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Early Language Development

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Introduction

Freud said that language brings into being a higher psychical organization. This chapter discusses some aspects of language acquisition, a process that is part and parcel of the young child's organismic growth.

The linguistic development of the child, according to Lewis, is determined by the interaction of many factors: those that spring from within himself, those that derive from the interplay between him and his mother, and those that impinge upon him from the particular culture to which he belongs.

Consequently there are several ways of looking at language acquisition, each concerned with different aspects of verbal development.

The potential for language is laid down in the central nervous system. Thus one focus of interest is upon the biological and neuro- physiological factors that make possible the development of language and its specific human characteristics: the ability to symbolize.

Another focus of interest is concerned with the affective aspect of

communication, which develops in the matrix of the mother-child relationship. The role of language in the formation of the ego is related to this inquiry. It is by no means clear, according to Edelheit, to what extent ego organization is reflected in the language system and to what extent the internalized language system constitutes the regulatory function of the ego.

An equally legitimate concern is the sociocultural determinants of language. As a result of the growing awareness of deprived children's linguistic and learning difficulties, which are closely related, this aspect is, at present, very much in the foreground.

A relatively new type of investigation is being undertaken by those linguists who investigate the developmental facets of the phonemic, semantic, and syntactical elements of the child's language.

It is far beyond the scope of this presentation to sketch more than the outlines of the different stages in language learning.

Stages of Language Development

Earliest Responses to Auditory Stimuli and Vocalizations

There is some evidence of fetal response to sounds.'' According to Eisenberg, the cochlea seems to be functional at about the twentieth week of

intrauterine life, and the basic mechanism for coding intensity and frequency is probably operant by the thirtieth week of gestation. The neuronal mechanisms for processing sounds are fully mature at birth. Toriyama, *et al.,* reported EEG responses to 60 db tones bursts three hours after delivery. Recent data sharply contradict previous views of the newborn as presenting an auditory *tabula rasa.* Eisenberg's laboratory studies involving several hundred infants demonstrate that neonates not only respond to auditory stimuli but also respond selectively. Pure tones are far less effective in eliciting responses than are complex ones.

The function of the birth cry is physiological, serving to establish normal respiration and oxygenation of the blood. Palmer maintains that the cries of infants damaged prenatally or at birth differ in pitch, rhythm, and volume from those of normal babies. Karelitz and Fischelli have found that certain crying contours may be predictive of mental retardation.

From his earliest days the baby vocalizes, utilizing the expiratory phase of the respiratory cycle. The air flow is modified by the vocal cords and the various parts of the peripheral speech mechanism, setting up sound waves that may be detected auditorily. The identical process holds for all vocal productions: the baby's cry, his cooing, and at a later time his speech. Liebermair' has shown that the wave forms of the baby's cry have the same characteristics as adult sentences. Long before the child uses words,

alterations in breathing produce variations in intonation that are, in turn, instrumental in carrying messages.

Hunger, pain, and discomfort will make the neonate cry. These discomfort cries approximate low front vowels and are usually nasalized. Shortly afterward the active and alert baby will produce different kinds of vocalizations after feeding and during states of wellbeing. Such sounds consist of low front vowels combined with high back ones and a few consonants such as guttural /r/ and palatal /g/. Very early, then, the child uses the physiological mechanisms of respiration and phonation for expressive purposes, and for the mother each characteristic vocal pattern has a distinct meaning.

Quite early the baby distinguishes between male and female voices and between friendly and angry voices. By measuring changes in heart rate McCaffrey and Moffit demonstrated in two different laboratory studies that 11 to 20 eight-week-old infants distinguish between phonemic contrasts of both synthetic speech and the human voice. On the basis of their experiments Elmas, *et al.,* concluded that perception in the linguistic mode may well be part of the biological makeup of the organism and must be operative at a surprisingly early age. That babies do a far greater amount of discriminative listening than has hitherto been shown is demonstrated by Friedlander's work. The infant's experience with hearing spoken language, he believes, is an

indispensable requisite for his eventual ability to speak it.

Long before children respond to the phonetic patterns of words, they respond to the prosodic features of language, to the variation in intonation and pitch that carry the emotional load of communication. The mother's vocalizations are at first experienced as part of the total constellation that includes her smiling face, the presence of caresses, and the satisfaction of bodily needs. Turnure has shown that a three-month-old baby can be "tuned in" to a tape recording of his mother's voice, even in her absence.

Cooing

Before they are three months old babies engage in playful cooing interchanges with the mother when she imitates the baby's own sounds. This is probably a universal phenomenon. Piaget observed such early forms of interaction from the first month on and called it "verbal contagion." These vocalizations show a preponderance of back rounded vowels and—at a somewhat later stage—glottal stops, in addition to clicks of several varieties. In the fourth month, with increasing chewing activities as the result of the introduction of solid foods and the baby's tendency to put all sorts of objects into his mouth, lip and tongue muscles become more active and the cooing interchanges become more varied and livelier.

Mother-Child Dialogue

The vocalizations that mothers use with their babies are tailored to the child's affective needs. They differ from those she uses in other situations in a number of features: in dynamic accent, in melody and rate, and in a marked tendency to rhythmic iterations. Snow says that children who are learning language have available a sample of speech that is simpler, more redundant, and less confusing than adult speech.

Di Carlo has made the pertinent observation that the mother caresses the child with her voice. Wyatt calls the dialogue between the mother and her baby a process of mutual feedback. The learning of the "mother language," she says, is achieved through unconscious identification. Infants are continually talked to in situations that are essential to their well-being. The vocal and affect communication between mother and child during bathing, feeding, and dressing must of necessity play an important part in the child's communicative attitudes, of which language is but one aspect. The mother's voice is undoubtedly heavily cathected for the baby. The extent to which this phenomenon bears on subsequent listening attitudes has not been explored, but it is quite possible, as maintained by Eveloff, that the first 18 months are crucial for symbolic language development and that serious flaws in the interaction between the baby and the mothering adult would have repercussions in terms of the child's linguistic and cognitive development.

We do know that normal maturational processes are delayed or

disturbed in children brought up in institutions. This is convincingly shown in Provence and Lipton's study of such infants, whose vocal and verbal development is often severely delayed. We have no systematic investigations comparing the early vocalizations of institutionalized infants with those of well-mothered babies, who have a repertoire of most of the vowels and half of the consonants by the end of the first year. Not all institutions are alike, of course. Tizard, *et al,* found that the language comprehension scores of young children correlated significantly with both the quality of the speech directed to them and the way the residential nurseries were organized. A careful comparison of the vocalizations of infants even in "good" institutions with those of babies who have received ample sensory and affect stimulation might, nevertheless, reveal much earlier deficits in institutionalized babies than those shown by Brodbeek and Irwin, who found that differences in verbal development between deprived youngsters and middle-class ones begin to show at 18 months. It is of interest that in a later study Irwin proved that with very systematic stimulation beginning at 14 months, the phoneme frequency of stimulated babies was significantly higher than that of their control group.

Babbling

Between the fifth and the tenth month of life, usually around the time he attempts to turn over, to sit up, to drink from a bottle, the baby begins to

babble.[1] There is no clear demarcation from expressive sounds to babbling. The various stages of language development overlap. From short cooing phrases the baby proceeds to the use of long strings of sounds that are no longer tied to specific situations. Now the baby lies in his crib, amuses himself with his fingers and toes, and plays with sounds that he produces spontaneously, obviously for the sheer pleasure of making them. These vocalizations are presymbolic. They are playful and probably autoerotic. There is no mistaking the intense gratification the baby derives from the mouthing of sounds and the enjoyment he gets from this repetitive playful experimentation and stimulation. It is thus not surprising that analysts are impressed by the role this particular oral activity plays in early psychosexual development.

During babbling the baby "discovers" how to mold the outgoing breath stream so as to produce a whole repertoire of sounds. At the same time an auditory feedback loop is being established. As sound-producing movements are being repeated over and over again, a strong link is being forged between tactual and kinesthetic impressions, on the one hand, and auditory sensations, on the other. A pattern of alternate hearing and uttering is set up. Sounds—and as time goes on they take on a more and more repetitive character—are no longer random but tend to resemble the phonetic and intonational configurations of the original utterance. One of the main functions of babbling, therefore, is an intensive kinesthetic-proprioceptive

auditory learning experience, resulting in primitive sound- movement schemata. The baby not only produces a whole range of different sounds but also derives pleasure from those he himself produces. The self-stimulation the baby engages in during this activity may play an important role in his increasing awareness of linguistic organization.

Every mother knows that she can stimulate long babbling conversations between herself and her child. It has been shown that nonsocial stimuli such as the sound of chimes do not increase vocalizations. Nor does the mere presence of the human being result in more copious babbling. It is the human voice that stimulates babbling, and babbling is reinforced by the presence of a significant adult. Mother and child engage in what Piaget calls "mutual imitation." The baby, stimulated by his mother's vocalizations, produces more of his own. Thus, even at this early stage, a corrective feedback mechanism is established that, according to Wyatt, is a *sine qua non* for smooth language development. Of course this is possible only if the child has learned to store—if only for a limited time—and to retrieve the auditory-motor configurations the mother models for him. It is she who monitors the baby's vocalizations by providing the phonemes used in her own linguistic culture.

Normal children vary in the amount of babbling they do; some babble early, some much later. However, intactness of the central nervous system is a prerequisite for the auditory-motor feedback loop that stimulates babbling

behavior. This loop does not become functional in babies who are deaf or hard of hearing. Deaf babies babble, but they discontinue doing so after a while because they lack the stimulation derived from hearing their own sounds as well as those of the environment. New investigations have demonstrated that with amplification at the babbling stage, that is to say, with the very early establishment of the auditory feedback loop, the language development of severely hard of hearing children approximates that of normal ones.

It has been assumed that babies from widely differing language backgrounds have an extensive repertoire of babbled sounds that include not only those of their mother language but also many others that drop out later Cruttenden, in an interesting analysis of the babbling of his twin girls-—admittedly an atypical sample—maintains that this claim is not borne out by the facts. He did not, for instance, find fricatives or affricatives[2] /th/, /s/, /z/, /sh/, or /ch/ among his children's babbled sounds. He concluded that the range of babbled consonants is not nearly as extended as is often implied. Nevertheless, he believes that the babbling stage is important not only as a period for experimentation but as one in which the child's repertoire shifts in the direction of the language to be learned. Weir found that the sounds of five- to seven-month-old Chinese babies differed from those of Russian and American ones. Early and selective imitation of input, therefore, must play a significant role in babbling. Quantity and quality of babbling varies from one

child to the next, but as babies advance in age, their babbled sounds become more differentiated and more clearly patterned.

Echolalia

Around the tenth month, as control over volume and pitch develops, duplications become more frequent, intonational contours more distinct, and the baby begins to imitate the more patterned utterances he hears in his environment. He starts repeating words heard, but not necessarily understood. It is the main accented word in a sentence, the word that is most heavily loaded with affect, that is selected for imitation, and it is the initial syllable of such a word that is usually chosen for duplication.

Echolalia is a normal phase in language development, and echolalic responses comprise a significant portion of children's speech up to 27 months. Toddlers often repeat words or combinations of words for purposes of clarification, to try them on for size as it were. Echolalia is pathognomonic for mental retardation, autism, or aphasia only if it is the only response available to the child, if it has an intensely compulsive quality, or if it occurs in older children.

Listening and Language Comprehension

That effective listening is indispensable for the development of speech

and language has been known for some time. Infants' systems for processing acoustic and linguistic input mature much faster than those for generating language. How do babies make some order out of the "buzzing confusion" that surrounds them? Friedlander says they face a monumental task learning to order auditory and linguistic signals into more or less stable categories. In a series of highly ingenious experiments, he has shown that, among other achievements, eight- to fifteen-month-old infants can discriminate between backward and forward speech and between flat and bright intonations.[3]

Long before they decode linguistic patterns, children learn to detect certain regularities from the intonational contours and phoneme boundaries of the speech that surrounds them. An enormous amount of learning, therefore, must be going on during the seemingly passive listening done by very small children. This fact has important implications for early intervention and enrichment programs.

Crude processing of input precedes language comprehension. We assume that by a process of selecting, filtering, and transforming acoustic input, small children arrive at the decoding of linguistic information. What are the requisites for comprehension? A fundamental requirement is that the child be able to make a modicum of sense out of the world that surrounds him, that he use some objects appropriately, and that he has a rudimentary sense of self, of being separate. Lewis- says that the child responds first to the

intonational configurations that form part of specific situations. Slowly the phonemic pattern becomes intertwined with situational and intonational features, until very gradually, as further differentiation takes place, the phonemic pattern becomes dominant, irrespective of the situation. Around the age of 12 months the child shows signs of understanding simple phrases and commands, particularly those that are heavily loaded affectively.

Expressive Language

Although new research has thrown light on some of the factors that determine the ability to process verbal information, we do not really know what happens when the child *produces* his first meaningful utterances. Indeed, there is little agreement on what constitutes the first word. Is it the word the child uses in contexts other than imitation, the utterance that stands for an object, a person, an event? McCarthy argues that there is a tremendous gap between the mere production of a word and the symbolic representational use of that word in an appropriate situation.

In recent years a lively controversy has arisen between the proponents of learning theory and nativistically oriented researchers regarding the emergence of the first meaningful words. Learning theorists argue that language is slowly shaped out of the multitude of babbling sounds by means of selective reinforcement on the part of the parents, who show their delight

when the child produces sound combinations that resemble actual words. As a result of such reinforcement, the child gradually begins to associate such sound combinations with specific situations, people, or objects. Linguists such as Jakobson and Halle, on the other hand, draw a sharp dividing line between babbling and representational speech. Brown, in an intermediate position, suggests a "babbling drift" in describing the transition from babbling to language.

We know that at the age of 12 months the child is able to imitate the intonational contours of his mother's speech. Many preverbal babies utter long strings of sounds that resemble those of adults in melody and pitch. Mothers respond to these vocalizations as if they were definite messages, statements, commands, or questions. A message is clearly associated with the modulated strings of sounds the baby produces even before he can utter a single word. Advanced babbling *is* a sort of language, and we cannot, therefore, talk of the emergence of symbolic speech as a sudden event, but must look upon this development as an ongoing process that goes through a series of interrelated and overlapping phases, each new phase representing not merely an addition but a new and more highly integrated configuration.

Linguistic Dimensions

Several dimensions of language are described by linguists: (1) the

phonological refers to elementary verbal forms and their combinations into words; (2) the semantic deals with word meanings; (3) the syntactical concerns the formal relations and underlying rules for processing and generating sentences. Developmental linguists attempt to construct a model to explain the child's unfolding ability to understand and produce an infinite number of sentences.[4]

Phonology describes the matrix of features that differentiates one speech sound from another by virtue of certain characteristics. It deals with contrasts between certain features, such as the one between voiced and voiceless sounds, for example, /p/ and /b/.

For the infant sounds are probably at first indistinguishable from one another. As children's perceptive faculties develop, they gradually learn to differentiate between coarser and finer shades of sounds. Research on the perceptual distinctions children are able to make between birth and the age of three years is relatively recent. Jakobson postulated that successive perceptual contrasts are acquired in a more or less consistent sequence. One of the first is probably the distinction between vowels and consonants.[5]

There are considerable variations between children when it comes to production of sounds. Some, for example, acquire fricatives far earlier than others. Not only the timing but also the quality of sound reproduction varies.

Many children have trouble not only with a single phonetic feature but with several of them. A child who substitutes “dar” for “car” misses not only the place of articulation— alveolar rather than velar—but also the voiced-nonvoiced contrast. Menyuk found that Japanese children acquire mastery of the phonological system roughly at the same time and in the same order as do American youngsters. This suggests that the hierarchy of sound acquisition depends on the developing productive capacity of the child.

Not all of the 40-odd sounds of English are mastered simultaneously. The child’s earliest utterances contain only two or three phonemes. At 18 months he may cope with from eight to twelve of them, including diphthongs. From then on his production of the sounds of his language increases by leaps and bounds as a result of further differentiation. Sudden spurts are followed by phases of consolidation. American children manage 80 per cent of all sounds by age five.

As a rule children use only those sound sequences that are part of their native language. An English child will not, for instance, produce the cluster “pf,” which is a common one in German (as in the word “pferd”), but he will use the cluster “pl” which is acceptable in English. Children do not usually need formal training to learn these rules. While it is obvious that the mastery of the phonological system of the language requires a degree of central nervous system maturation, the child primarily needs a model. It is the

mother who usually serves as the primary language model and who literally feeds back to the child those sound sequences that are acceptable in his language environment. During certain critical stages of language learning, the model is of decisive importance in the mastery of the phonological system of the language.

The affective and communicative exchange between mother and child also plays an important part in the acquisition of vocabulary and in the growth of meaning, that is, in the *semantic* dimension of language.

Most children begin to use symbolic utterances between 12 and 20 months. They usually select those words that provide essential information or those that are strongly affectively colored. Words at this age reflect the magical universe of the small child. There is a close link between the name and the qualities of an object. Single words at this age may also stand for groups of experiences and configurations that are lumped together (holophrases). Many children cling to one-word sentences for a long period, using intonation to express a variety of meanings. The upward shift in pitch might indicate a question, for example, car?

Brown says that parents intuitively provide the names that reflect the structure of the child's world. The parents may say, "spoon" and not "silverware," using the more concrete referent in preference to the more

abstract one. But they will say “fish” rather than “trout,” using the general rather than the more specific referent. Children enlarge their vocabulary through a process of extension and restriction. Its growth is characterized by continuing modification of meaning, involving both the acquisition of new words and the expansion and refinement of word meanings previously learned. Increasing differentiation is reflected in more precise usage. “Doggie” is at first only the child’s small, fluffy toy dog; a little later the word describes the real dog the child sees at a neighbor’s, and finally it stands for all members of the species “dog.” The meaning of the word has been expanded. The opposite process takes place when the child says, for instance, “He write a picture.” When he learns that the word “write” refers only to those graphic activities that involve letters and numbers, he has restricted and refined the meaning of the word.

Some concepts and the words that represent them are learned earlier than others. Only 10 per cent of 240 two year olds in Palmer’s group’ understood the word “around.” Concepts such as “backward” are difficult for three year olds.”

The development of meaning, which belongs to the semantic aspect of language, cannot be explained by associative bonds. Meanings are not constant. They change throughout the individual’s entire life. At age three the child uses 700 to 800 words, and between three and five years he adds at

least 50 new words to his vocabulary each month. The growth of meaning depends on the verbal richness of the child's cultural background and probably on his linguistic endowment (although linguists do not agree, clinicians who work with language-delayed children know that this endowment may differ within social milieus and even within given families). This growth depends primarily on the mother's interest in and knowledge of words, on her ability to clarify shades of meaning, on the easy give and take between her and her child, and on the constant feedback provided by the significant people in his environment. Stodolsky's study indicated that the best single predictor of Negro children's recognition vocabulary was the mother's vocabulary score on the Wechsler Intelligence Scale for Adults. The maternal teaching variable was the extent to which the mother defined tasks and named specific qualities of the environment. Thus the child's cultural and affective milieu play a vital part in fostering delight in the use of words and interest in shades of meanings. Children do need models, above all, for the acquisition of the lexical aspects of communication.

On the other hand, modern linguistic theory postulates that in the development of *syntax*, the set of rules that governs the organization of the more or less limitless number of possible utterances, imitation is not of primary significance. Children do need exposure in order to be able to deduce the underlying rules of language, and linguists admit that the very young child begins with repetition of bits of speech heard. Because of limitations in their

auditory memory and because they cannot as yet program longer units, they repeat only two to four items. These repetitions are usually systematic reductions of the input perceived and are apparently processed as units rather than as lists of single words. (Children repeat those parts of speech that carry the significant information.)

Learning to generate complete sentences (as opposed to repeating) is a slow process and proceeds from primitive to more and more differentiated syntactical and morphological structures. Before or around their second birthday, children produce their first spontaneous, nonimitative two-word combinations. Brown points out that the two single utterances "push" and "car" are not simply joined. The unit is programmed as a whole, and "push" is subordinated to "car" by means of lesser stress and lower pitch. The transition from the generating of single words to two- word units that are hierarchically organized is a tremendous step forward. Words can no longer be changed around like beads. The position of words in the string becomes relevant; the principle of word order, a powerful linguistic signal in English, is established.

Children's spontaneous two-word combinations, like their repetitions, consist of the most highly stressed and informative words— nouns, verbs, adjectives—content or "open class" words. This telegraphic speech is characterized by the omission of functor words, prepositions, auxiliaries,

inflections, articles. These constructions are slowly expanded by the use of modifiers such as “push pretty car” and are the building blocks of subsequent sentences.

Brown and Bellugi describe the next level, the noun phrase, as an essential milestone in the acquisition of syntax. In standard English a noun phrase consists of a noun and assorted modifiers: “my girl,” “more coffee,” and the like. Two or more such modifiers can be combined with nouns, and since children construct interim grammars on their way to linguistic mastery, they slowly learn the privileges and constraints belonging to each modifier. The noun phrase can be moved to different positions in the string and can even be replaced by a pronoun. According to Chomsky’s theory, phrases are cohesive grammatical units. They reflect the child’s discovery of basic phrase structure and lead to the formation of “kernel sentences,” which are composed of at least two units: one functioning as subject, the other as predicate.

From such kernel sentences new forms evolve by additions, deletions, and rearrangements. Serialization is effected through the use of the word “and”; questions are formulated by prefacing sentences with “wh” words. Thus, beginning with the simplest two-word combinations, followed by noun phrases, one can trace the gradual emergence of elaborated structures. Complexity and length of units increase simultaneously. By 36 months most

children's linguistic development is so advanced that they are able to produce all of the varieties of simple English sentences consisting of up to ten or eleven words.[6] It is important to realize, however, that what children learn are not specific combinations of words but the rules that govern these combinations. Chomsky says that children internalize underlying grammatical rules on the basis of their exposure to limited numbers of correctly formed sentences. That language learning involves much more than the storing of longer and longer bits of utterances heard has been demonstrated by Berko. In a series of ingenious experiments she used nonsense words to test children's ability to apply morphological rules: that is to say, tenses, plurals, posses- sives, and so forth. The examiner points to a doll, for instance, and says: "this is a child who knows how to 'wug,' today he is . . If the child supplies "wugging" although he has never heard the present participle of "wug," he has spontaneously applied the underlying grammatical rule that asks for the ending "ing" in this particular construction. A child may have memorized the plural form "witches," Lenneberg says. But if he produces the plural "gutches," he shows that he has incorporated the rule that the plural of words ending with /ch/ is formed by adding /ez/. The very existence of "overgeneralizations" such as "mouses" (as in "houses") proves that the child has derived a set of abstract rules from the linguistic data to which he was exposed. These rules are basic to the decoding and encoding of language.

Mastery of syntax is a gradual process. A three year old understands the contrast between subject and object in the active but not in the passive voice; this distinction belongs to a chronologically older age.

Controversies

McNeill and other nativists claim that children are born with a set of "linguistic universals" as part of their innate endowment and that they are neurologically so preprogrammed with a language acquisition device that they need only a minimum of stimulation for its realization. Language learning, they say, is reminiscent of embryonic development in the sense that it constitutes the unfolding of an inherent potential. A less radical position would be to postulate that children are born with certain propensities, "anlagen," that enable them to organize linguistic inputs into cohesive categories and structures. Goldstein referred to the organism's drive to "actualize" inborn capacities. As far back as 1907 the Sterns stressed that the child who learns to speak is neither a phonograph reproducing sounds nor a sovereign creator of concepts. His speech is the result of "convergence" of the continuous interaction of external impressions and internal systems.

Finally there is the behaviorist position, asserting that language learning depends on differential reinforcement on the part of adults who care for the child.[7]

The universality and the consistency of normal language development would seem to speak for the nativistic position. Penfield and Roberts speak of a "biological timetable" for language development. However, while this holds for the majority of youngsters, there are, nevertheless, large variations in timing. It is the *sequencing* that is relatively stable. Most children pass through babbling, echolalic speech, two-word sentences, etc., on the road to fully developed verbal communication.

Stimulation

Lenneberg's position that normal language learning proceeds without actual training is correct only to a point. An enormous amount of informal teaching, or corrective feedback, goes on in most families. Mothers respond to their children's telegraphic speech by "expansion"; that is, they modify their children's utterances by adding functor words, auxiliaries, prepositions, etc., and in so doing, present them with a model of the nearest correctly formed sentence.[8]

This is not a form of correction. Cazden rightly points out that correction extinguishes communication. Expansion, according to Cazden, is most effective at "critical" stages of linguistic development when a growth in structure is taking place—an important fact to remember in terms of early intervention. What expansion does is clarify and enrich verbalization at the

very moment the child is engrossed in a situation that holds his attention. Young children focus attention best when they are affectively engaged. If a youngster cries out, “Teddy table hurt,” and the mother takes him on her lap and says, “Poor Teddy, yes, you bumped into the corner of the table, it hurts,” she is involved with him in a highly meaningful experience. Mothers filter their own output: they seem to know which stage in language development the child is passing through at a given moment. With young children they use the kind of constructions the children themselves will use a number of months later. In terms of content mothers deal very much with the “here” and “now.” The timing and the tuning in to the child’s concerns are all-important. There are mothers who fail to cue in. They do not expand their children’s telegraphic utterances, and they thus miss an opportunity to enrich communication. Or they swamp the child with long and complex verbalizations that, in his terms, are totally irrelevant. Wyatt presents some excellent examples of the kind of affective and linguistic interaction that fosters comprehension and use of language and in the last instance presents the child with a view of the world.

Sociocultural Factors

Hess and Shipman look at the mother as a teacher, a programmer of experience in the preschool years. They discuss different styles in information processing, which is mediated through language. Nobody who is familiar with

language stimulation programs involving young children and their mothers will deny that there are large differences within the same social group in the way mothers foster linguistic and conceptual development. Thus it is not social class alone that determines the child's exposure to adequate language models. Nevertheless, the experiments carried out by Hess and his group convinced them that the teaching style of many lower-class mothers is less explicit and therefore less effective than that of middle-class ones. Tulkin, *et al.,* found that working-class mothers often did not believe that their children were able to communicate and hence felt it was futile to attempt to interact with them verbally. The fact that these mothers' handling of their children, in general, tends to be more authoritarian and less based on verbal exchange than that of middle-class mothers would account for some of the intergroup differences.

It was Bernstein who originally postulated that the very speech of lower-class individuals is characterized by rigidity of syntax and limited options for sentence organization. Lower-class speech, Bernstein said, is less elaborated and more restricted than middle-class speech, and it offers less opportunity for categorizing environmental stimuli. As a result it is relatively ineffective for conceptualization.

Bernstein's work, which is both interesting and controversial, has been under heavy attack by sociolinguists. They maintain that black dialect is by no

means a more primitive language than standard English, but is rather a *different* language. Baratz, Stewart, Taylor, and others have demonstrated that lower-class black children show the same proportion of grammatical transformations as do middle-class children of comparable age.

Black youngsters incorporate the linguistic rules of *their* language environment. The use of the double negative, for instance, is an accepted feature in adult black speech and cannot, therefore, be considered to be defective in the black child. A recent paper by Quay shows that much of the research discussing language deficits in black children is based on language expression rather than on comprehension, which clearly puts youngsters who speak a dialect at a disadvantage. Comprehension is a much more sensitive indicator of a child's linguistic maturity than is production.

Moreover, it is not legitimate on methodological grounds to evaluate the language of one subculture by means of norms derived from a different subculture. And it is not justifiable to use developmental language scales standardized on middle-class children as criteria for youngsters who do not speak standard English.

Cazden, who has dealt extensively with the deficit-difference issue, feels that both concepts are inappropriate. For one thing they are probably too global. Middle-class children's vocabularies are richer and more

differentiated than those of lower-class black youngsters, but the grammatical competence of lower-class black children is probably comparable to that of their middle-class peers.

What counts in the last analysis is children's communicative effectiveness. Thus Cazden stresses the speaking situation and the children's ability to perceive and categorize a social situation and to adjust their speech to its requirements.

The literature is replete with statements referring to the superiority of girls' early language development. McCarthy' says: "Whenever groups of boys and girls are well matched in intelligence and socio-economic background . . . there appear slight differences in favor of girls." Not only length of sentences, but almost all other measures that show developmental trends with age—articulation, word usage, complexity of output, and grammatical competence—demonstrate slightly more rapid maturation in girls. Kagan's report that, in contrast to boys, vocalizations of girls between four and fourteen months showed greater stability, independent of social class, is of interest in this context. Scores on an early vocalization index proved to be a far better predictor of subsequent cognitive development in girls than was the case with boys. One might speculate that the earlier neurophysiological maturation of girls as compared to boys is an important factor in the linguistic superiority of girls, at least during the earlier years.

Birth Order

Another striking fact is the marked linguistic superiority of only children. McCarthy points out that this superiority is out of proportion to that which could be expected from their sex, mentality, and socioeconomic background, and she relates it to only children's far greater opportunity for linguistic and affect interaction with adults. Firstborns do better than younger children probably for the same reason. Twins and triplets, who have to share their mother's lap, are worse off then single babies. The study of the language development of identical twins is complicated by the fact that it involves not only neurophysiological factors (many twins are prematurely born) but also problems of identity. The tendency of twins to create a universe separate from the world that surrounds them may be another variable.

Language and the Organization of the Child's World

It is impossible to overrate the importance of language in children's development. In the young child speech is a means of expressing feelings and demands, a thing to play with, a device that substitutes for action, or an attempt to control the behavior of others. Kaplan describes young children's speech as governed by affective needs, including play, and as such infused with highly personal meanings.[9]

The world in which we live is conceptually organized, and language

makes this organization possible. Language is our main tool in the construction of a comprehensible universe. The preverbal child probably has some schemata, some ways of ordering the world, but these schemata can be assumed to be amorphous. The ability to use verbal symbols permits the child to impose order on his experience and to arrive at some clarification of his outer and inner cosmos.

Language, Edelheit states, is an obligatory component of human biological organization and plays a crucial role in the formation of the ego, which is the special human organ for adaptation. Ego development depends largely on an optimal level of verbal expression, and conversely ego defects of whatever origin are reflected in disturbances of language. As far back as 1936, Anna Freud wrote: "The association of affects and drive processes with verbal signs is the first and most important step in the direction of mastery of instinctual drives. . . . The attempt to take hold of the drive processes by linking them with verbal signs which can be dealt with in consciousness is one of the most general, earliest and most necessary accomplishments of the ego, not as one of its activities."

The secondary process requires word representation. Ability to verbalize helps to delay action; it constitutes the "trial action" Freud speaks of. Words are needed for purposes of impulse control. Postponing gratification is infinitely more difficult without the use of verbalization.

With the acquisition of language the distinction between self and nonself becomes clearer. The child probably has an emerging sense of self even before he begins to use words. But the distinction between self and nonself becomes much more differentiated when categories such as “I” and “mine” emerge. The two later stages of the separation-individuation phase™ run parallel with the most rapid spurt in language development. One would assume that there is a reciprocal relationship between these events, one fostering the other. According to Despert, “Since the appearance of the first person pronoun in language development follows that stage of individuation which corresponds to the child’s consciousness as one, whole and apart from others, the importance of this sign cannot be overestimated.”

Things acquire stability and permanence by being named. Names help to anchor the significant people in the child’s environment; they reassure him that the mother will return even if she is gone for a while; and they thus contribute to what is called object constancy.

Language permits the child to externalize magical and omnipotent fantasies and thus renders them less dangerous. It makes possible the distinction between fantasies, on the one hand, and reality, on the other. The shift from a magical, prelogical world to a reality- oriented world is mainly accomplished by language. The labeling of inner states helps the distinction between the outer and inner cosmos, thereby assisting reality testing, one of

the most essential functions of the ego.

The formation of conscience is immensely facilitated when the child learns to internalize rules and laws. Such internalization remains precarious without the use of verbal concepts.

Learning to express verbally feelings of fear, pain, and sadness protects the child from being overwhelmed.

It is well known and fully accepted that language is an indispensable tool for cognition. There is thus no need for extensive elaboration of this point in the present chapter although it might be helpful to stress a few points. Luria showed that language stabilizes perception and mediates also during nonverbal tasks. Kimbal and Dale have shown that forming categories of color names facilitates recognition. By freeing the child from the here and now, by making possible operations such as classifying, serializing, and formulating, words allow the child to discover the common properties of perceptions and events and permit him to group single entities into larger wholes. Language helps in the shift from associative to cognitive levels of learning and paves the way for high order operations.

To quote a poem by O. Mandelstam cited by Vygotsky: “I have forgotten the word I intended to say and my thought unembodied returns to the realm of shadows.”

Bibliography

Baratz, J. C., "Language and Cognitive Assessment of Negro Children: Assumptions and Research Needs," *ASHA,* 11:87, 1969-

Bench, J., "Sound Transmission to the Human Foetus through the Maternal Abdominal Wall," *J. Gen. Psychol.,* 113:85, 1968.

Berko, J., "The Child's Learning of English Morphology," *Word,* 14:150, 1958.

Bernstein, B., "Social Class and Linguistic Development: A Theory of Social Learning," in Halsey, A. J., Floud, H., and Anderson, C. A. (Eds.), *Education, Economy and Society,* Free Press, New York, 1961.

Berry, M., *Language Disorders of Children,* Appleton-Century-Crofts, New York, 1969.

Bloom, L., *Form and Function in Emerging Grammars,* M.I.T. Press, Cambridge, 1970.

_____, *Readings in Language Development,* Simon & Schuster, New York, 1970.

Blumenthal, A. L., *Language and Psychology,* John Wiley, New York. Reference to Carla and William Stern, 1907.

Braine, M. D. S., "The Ontogeny of English Phrase Structure: The First Phase," *Language,* 39:1, 1963.

Brodbeck, A. J., and Irwin, O. C., "The Speech Behavior of Infants without Families," *Child Dev.,* 17.145, 1946.

Brown, R., "The Acquisition of Language," in Riach, D., and Weinstein, E. A. (Eds.), *Disorders of Communication, Res. Puhl. Ass. Nerv. Ment. Dis.,* 42:56, 1964.

_____, and Bellugi, U., "Three Processes in the Child's Acquisition of Syntax," *Harvard Educ. Rev.,* 34:133, 1964.

Carroll, J. B., "Language Development in Children," in Saporta, S. (Ed.), *Psycholinguistics: A Book of*

Readings, Holt, New York, 1961.

Cazden, C., *Child Language and Education,* Holt, Rinehart & Winston, New York, 1972.

Cazden, C. B., "Three Sociolinguistie Views of the Language and Speech of Lower- Class Children —With Special Attention to the Work of Basil Bernstein," *Dev. Med. Child Neurol., 10:600,* 1968.

Chomsky, N., *Aspects of the Theory of Syntax,* M.I.T. Press, Cambridge, 1965.

_____, "Review of 'Verbal Behavior' by B. F. Skinner," *Language,* 35:26, 1959.

Cruttenden, A., "A Phonetic Study of Babbling," *Brit. J. Disord. Comm.,* 5.110, 1970.

Despert, L., Discussion of "Irrelevant and Metaphorical Language in Early Infantile Autism," *Am. J. Psychiat., 103:242,* 1946.

Di Carlo, S., Personal Communication.

Dwornicka, B., Jasienska, J., Smolary, W., and Wawryk, R., "Attempt of Determining the Foetal Reaction to Acoustic Stimulation," *Acta Otolaryng.,* 57:571, 1964.

Edelheit, H., "Language and Ego Development," *J. Am. Psychoanal. A.,* 16:13, 1968.

Eisenberg, R. B., "The Development of Hearing in Man," *ASHA,* 12:119, 1970.

Elmas, P. D., Siqueland, E. R., Jusczyk, P., and Vigorito, J., "Speech Perception in Infants," *Science,* 303-306.

Ervin-Tripp, S., and Slobin, D. I., "Psycholinguistics," *Ann. Rev. Psychol,* 17: 435, 1966.

Eveloff, H., "Some Cognitive and Affective Aspects of Early Language Development," *Child Dev.,* 43.1895-1905, 1971.

Fay, W. H., and Butler, B. V., "Echolalia, IQ, and the Developmental Dichotomy of Speech and Language Systems," *J. Speech & Hearing Res.,* 11:365, 1968.

Freud, A., *The Ego and the Mechanisms of Defense,* International Universities Press, New York, 1936.

Freud, S. (1911), "Formulations on the Two Principles of Mental Functioning," in Strachey, J. (Ed.), *Standard Edition,* Vol. 12, Hogarth, London, 1958.

Friedlander, B. Z., "Receptive Language Development in Infancy: Issues and Problems," *Merrill-Palmer Quart.,* 16:7, 1970.

_____, "Time Sampling Analysis of Infants' Natural Learning Environment in the Home," *Child Dev.,* 43:730-740, 1972.

Friedman, D. G., *Personality Development in Infancy,* Holt, Rinehart & Winston, New York, 1968, pp. 258-287 reference to Kurt Goldstein.

Fry, D. B., "The Development of the Phonological System in the Normal and Deaf Child," in Smith, F., and Miller, G. A. (Eds.), *The Genesis of Language,* M.I.T. Press, Cambridge, 1966.

Gibson, E. J., *Principles of Perceptual Learning and Development,* Appleton-Century- Crofts, New York, 1969.

Grossman, W., and Bennet, S., "Anthropomorphism," in *The Psychoanalytic Study of the Child,* Vol. 24, p. 78, International Universities Press, New York, 1969.

Hess, R., and Shipman, V. C., "Influences upon Early Learning," in Hess, R., and Bear, R. H. (Eds.), *Early Education: Current Theory, Research and Action,* Aldine, Chicago, 1968.

Irwin, O. C., "Development of Speech during Infancy," *J. Exp. Psychol.,* 36:43, 1946.

Jakobson, R., *Selected Writings I,* Mouton and Co., The Netherlands, 1962.

_____, and Halle, M., *Fundamentals of Language,* Mouton and Co., The Netherlands, 1956.

Johansson, B., Wedenberg, E., and Westin, B., "Measurement of Tone Response by the Human Foetus," *Acta Otolaryng.,* 57: 188, 1964.

Kagan, J., "Continuity in Cognitive Development during the First Year," *Merrill- Palmer Quart.,* 15.101, 1969.

Kaplan, B., "The Study of Language in Psychiatry," in Arieti, S. (Ed.), *American Handbook of Psychiatry,* Vol. 3, Basic Books, New York, 1959.

Karelitz, S., and Fischelli, V. R., "Infants' Vocalizations and Their Significance," *Clin. Proc. Children's Hospital, Washington, D.C.,* 25.11, 1969.

Katan, A., "Some Thoughts about the Role of Vocalization in Early Childhood," in *The Psychoanalytic Study of the Child,* Vol. 16, p. 184, International Universities Press, New York, 1961.

Kimbal, M., and Dale, P., "The Relationship between Color Naming and Color Recognition Ability of Preschoolers," *Child Dev.,* 43:1895-1905, 1971.

Lenneberg, E., *The Biological Foundations of Language,* John Wiley, New York, 1967.

_____, "Speech as a Motor Skill with Special Reference to Nonaphasic Disorders," in Bellugi, U., and Brown, R. (Eds.), "The Acquisition of Language," *SRCD Monographs,* 29:115, 1964.

Leopold, W. F., "Patterning in Children's Language Learning," *Language Learning,* 5 *4:1,* 1953.

Lewis, M. M., *Infant Speech,* Humanities Press, New York, 1951.

_____, *Language, Thought and Personality in Infancy and Childhood,* Harrap, London, 1963.

Lieberman, P., *Intonation, Perception and Language,* M.I.T. Press, Cambridge, 1967.

Luria, A. R., *The Role of Speech in the Regulation of Normal and Abnormal Behavior,* Pergamon Press, New York, 1961.

McCaffrey, A., "Speech Perception in Infancy," Personal Communication.

McCarthy, D., "Language Development in Children," in Carmichael, L. (Ed.), *Manual of Child Psychology,* 2nd ed., John Wiley, New York, 1954.

McNeill, D., "Developmental Psycholinguistics," in Smith, F., and Miller, G. A. (Eds.), *The Genesis of Language,* M.I.T. Press, Cambridge, 1966.

Mahler, M. S., "Thoughts about Development and Individuation," in *The Psychoanalytic Study of the Child,* Vol. 18, International Universities Press, New York, 1963.

Menyuk, P., "The Role of Distinctive Features in Children's Acquisition of Phonology," *J. Speech & Hearing Res.,* 11.138, 1968.

Moffitt, A. R., "Consonant Cue Perception by Twenty- to Twenty-Four-Week-Old Infants," *Child Dev.,* 42:717, 1971.

Nakzima, S., Okamoto, N., Murai, J., Tanaka, M., Okuno, S., Maeda, T., and Shimizu, M., "The Phoneme Systematization and the Verbalization Process of Voices in Childhood," *Shinrigan-Hyoron, 6:*1, 1962.

Osgood, C. E., "Motivational Dynamics of Language Behavior," in Jones, M. R. (Ed.), *Nebraska Symposium on Motivation:* 1957, University of Nebraska Press, Lincoln, 1957.

Palmer, F. H., "Socioeconomic Status and Intellective Performance among Negro Preschool Boys," *Develop. Psychol.,* 3:1, 1970.

Palmer, M. F., "The Speech Development of Normal Children," *J. Speech Disord.,* 5:185, 1940.

Peller, L. E., "Freud's Contribution to Language Development," in *The Psychoanalytic Study of the Child,* Vol. 21, p. 448, International Universities Press, New York, 1966.

Penfield, W., and Roberts, L., *Speech and Brain Mechanisms,* Princeton University Press, Princeton, 1959.

Piaget, J., *The Origins of Intelligence in Children,* International Universities Press, New York, 1952.

Provence, S., and Lipton, R., *Infants in Institutions,* International Universities Press, New York, 1962.

Quay, L. C., "Language Dialect, Reinforcement and the Intelligence-Test Performance of Negro

Children," *Child Dev., 42:* 1971.

Skinner, B. F., *Verbal Behavior,* Appleton-Century-Crofts, New York, 1957.

Snow, C., "Mothers' Speech to Children Learning Language," *Child Dev.,* 43:549- 565, 1972.

Stewart, W., "Continuity and Change in American Negro Dialects," *Florida FL Reporter,* 7.1, 1968.

Stodolsky, S. S., "Maternal Behavior and Language and Concept Formation in Negro Pre-school Children: An Inquiry into Process," Ph.D. diss., University of Chicago, 1965.

Taylor, O., "Recent Developments in Sociolinguistics: Some Implications for ASHA," *ASHA,* 13:341, 1971.

Templin, M., "The Study of Articulation and Language Development during the Early School Years," in Smith, F., and Miller, G. (Eds.), *The Genesis of Language,* M.I.T. Press, Cambridge, 1966.

Toriyama, M., Matsuzaki, T., and Hayashi, "Some Observations on Auditory Average Response in Man," *Int. Audiol.,* 5:234, 1966.

Torkewitz, G., Birch, H., and Cooper, K., "Responsiveness to Simple and Complex Auditory Stimuli in the Human Newborn," *Developmental Psychobiology,* Vol. 5, pp. 7-19, John Wiley, New York, 1972.

Turnure, O., "Response to Voice of Mother and Stranger by Babies in the First Year," paper presented at Society for Research in Child Development Meeting, Santa Monica, Calif., 1969.

Vygotsky, L. S., *Thought and Language,* M.I.T. Press, Cambridge, 1962.

Weir, R. H., "Some Questions on the Child's Learning of Phonology,'" in Smith, F., and Miller, G. A. (Eds.), *The Genesis of Language,* M.I.T. Press, Cambridge, 1966.

Weisberg, P., "Social and Nonsocial Conditioning of Infant Vocalization," *Child Dev.,* 34*:*377, 1931.

Wyatt, G. L., *Language Learning and Communication Disorders in Children,* Free Press, New York, 1969.

Notes

[1] Cruttenden objects to the definition of babbling as the stage in which children utter sounds just for the pleasure of making them. He prefers a more objective definition and suggests that babbling be defined as the stage when the baby first produces "pulmonic-lingual" consonants, for example, dental and velar plosives, alveolar and palatal nasals, in addition to a growing variety of vowel-like sounds. The production of these sounds would imply "a new awareness" on the part of the child of how to combine tongue movements with breathing. This stage, he says, more or less ends with the emergence of the first words.

[2] In contrast, Leopold asserts that in the case he studied, affricatives occurred very early during cooing and babbling but quite late—in the last third of the second year—in imitation of real words.

[3] Friedlander's tape recordings of the children's "natural home language environment" and specifically of the language interaction between parents and children could provide important clues in terms of verbal competence at later ages.

[4] *Readings in Language Development*, edited by Lois Bloom, is an excellent introduction to developmental linguistics.

The author is aware of the limitations of the section that follows; it only attempts to summarize the groundbreaking work done in this area. Not only does the scope of the chapter exclude a more penetrating summary, but also the original manuscript was submitted nearly two years ago and thus does not refer to much of the recent work. (The new book by Cazden, *Child Language and Education,* is an example.) The author realizes that her presentation is not only incomplete but also probably biased in favor of the transformational school of linguistics.

[5] Not discussed in this chapter is the "motor theory" of perception proposed by the Haskins group.

[6] Bloom feels that what is called "transformational grammar" describes only the most formal aspects of children's language development. Her own sophisticated formulations show that a

child's identification and reproduction of a particular syntactical structure is intimately related to his interaction with the world of objects, events, and relationships.

[7] That the Skinnerian model of language acquisition is inappropriate has been shown in a brilliant review by Chomsky, who more or less demolished the theories expounded in *Verbal Behavior*. Nor can Braine's contingency and transfer of training theory account for even fairly elementary phrase structure. Although it is true that certain aspects of language learning in children are more dependent on contact with the adult than others (parent-child interaction has more impact on semantic and phonological than on syntactical development), it is far too simplistic to think of such learning in terms of even highly sophisticated stimulus-response theory. Children might learn words and even phrases by way of differential reinforcement on the part of the adult who "shapes" desirable verbal responses; they will not, however, acquire language—that is to say, the attitudes underlying communication, the investment in verbal exchange, and the joy of expressing subtle meaning by way of words.

[8] Brown makes the interesting differentiation between the adult's imitation of the child's speech by means of expansion and the child's imitation of adult speech by means of reduction.

[9] No attempt was made to discuss the development of inner speech, which appears more or less around the time when "egocentric" speech disappears. For a classic discussion of both, see Vygotsky, *Thought and Language.*