University of Illinois (See NCTE, 1965a, 195 - 203) is an example of what I am calling a non-natural kind of treatment. The teachers in Bereiter's program for socially disadvantaged children do not talk like middle-class mothers; they talk like foreign language teachers. Bereiter has gone outside the field of developmental research to draw on a separate body of knowledge about how to change verbal behavior. Whatever the final evaluation of Bereiter's program, he has made a contribution just by freeing us from the current blinders of viewing preschool education as an institutionalization of the intellectual virtues of the middle-class home.

Now to the main topic. In discussing language development, I have found it helpful to separate aspects of that development which may benefit from different kinds of environmental assistance. Accordingly, I will speak about the acquisition of grammar or the structure of language, the acquisition of vocabulary, the acquisition of multiple functions of language, and the acquisition of a standard dialect. Then there will be three postscripts on the relation of preschool language development to nonverbal behavior, to beginning reading, and to elementary education.

Most of the ideas which follow are for preschool practise, although at one or two points I will say "for reaearch only" to indicate that evaluation is needed to make sure that the desired effects are indeed forth-coming. I will not try to provide an exhaustive list of worth-while experiences. Fortunately, an excellent description of current programs is available in Language Programs for the Disadvantaged published by the National Council of Teachers of English (1965a). Nor will I review research on subcultural differences in child language (see Cazden, forthcoming).

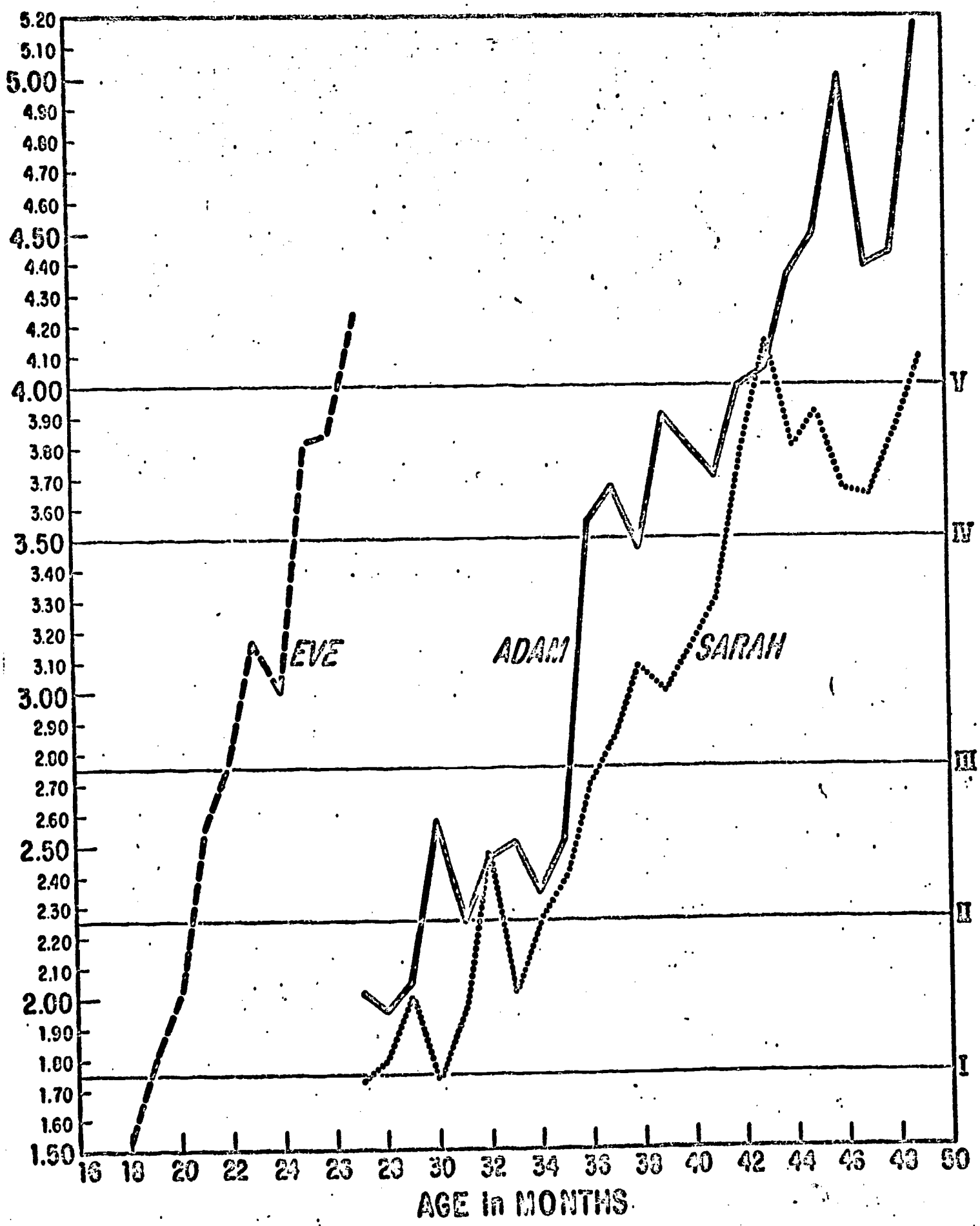
The Acquisition of Grammar

First, the acquisition of grammar. This is where contemporary studies are concentrating. I will speak about the work of Roger Brown and Ursula Bellugi at Harvard, not just because I have worked on that project for three years and know it best, but because it is the only one which has as raw data the protocols of mother-child conversation. Briefly, Brown has recorded the conversation of three mothers and their first-born children, whom we call Adam, Eve and Sarah, weekly or bi-weekly from the time the children started putting two words together until they were speaking in complete simple sentences, a period of from 1 - 2 years. The objective of the project is to describe the developmental sequence of language acquisition and to obtain some hypotheses about environmental influences on that sequence or on developmental rate. With the consultation of Edward Klima, a linguist from M.I.T., Brown and Bellugi are writing grammars to describe the speech of the children, while a graduate student, Anita Rui, and I are examining aspects of the speech of the

parents and of the interaction itself. We expect to find some features of the acquisition of language which are common across these three children and may be related either to language learning in general or to the learning of English in particular; we expect to find other features which show variation even in our sample of three and may be related either to environmental variables or to individual differences in cognitive style.

Because these analyses won't be complete for another year or so, I can only give illustrative examples of the kind of information that is emerging. Some of the analyses are being made on speech samples taken at five points or levels in the developmental stream. To obtain these five points the children were equated on linguistic criteria, primarily mean length of utterance, while the age of the children at each of the five points, and the time interval between the points were allowed to vary freely. Figure 1 given this data in graph form. Roman numerals indicate the levels.

As one would expect, rate of development varies greatly even in this sample of three. But what about sequence? An example of the regularity in sequence which we find is that at any level noun phrases are more developed in object position than in subject position. When two modifiers appear with a noun in the predicate, only one appears in the subject, etc. An example of variation in sequence which may be related to the child's linguistic environment is the point in the sequence at which plural inflections appear. For Sarah plural inflections appear midway between level I and II; for Adam it is just after level II; for Eve it is just before level III. Examination of parent speech shows a striking difference in the density of plurals. In one time sample it took the mothers of Adam and Eve ten hours to use 100


MEAN UTTERANCE LENGTH in MORPHEMES
5.20
5.10
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4.90
4.80
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III
II
I
EVE
ADAM
SARAH
16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50
AGE In MONTHS

plurals, whereas it took Sarah's mother only four hours to use the same number, probably because a much higher percentage of her talking time was used for what Brown has called "the naming game": What's this? and What's that? asked about objects in the room or in books. Then there are the purely individual aspects of the children's speech. Adam has many idiosyncracies. He addresses vocatives to objects like balls and says Poor microphone when he bumps it; he says Dey talking about two irons which face each other, and says Coffee dancing as cream swirls in his mother's cup. While poor microphone may indicate the lack of an animate-inanimate distinction among nouns, coffee dancing seems to us a delightful example of three-year old creativity.

One statement can be made about all three mothers. They don't do the kind of correcting which many people assume must be done. With two exceptions, immaturities in the child's speech are largely ignored, and this in families where the children are developing well. One exception concerns errors of a referential nature about which I'll say more in the section on acquisition of vocabulary. The other exception concerns errors of omission, the telegraphic speech of all young children. As has been pointed out in previous articles (e.g. Brown & Bellugi, 1964), parents frequently respond to the child's telegraphic utterance, e.g. Mommy lunch, with the nearest complete sentence appropriate in the particular situation, e.g. Mommy is having her lunch. Brown named this form of parental response an expansion.

We were tempted to assert that a kind of parental behavior had been identified which must have a powerful effect. Expanding looks like an ideal tutorial technique; it tells the child he has been understood while pointing the direction of further progress by supplying a model of a more

explicit encoding of the intended meaning; it "encodes additional meanings at a moment when he is most likely to be attending to the cues that can teach that meaning" (Brown & Bellugi, 1964, p. 143). However, we recognized that an alternative hypothesis was possible - namely, that what is important for language development is not a particular kind of parent-child interaction but simply the amount of well-formed speech that a child hears. When evidence is limited to natural observations it is not possible to separate the effects of these two features of a child's language environment. Sarah's mother expands fewer of Sarah's utterances, but she also talks less to Sarah in general. Expansions and verbalness exist together. When we look at the appearance of particular gram matical constructions, we confront the same problem: the constructions expanded most often are also the most frequent in the parent's non-expanding speech. To separate the effect of expansions from the effect of sheer quantity of speech stimulation, a manipulative experiment was needed. My doctoral research (Cazden, 1965) was designed for this purpose.

The subjects were 12 Negro children age 28 - 38 months. They were all attending a private day-care center in Boston where the ratio of children under 3 1/2 to adults was 30 to 1. I assumed that these children were by definition sufficiently linguistically deprived by being in this environment eight to ten hours a day so that the stimulation added in this research could make an observable difference. The children were randomly assigned to one of three treatment groups. Four children received 40 minutes per day of extensive and deliberate expansions; four children were exposed to an equal number of well-formed sentences that were not expansions. One of two tutors, trained for this research, talked with each child in these two groups in an individual play session every school

day for three months. Four children received no special treatment. Contrary to predictions, the children who received the non-expanding language stimulation gained more on six measures of language development: a sentence imitation test and five measures of spontaneous speech - mean length of utterance, complexity measures of noun phrases and verb phrases, and ratios of the frequency with which copulas were supplied and the frequency with which sentences contained both subjects and predicates.

Originally I called the non-expanding treatment "modeling" or "exposure," assuming that non-expansion had no special positive quality of its own. An examination of what actually happens shows that this is not the case. If a child says Dog bark, when a dog is indeed barking, the expanding adult says, Yes, the dog is barking, The non-expanding adult who desires to maintain a reasonable discourse sequence - as our tutors did - has to contribute a related idea: Yes, he's mad at the kitty, or Yes, but he won't bite. Thus a treatment that focuses on grammatical structure tends to limit the ideas to the presumed meaning of the child, and tends to limit the grammatical elements to those used by the child; focus on the idea, by contrast, extends that idea beyond the presumed meaning of the child and introduces more varied grammatical elements to express those related meanings. David McNeill (forthcoming) has named the non-expansion treatment "expatiation." To expatiate is to enlarge upon. Of course in natural conversation a mother's utterance might provide both. Ball bounce might be both expanded and expatiated into Yes, the ball is bouncing so high it'll hit the lamp if you don't stop. In my

research, the tutors were asked not to do this in order to make the distinction between the treatments as clear cut as possible.

The finding that expatiations aid the acquisition of grammar more than expansions suggests that richness of verbal stimulation may be a critical feature. Admittedly, I am in the position of interpreting what I found since I didn't get what I predicted, and that's always a weak position. But let me suggest three sources of support for the interpretation that variety is beneficial in and of itself, over and above the quatity of stimulation, and that, conversely, language that is impoverished is harder - not easier - to learn.

First, if we consider the learning of inflectional and syntactical skills akin to concept formation, then variation in irrelevant features of the concepts - e.g. particular nouns in learning the inflectional marking of plurality - may aid learning. Second, if, as the transformational grammarians argue, the process of first language acquisition is akin to scientific theory construction in which hypotheses are tested against available data, then a meagre set of data may be a hindrance. Fodor makes this argument explicit:

> If parents do simplify the syntax of their speech when they address children they may make it harder for the child to learn the correct syntactic analysis of his language. Rules that hold for selected sets of simple sentences may have to be abandoned in the light of examples of sentences of more complicated types. (Undated manuscript, p. 20; emphasis in the original.)

Third, increased variety of language stimulation may enhance attentional processes in the child. As one person commenting on my research put it, the children in the expansion group may have just been bored. Fiske & Maddi (1961) present evidence for the general value of varied stimulation

in effecting arousal.

Argument from research on attention to prescriptions for education is at once powerful and weak. It is powerful because opinion is growing that it is attention which, in addition to contiguity, is essential for learning (e.g. Berlyne, 1965). It is weak because one can not design educational programs solely on the basis of children's spontaneous interest. As Alfred Baldwin pointed out in his presidential address to the Society for Research in Child Development, in the more didactic pre-school programs "the teaching is not automatically geared to the child's spontaneous interest and motivation and...the teacher must devote more attention to arousing that interest" (1965, p. 599). What I have tentatively concluded from my research is that as far as the acquisition of grammar is concerned, the conflict between interests and needs doesn't exist. What young children should have is plenty of opportunity to talk things over out loud with conversation focused on the development of ideas. Given this opportunity, the acquisition of grammar will be assisted too.

The Acquisition of Vocabulary

The acquisition of vocabulary has at least two aspects: learning new words, and extending and refining the meaning of words already in use. For example, both Eve and Sarah have said I write picture. At some later time each child will learn the word draw. Only then, when draw is added to her vocabulary and used appropriately, will the meaning of write become refined to what one does to letters and numbers.

This process of learning new words and extending and refining the

meanings of old ones contrasts with the acquisition of grammar in two ways. First, whereas the acquisition of grammar is virtually completed during the preschool years, the acquisition of vocabulary is never finished. Second, the acquisition of vocabulary seems to benefit from more direct tuition than is necessary for the acquisition of grammar. Evidence for the latter assertion comes both from natural observatons of what parents do and from correlational research.

I mentioned earlier that the mothers of Adam, Eve and Sarah do correct errors of reference or naming. For instance, Adam's mother accepts without comment his immature grammatical constructions such as Why me not go? and plays along very sincerely with his stories about irons that talk. But when Adam asks Where she going? about his new baby brother, the mother is quick to respond It's he, you forgot. Where is he going? So it goes with Eve. Once Eve noticed her mother rubbing her face and asked What you was having on you nose? This utterance has no less than four grammatical immaturities: failure to reverse auxiliary and pronoun in a question, the wrong auxiliary with you, an ing added to a verb that is never "inged" with this meaning, and failure to add the possessive inflection on the pronoun. Yet the mother responds, What I was having on my nose? Nothing, I was rubbing my eyes. Contrast that reaction with what happened after a walk to watch construction on the William James Center for the Behavioral Sciences at Harvard; Eve, reporting her experience, said Watching the men - building hole. This time the mother said, Well, they aren't building a hole, sweetie, They're building a building now. First they dug the hole and now they're building the building.

The more direct role of parents in teaching vocabulary is also reflected in the results of Susan Stodolsky's doctoral research (1965) at

the University of Chicago. Her subjects were 56 of the 160 Negro families in Robert Hess's large study of cognitive environments of preschool children. Using data already available on vocabulary level and teaching styles of the mothers, Stodolsky administered the Peabody Picture Vocabulary Test to the children one year later. She then correlated the children's scores with a selected set of maternal variables from the year before and obtained a multiple correlation of .68. The best single predictor of the PPVT scores was the mother's vocabulary score on the WAIS. The material teaching variables which added most to the prediction equation were amount of reinforcement and a "discrimination index" which measured the extent to which the mother isolated task-specific qualities of the environment.

What I am proposing is that the acquisition of grammar and the acquisition of vocabulary require different kinds of environmental assistance. Learning the meanings of words and therefore the relations among ideas seems to benefit from active tuition, in the form of conversation between the child and an interested adult. (Whether it can be done by a more verbally mature child is an open question.) Given such tuition, the acquisition of grammar is aided as well.

One context for such conversation is reading a story to an individual child. It is interesting and perhaps significant that in both Irwin's study and mine, reading proved helpful. Irwin induced working-class mothers to read to their children for 20 minutes a day, and made regular trips to the homes to provide suitable books. In my research, the non-expanding treatment included one book read per day. Reading to an individual child may be a potent form of language stimulation for two reasons. First, it brings a special physical relationship. Imagine to yourself the traditional

reading position, with one child sitting on the adult's lap. There is close physical contact, and the adult speaks almost directly into the child's ear. Second, reading seems inevitably to stimulate interpolated conversation about the pictures which both adult and child are attending to. It is likely that in the course of reading the mothers in Irwin's research responded to the verbalizations of their children which the reading prompted; it is even possible that the induced attention to the child affected the mother's response to him during the non-reading parts of the day. Irwin's study suggests application not only to preschool education but to parent education as well.

The Acquisition of Multiple Functions of Language

The multiple functions of language can be categorized in various ways. One division is between inter-individual and intra-individual use, or communication with others and communication with oneself. The inter-individual use can be further subdivided, as, for example, by Roman Jakobson's Categories (see Bruner, 1966, Chapter 5):

referential - denotative
emotive - expressive
conative - directive
phatic - focusing on maintaining communication
poetic - focusing on the message for its own sake
metalinguistic - focusing on the code itself.

These functions probably develop independently in the child, but we don't know which develop first, or what kinds of variations there are across children, or how these variations are related to the child's environment.

Even without such knowledge, I would urge that education consider all functions important. Bruner (1966) argues that "If there is not a developed awareness of the different functions that language serves, the resulting affliction will be not only lopsided speaking and writing, but a lopsided mind." I am afraid that our educational system may be increasing

lopsideness rather than counteracting it by considering only the referential function worthy of deliberate instruction. With the increasing stress on formal academic content this trend is evident even at the preschool level. I have visited preschools where opportunities for the use of language to express feelings, and for sheer enjoyment of the combinatorial power of words were overlooked in the pressure of getting the children ready for first grade. The best of the progressive nursery schools did rich work in these areas which shouldn't be left behind when the pendulum swings.

The intra-individual or mediational use of language is important for preschool education because the dimension of cognitive growth which brings increased independence of response from immediate stimulation seems to take a qualitative leap in the 5-7 age range, just after the preschool period. Sheldon White (1965) has analyzed a large body of research findings on the shift from "associative" to "cognitive" level of functioning during this period. There seems little question that language is part of the story but not all of it, that the availability of a linguistic response in the child's repertoire does not guarantee its use whenever appropriate and helpful, for instance as an aid to memory. Unfortunately, we do not know how variation in the use of language for inter-individual communication affects its intra-individual use, and we don't know what kind of tuition results in what kind of help. (See adendum, p. 24.)

The intrapersonal role of language, or "inner speach", is a primary focus of Soviet psychologists, much of whose work is oriented toward pedagogical applications. One suggestion (Slavina 1957) I found helpful in teaching first grade arithmetic. Voya could do simple sums with objects to manipulate but could not do the sums in his head. An intermediate

stage was introduced. After manipulating the objects and counting out loud, Voya was asked to do the same operations out loud but without looking at the objects which were still arrayed on the table in front of him; i.e. he was helped to form a mental schema or representation. Only after this was he asked to try the completely mental process, using the mental schema with covert responses. The key contribution may be finding that intermediate step which can take the child to the acquisition of new behavior. Perhaps some of the experimental conditions in the verbal mediation experiments can be converted into treatments. Jensen (1963) has done this with retarded junior high school students. He found that learning of a multiple stimulus response problem (lights and buttons) improved markedly when the subjects were asked to name the stimuli while learning.

If language is necessary but not sufficient, if nonverbal aspects of development are essential for mediational use of language there may be other kinds of treatment that would help. White suggests an interpretation of the associative to cognitive shift in terms of an inhibition of the more immature responses. The research question is what if anything can be done as part of preschool education to make it more likely that the shift will indeed take place.

The Acquisition of a Standard Dialect

The reason for trying to do something in the educational system about the acquisition of a standard dialect is quite different from the reason for doing something about grammar, vocabulary and language functions. The last three relate to the use of language for learning and communicating ideas. A standard dialect, on the other hand, relates to what Joshua

Fishman has aptly called "the Pygmalion effect" of language, i.e., its role in social mobility.

Current interest in social dialects is reflected in research projects in many cities which are attempting to describe systematically the points of contrast between nonstandard dialects and standard English, and to determine which features create the greatest barrier to acceptance in the dominant culture. It has led to controversy over the objective of educational intervention: to eradicate non standard forms, or inculcate conscious bi-dialectalism. Much of the latest work in this field is reviewed in Social Dialects and Language Learning, another new publication of the National Council of Teachers of English (1966).

My recommendation is that preschool teachers should concentrate on enlarging the child's linguistic repertoire and not do anything about trying to change his nonstandard form beyond the provision of models of standard English. Correction runs the risk of extinguishing not just the nonstandard forms but verbal behavior in general. With young children, for whom language for social mobility is far less important than language for learning, this danger outweighs any possible gains. A first grade teacher in a rural upstate New York school told me that during a science lesson on magnets one of her children had excitedly told her that The magnet brung the paper clips. She tried to explain that we say brought, but the child kept saying brung. Finally she gave up and told the child that scientists have a special word for what magnets do, they attract. My advice is that we all give up the correction even earlier, and concentrate on adding and enlarging and refining. This is in essence what the special NCTE Task Force recommended after visiting programs all over the U.S. last Spring (1965, p.70).

The desirability of providing models of standard English raises important questions about preschool personnel and the composition of the peer group. All the foregoing recommendations assume a high adult-child ratio. How much weight should be given to the standardness of the speech patterns of these adults, and how much weight should be given to other reasons for including adults indigenous to lower-class communities, such as on-the-job training for parents and future parents, counteraction of home-school alienation, and the participation of male adults in the schools? And what about the composition of peer group? We want to maximize the benefits from communication among the children. How much might be gained from desegregated classrooms where the disadvantaged child would be in a minority? Is it worth making a fight against present policies which for all practical purposes dictate preschool groups segregated by social classes?

Relation of Language to Nonverbal Behavior

So much for the four aspects of language development. Now we come to the three postscripts - first, the relation of language to nonverbal behavior.

If you ask nursery school teachers working with disadvantaged children what is the outstanding characteristic of these children - particularly if they have previously worked with a more typical nursery school population - the answer is "a short attention span." Along with this goes considerable folklore, which I could easily contribute to, that disadvantaged children are restless, fidgety and just very active. We need to know more about the relation of action to

language, where it enhances and where it interferes. I merely want to raise some questions for discussion, and suggest that perhaps we should be doing more, at least at the research level, than working on language development alone.

First of all, I tried to find out if there was any solid evidence that disadvantaged children were, as a group, more active in any sense. The only convincing data I have found is Bayley's recent summary of mental and motor test scores on a national sample of some fourteen hundred infants, 1-15 months old.

> No difference in scores were found for either scale between boys and girls, first-born and later-born, education of either father or mother, or geographic residence. No differences were found between Negros and Whites on the mental scale, but the Negro babies tended consistently to score above Whites on the motor scale. (1935 p. 379).

Bayley interprets this finding as the result of a heightened muscle tone, and reports that other investigators have found comparable data, but only during infancy.

Marcia Guttentag is trying to answer the question of group differences in quantity and quality of physical movement in preschool children. In what was formerly O. K. Moore's Interaction Laboratory at Yale, she is observing children in structured situations and recording their behavior on video tape. She wants to know not only how much gross activity there is - which could be obtained from such instruments as pedometers - but also how the movements of different children vary in variety, rhythmicity, etc.

But, disregarding for the moment the question of group differences in motor responses, let's explore the relation of action to language. Three kinds of actions were suggested by my weekly visits to Sarah and my observations in preschools. They can be termed gestures,

rhythmic movements, and random activity. Gestures constitute a nonverbal form of representation or communication. To make requests, Sarah would lift her arms when she wanted to be picked up or point to the refrigerator when she wanted milk. As representations of ideas she shivered at the word cold, put her fingers to her lips at the word sleep, and blew when her mother got out a match to light a cigarette. If meaning was more elaborate, gestures would supplement her as yet inadequate language. When in an attempt to elicit prepositions, we asked her to tell us where her doll was, Sarah answered I show you and ran into her room. Another day her mother mentioned that before we arrived Sarah had spilled a whole container of cleanser on the kitchen floor. Because this seemed an ideal context for eliciting past tense verbs we asked Sarah about it. She immediately acted out the whole incident, very excitedly, rushing all over the floor and adding rapid and incomprehensible verbalizations. These "enactive representations" as Bruner has termed them, are replaced by language (except for his favorite example of tying a shoe which only a mathematician can represent or communicate in other than enactive terms). My impression is that nursery school teachers work hard to bring this replacement about.

Second, there are the rythmic motoric activities which have no meaning component, but to which words can be mapped. These include ball bouncing, hand clapping, drum beating, and dancing. Here, I'm not thinking so much of the ready-made chants as of newly-made language improvised on the spot. The old song "This is the way we sweep the floor" is good for endless variations. In a Cambridge preschool a little boy deliberately poured a pail of water from a water-play table onto the floor. The teacher, with amazing amiability, gave him the mop and together they sang "This is the way we mop the floor" as he

worked. When their verse had ended, another boy - still at the table - sang by himself, "This is the way we scoop the soup," in perfect time as he did indeed scoop the soup. My impression is that teachers vary a great deal in how much they use rhythmic activities for this kind of verbal activity - call it one aspect of the poetic use of language if you like. The teacher in Cambridge did so much that life at her school had some of the quality of a musical play. At a preschool in New York City a couple of years ago, I felt rich opportunities for a joyful use of language were being ignored while the teachers concentrated on spelling-bee type drills on color names. Marcia Guttentag at Yale is ultimately interested in designing an intensive program of language training for disadvantaged Negro children based on associating language with music and with their own motor responses. It will be interesting to see how much conceptual content can be incorporated in such a program.

There's nothing very controversial about the foregoing, except possibly for the idea of basing a much larger part of a language program on motor activity. But the third kind of activity raises questions for research. This is the random, or at least non-purposive, activity which may well interfere with attention and even provide proprioceptive noise for the reception of verbal stimuli. What is the physiological status of such activity? What is its relation to attention? And what, if anything, should be done about it in an educational program?

Beginning Reading

So far I have derived implications for the preschool program from a backward look at how language develops. The educational objective is to raise the level of oral language of all children as close as

possible to that of the most verbal children. In the introduction I contrasted two sources of ideas for how to design educational environments which accomplish this objective: by replicating the kind of natural environment which has been found to produce the advanced development, and by drawing on some other body of empirical findings on how to change behavior. But one can also derive implications for preschool language programs from a forward look at the language tasks which will confront the child when he enters first grade. This may lead not just to new methods but to new objectives as well.

The most obvious language task confronting children in first grade is learning to read, and it is no new idea that we should do what we can to prepare children for meeting that task. Fortunately, a new survey of research in this field provides more specific information on the prerequisite skills and on what, therefore, should be stressed in preschool and in kindergarten. Jeanne Chall/has just completed an analysis of all the available research on beginning reading. She found clear evidence that children were more likely to be successful in beginning reading if they knew the names of the letters, could hear similarities and differences in spoken words, and knew the sound values of the letters. These are the component skills which mattered. The correlation between success in beginning reading and these abilities was higher across all the studies than between success in beginning reading and measures of mental age and oral language ability. In the middle grades, by contrast, perceptual skills are less important, and intelligence and language ability play a larger role in reading achievement.

Chall's analysis of reading success as correlated with different abilities at different stages in a long-term task suggests two curriculum

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implications. Her analysis does not mean that we can forget about oral language development and concept development. On the contrary, we have to keep working on these abilities because they will become very important later. But we have to develop a parallel program to work on the perceptual skills that will be needed even sooner. I know that preschool enrichment programs do include visual and auditory discrimination activities. My suggestions about these activities is that they make more use of linguistic materials, namely letters and phonemes, and that dialect differences be taken into account.

If a teacher says "Whose name begins like that?" and a child says David, it may be for two reasons: he doesn't know what she is talking about, or he knows exactly what she is talking about but simply neither perceives nor produces a d-th contrast. Instruction to attend to sounds which the child does in fact make and therefore does hear, albeit not with self-awareness, must be distinguished from instruction in the perception and production of phonemic contrasts which are not part of the child's dialect. It is the first that I am urging here. The second is a part of the issue of dialect change which I talked about earlier. It is still an open question whether dialect differences per se interfere with learning to read. Jeanne Chall's research would tend to dictate no, but then we really don't know how deviant the dialects were of the children in all the studies she reviewed. Linguists such as Labov (1965) are also saying no. He makes a persuasive case that the only result of dialects, at least on the Phonological level, is a set of homonyms which are different from the teacher's and may be more numerous than hers. If one has pronounced during and doing the same way all one's life, learning to read the two words and associate differential meaning with differential spelling is no different from what every

English speaker does with sun and son. So let's teach aiditory discrimination of sounds, being careful to use sounds which the children definitely do make.

The contrastive linguistic studies I mentioned earlier (NCTE 1965b) were designed to provide information on the points of maximum contrast between Standard English and nonstandard dialects. They should also be useful in indicating the area of overlap. That area of overlap, consisting of the sounds and grammatical patterns common to Standard English and the nonstandard dialects, should provide the best set of materials for the reading and pre-reading programs.

Elementary Education

Even though this paper is about preschool education, the last words go to the elementary school program. Getzels (1965) points out that there is no firm evidence that preschool education alone can make a significant difference in the long run. He quotes the report of the Racine, Wisconsin preschool project:

> Potentially, the most useful conclusions which can be drawn from these data is that "one-shot" compensatory programs would seem to be a waste of time and money...If these implications are supported by future research it would seem that curricular revision over the entire twelve year school curriculum is a necessary part of any lasting solution to the basic problem of urban public school education (p. 111).

Edmund Gordon talks to the same point:

> I think it is significant that so much of the current work in the education of the disadvantaged has been directed either at preschool children or at youngsters who have dropped out of high school.... If school people were not such a decent lot, one would think that these two emphases have been so widely accepted simply because they require the least change

> in the school itself...Given the present level of knowledge and work, five or ten years from now many of our disadvantaged youngsters may still be at the bottom of the academic heap. Such a result would give renewed popularity to the now more dormant concepts of inherent inadequacy. This retreat to a theory of innate deficiency would be defended on the grounds that during the sixties this nation poured resources into helping these children and achieved relatively little despite all efforts (1965, pp. 647, 650).

We have to help guarantee that Gordon's gloomy prediction does not come true by our concern for elementary school education as well.

Addendum

Flavell and his associates (forthcoming) have completed a study of spontaneous verbal rehearsal in a memory task. The experimenter pointed to a series of pictures of readily-namable objects on a display board, and the subject - either immediately or after a 15 second delay - had to point to the same objects in the same order. A trained observer lip-read and recorded whatever semi-overt verbal behavior the subject engaged in. The percentage of subjects showing such verbalization increased from very few in kindergarten to about half in second grade to nearly all in fifth grade. There was evidence among the second graders of a relation between presence of verbalization and correct recall. Flavell has now started on a three-year study with three objectives: to see whether spontaneous verbalization is a stable individual characteristic across various memory tasks; to determine the linguistic, cognitive and personality correlates of such verbalization; and to attempt acceleration of its development by several kinds of systematic training.

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