IMPLICATIONS OF RECENT LANGUAGE DEVELOPMENT RESEARCH FOR EARLY LANGUAGE INTERVENTION

Linda McCormick

Introduction

Most articles and chapters concerned with recent language development research begin with a disclaimer because content is controlled by available space. This paper is no exception. The subject matter from which this article is drawn is complex and incomplete. To do defensible justice to the mass of data generated by such notable investigators as Bloom (1970, 1973), Bowerman (1973), Brown (1973), Bruner (1973), Clark (1973), Macnamara (1972), Nelson (1973), Schlesinger (1971), and Slobin (1971) would require many volumes. Bloom has capsulized the activities of the late sixties and the seventies with these words: "This was the decade of the search for the underlying system . . . the decade of the search for the universals of language development . . . the decade in which new demands were placed on the accountability of evidence. New questions have been asked; new techniques have been developed; and new evidence has been brought to light" (1975, pp. 295-296).

The central issue of the seventies has been whether children are born with no knowledge of language and learn it through experience or whether they "come equipped" with innate knowledge of language structure and rules. The preoccupation of the early sixties with form and structure (the acoustic, phonetic and grammatical shape of utterances) has given way to intense investigations of, and a plethora of inferences about the meanings children intend with their earliest utterances and the purposes of their earliest communications (both nonverbal and verbal).

Professionals concerned with applying the products of the developmental investigations to training of children who, for one reason or another, are not learning to communicate at a satisfactory rate are, for the first time, getting some answers to such questions as:

- What does a child talk about when he is first learning to express himself verbally?
- How does a child learn the forms and structures he produces when he first begins talking?
- How and when does a child learn to *use* language; to make language meet his communicative needs?

While the issue of how conceptual, structural-linguistic, and communicative aspects of development originate and interact to determine the language children acquire is still incomplete, we are slowly beginning to fit some of the pieces together. We know that sensorimotor or conceptual aspects (which derive from manipulating and perceiving), linguistic aspects (which involve syntactic-semantic representation), and pragmatic aspects (which consider contextual constraints and social interactions) all interact in some way at various times. There is no consensus, however, as to precisely how and when they interact—exactly how the normal learner accomplishes the gargantuan task of learning language in significantly less than thirty-six short months. Maximizing our language intervention efforts will ultimately depend on continuing expansion of this empirical information base.

Focus on Communication

Among the important conceptual shifts in the seventies has been a focus on communication: a general tendency to minimize the vocal requirements of language in favor of its functional and interpersonal characteristics. Many aspects of the ontogenetic process of communication are becoming clear (Halliday, 1975; Ryan, 1974). Communicative competence is learned in the social context where it will ultimately be used and the learning begins long

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before a child produces his first words.

At least three rule categories (developmental subskill domains) related to communication can be partitioned. Extant evidence indicates that these skills are learned at a very early age (Bruner, 1973, 1975). One set of skills involves learning how to use language to accomplish specific functions: to obtain objects and services, to direct the behavior of others, to request information, etc. Another type of skills is required to know how to alter messages for different contexts. The child must learn social selection criteria to determine which lexical items, pronouns, or inflectional alternatives are required and appropriate with different people and in different contexts. These rules are sometimes referred to as conversational postulates (Bates, 1976) because they allow the speaker to exploit the potential of an interaction. A third subcluster of operations performed by competent language use and demonstrated by children at a very early age (prelinguistically, in fact) may be called conversational rules or rules of dialogue. These interaction devices have to do with the mechanics of discourse; how to enter and terminate conversations, taking turns, shifting topics,and temporal spacing (Schegloff and Sacks, 1973; Sacks, Schegloff, and Jefferson, 1974; Jaffe and Feldstein, 1970).

Caretaker-Child Interactions

Another area of investigation which has generated information particularly relevant to language intervention is the study of caretaker-infant interactions. This research has asked these questions: How and by whom is communication training and practice structured? what is the nature of the inputs and rewards which teach the child the culturally defined requirements of dialogue and the use of language to "negotiate" the satisfaction of personal needs and desires? The answers are really not too surprising. Caretakers are "trainers" and caretaker-child interactions are the training context (Bruner and Sherwood, 1975; Newson, 1977).

Explanations and descriptions at the level of the discrete inputs, strategies and motivations in caretaker-infant interactions become substantially more complex. The rapidly accumulating literature suggests a network of interacting cognitive, social and linguistic processes. Snow and Ferguson have edited an entire volume focusing on inputs alone. The general consensus of investigators considering the phonological, lexical, syntactic, semantic, and redundancy features of speech directed to very young children is that it is significantly reduced in structure but substantially increased in redundancy (Snow and Ferguson, 1977; Nelson, 1973; Phillips, 1973). The findings of Garnica (1977) relevant to the prosodic and paralinguistic devices used by adults when they interact with very young children may have considerable relevance for intervention. These six features of "baby talk" are:

a. a much higher fundamental frequency;
b. greater range of pitch;
c. rising intonation at the end of sentences on imperatives as well as questions;
d. occasional whispering;
e. extended duration for such separable verbs as *push in;*
f. two primary syllabic stresses on words which really only call for one.

Other important features of caretaker speech to children include: 1) a disproportionate number of questions (Nelson, 1973; Newport, 1976); 2) a strong tendency to label objects and feelings (Broen, 1972); and 3) a preponderance of references to the "here and now" rather than past or future (Nelson, 1973; Phillips, 1973).

In addition to adjusting their linguistic input, caretakers superimpose a structure on exchanges with their infants which facilitates the learning of deictic terms, synchronization and coordination of joint actions and attention (Edwards, 1978). The caretaker integrates words and meanings with the pattern of routine interaction rituals by commenting on objects and events of mutual attention. The complexity of the interactive arrangements and infant response requirements are gradually increased as the child develops.

Adult sensitivity is a central theme of this research. Even when the infant is as young as 5 or 6 months, adults behave as if they can interpret the intentions behind their infants' behavior. In fact, mothers are so delicately attuned to their infants that they frequently respond in anticipation of the communicative expression. For example, they may prevent distress behaviors by distracting the baby when a turned down mouth or a trembling lower lip indicates a crying episode is about to begin.

Caretakers appear to have a powerful motivation to understand and be understood. From birth the baby is credited with feelings, desires, and intentions and the caretaker is continuously searching for confirmation of "humanness." The infant's attention and participation is immensely important as well as gratifying. Any evidence at all that the child is actively participating is rewarded by the quality of the caretaker's spontaneous emotional reactions. It is

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interesting indeed to consider the contrast between these sensitive and emotional caretaker-infant interactions in which so much valuable learning takes place with the teacher-student instructional arrangements so typical in schools and clinics.

The contribution of imitation and expansion to the language learning process has also come under particularly close scrutiny in recent years. Moerk (1977) has condensed several theoretical discussions relative to the status of imitation as a language acquisition strategy and concluded that imitation does indeed result in the acquisition of new grammatical rules and vocabulary for most young children. When children do imitate (and not all do) imitation seems to be evidence of active processing of the relation between forms and meanings (Bloom, Hood, and Lightbown, 1974). Slobin (1971) and Cross (1975) have demonstrated the effectiveness of maternal imitations with expansions in stimulating more complex child utterances because the child usually imitates the mother's expanded imitation (which is generally several complexity units more advanced than the child's utterances). This circular double feedback process undoubtedly performs a valuable teaching function.

In summary, recent research has provided important insights as to the ontogenesis of communicative competence; specifically, the instructional value of social interactions and the linguistic environment. Whether the intention of caretakers is actually to instruct or simply to be understood, the effect is the same; the child learns to use culturally accepted communication conventions and structures and the teaching process is both effective and efficient.

Language Intervention With Severely Delayed Children

The intent of language training with severely language delayed children is obviously to teach them to be competent communicators. More often than not however, the results fall far short of this goal because training is limited to teaching the production and response to labels and simple word combinations. These form objectives should be only

one part of language training efforts. Competent communication is dependent upon the ability to symbolize objects, events, and relations which are not immediately present; the ability to accomplish things with language; and the ability to participate in dyadic exchanges. These cognitive (content) and social interactive (use) goals must be sought with a fervor at least equal to that with which lexical form and syntactic structures are pursued.

Content goals for a severely language delayed child can be identified by reference to performance on test items (ideally nonverbal) designed to tap the child's construction of the world and his mental representation of this knowledge. Initial content goals will reflect the following knowledge categories:

a. knowledge about objects and object classes,
b. knowledge about relations between objects of the same class and objects of different classes,
c. knowledge of relations between an object or event and the speaker,
d. knowledge of relations between events.

Determination of specific content objectives for the nonverbal child may be guided by questions of this genre:

1. Does the child imitate new actions which he cannot see himself performing?
2. Does the child imitate an absent model?
3. Does the child ritualize some play routine? (always play with some toys the same way)
4. Does the child engage in make-believe play?
5. Does the child systematically search for an object/toy even if it has been concealed during successive displacements?
6. Does the child experiment with new actions with familiar toys?
7. Does the child "figure out" strategies to obtain desired objects without having to "act out" the solution?
8. Does the child apply old actions to new toys?
9. Does the child use objects functionally (e.g., holding cup to mouth, combing hair with comb) rather than mouthing, shaking, throwing and banging?

Intervention objectives for a child with difficulties or delay in conceptualizing objects and the ways objects can be acted upon and related to one another can be derived from Piaget's (1952) descriptions of the development of sensorimotor concepts. Subsequent knowledge objectives to expand on sensorimotor constructions can be derived from consideration of research by Brown (1973), Bloom (1970, 1973), and Schlesinger (1971) which has identified the meanings encoded by the first word combinations of normal language learners. The first nine meanings children express are existence, nonexistence, recurrence, rejection, denial, attribution, possession, action, and locative action. These are followed shortly by utterances which make reference to the relationship between a person or object and its location, utterances which make reference to states of affairs involving persons (or other animate beings), and utterances designating quantity. Bloom and Lahey (1978) provide a thorough and comprehensive explanation and examples of these categories.

Specification of language *use goals* requires direct observations and samples of the language delayed child's interactions in a variety of interpersonal situations. Prelinguistic goals will usually include: 1) establishment of reciprocal gaze patterns between child and caretaker in the context of social exchanges and caretaking routines, 2) establishment of regulatory signals permitting the child to manipulate the behavior of others, and 3) establishment of signals to direct the attention of others to objects and events. The following questions can guide the determination of early use objectives:

1. Does the child look at an adult's face during joint interactions?
2. Does the child take turns in reciprocal games like peekaboo?
3. Does the child indicate desire for continuation of a pleasurable activity or display when it is terminated?
4. Does the child follow the gaze of a familiar adult and attend to their focal point?
5. Does the child direct the behavior of adults to secure desired objects or services?
6. Does the child persist with and/or modify a gesture/sound/word when the adult does not respond as desired?

Later goals in this area will attempt to increase utterances functioning to obtain objects, direct the behavior of others, and call attention to self, objects, and/or events in the environment. Subsequent targets might include: 1) production of utterances to obtain information about the identity and location of objects in the immediate environment; 2) production of utterances about events that have just occurred or are about to occur; 3) production of utterances about persons and objects that are expected or were recently present; 4) production of utterances about the actions of others; 5) increasing spontaneous child initiated utter-

ances; and 6) increasing appropriate utterances in dyadic interactions.

Service Delivery Decisions

Recent research has also contributed significant information for service delivery decisions in language training. There is a notable trend away from structure and rigorous clinical control toward arrangements which more nearly approximate normal language learning conditions. Language training is no longer circumscribed by temporal or physical boundaries. It is incorporated into, and designed as an integral part of all of the child's daily activities in all surroundings, facilitated by most, if not all, of the adults with whom the child interacts (teachers, aides, volunteers, therapists, parents, etc.).

There is also a growing recognition that natural reinforcers, such as the attention inherent in social and communicative interactions, and the attainment of desired objects and events, are more effective than contrived rewards when inducing a child to talk. Ideally the reinforcement is isomorphic with the stimulus (a natural effect of the response). For example, the child sees a cookie, says "want cookie," and receives the cookie. This contrasts with procedures where, for example, the child might be shown a cup, expected to say "cup," and rewarded with a piece of cookie. The former procedure is certainly more likely to induce appropriate associations. The intrinsic satisfaction is generally sufficient to maintain and assure generalization of the desired communication with other adults and in other settings.

As noted in the introduction, many of the pieces needed to form an accurate picture of the language learning processes and the communication environment of the normal child are still missing. Under normal conditions parents are very skilled at maximizing their interactions (both linguistic and nonlinguistic) with their children. In fact, they are doggedly determined to make themselves understood and to understand their child's intentions. Every member of all transdisciplinary teams responsible for working with severely language delayed children and indeed, every adult in any role who has any contact at all with these youngsters should practice these ingenious techniques, sometimes called "motherese."

Strategy I. *Verbal encoding of shared perceptions and conceptions.* Mothers talk to themselves aloud while interacting with their prelinguistic children and they talk about objects and events at precisely the moment when they occur. They essentially share their perceptions with their children. As the child becomes more sophisticated they begin to play a "naming game" in which they supply labels to objects, events, or pictures that have attracted the child's attention. In other words, parents provide experiences that clearly demonstrate certain nonlinguistic concepts while at the same time providing the forms that code the concepts and most importantly, they do this when the child is attentive to both their words and the nonlinguistic experiences.

Strategy II. *Modeling, imitation and expansion.* Parents provide models for their children, they direct the children to imitate the models, and they expand the children's utterances. Parents are careful, however, to preserve the semantic intent of the utterances they expand. They expand the length of the utterances but never change its meaning.

Strategy III. *Question and answer interactions.* Mothers begin training question and answer formats and turn-taking skills when infants are around three months old (Snow, 1977). Initially, the parent supplies an immediate answer to her own question. Later questioning is characterized by reformulations and sophisticated break-down and build-up sequences when the child does not seem capable of answering the question in its original form.

Strategy IV. *Incomplete sentences.* Mothers begin a sentence and then pause for their children to supply the final element. If the child does not produce the required word or phrase, the parent models it.

Conclusion

A final word about parents. It should be obvious even from this very brief and selective overview of extant language development research that much of what investigators are beginning to learn about teaching children to talk, parents have been implementing instinctively. In retrospect, it is truly amazing that we have taken so long to acknowledge the centrality of their role and learn from their language teaching strategies. It should also be readily apparent that teacher-clinician-parent cooperation and coordination are indispensible. The possibilities for effective language training and generalization will be multiplied by the number of training agents and the number of settings where the training is implemented. Indeed, language training is much too broad and complex a process to be owned by any one person or any one discipline; it cannot be singularly dependent on the skills of any one person. It must work when properly applied by anyone, anywhere.

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Linda McCormick is Visiting Associate Professor, Department of Special Education, University of Hawaii. She received her Ph.D. in Psychology and Special Education from George Peabody College in Nashville, Tennessee.