Language and Literacy

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INTRODUCTION

Almost every human child learns to speak language (Lenneberg, 1967). As long as a basic social link is established between the child and his or her caregivers, language learning will occur. The seemingly easy task of learning language relies on other impressive accomplishments in the physical, perceptual, cognitive, and social spheres of development. Because of this, language development is fundamentally linked to the child's overall well-being.

Communication is the process of exchanging information, ideas, and feelings between individuals. Although language is not the only medium for communication (e.g., nonconventional gestures), it is the most typical form and the one that is used in school and work settings. In a literate society, proficient control of language provides keys for further success and well-being. In order to achieve access to economic and social power during the transition from childhood to the workplace, children must demonstrate a continually growing control of language. For children from working-class backgrounds, failing to attain higher forms of literacy can serve as barriers to entry into the middle class.

A. Technical Issues in Language Study

Human language involves both receptive and productive use. Receptive language use occurs during the comprehension or understanding of words and sentences. Productive language use involves idea generation and the articulation of words in speech. Typically, the child demonstrates new language abilities first in comprehension and then only later in production. For example, children comprehend their first words by 9 months or even earlier, but only produce the first word after12 months. Children are able to comprehend 50 words by about 15 months, but do not produce 50 words in their own speech until about 20 months. More generally, children acquire words into their receptive vocabulary more than twice as fast as into their productive vocabulary.

The four basic structural components of language are phonology, semantics, grammar, and pragmatics. Phonology is the system of the sound segments that we use to build up words. Each language has a different set of these segments or phonemes and children quickly come to recognize and then produce the speech segments that are characteristic of their native language. Semantics is the system of meanings that are expressed by words and phrases. In order to serve as a means of communication between people, words must have a shared or conventional meaning. Picking out the correct meaning for each new word is a major learning task for the child. Grammar is the system of rules by which words and phrases are arranged to make meaningful statements. Children need to learn how to use the ordering of words to mark grammatical functions such as subject or direct object. Pragmatics is the system of patterns that determine how we can use language in particular social settings for particular conversational purposes. Children need to learn that conversations customarily begin with a greeting, require turn-taking, and concern a shared topic. They need to adjust the content of their communications to match their listener's interests, knowledge, and language ability. Literate control of language involves the use of printed material and formal spoken dialog to express increasingly complex social, cognitive, and linguistic structures.

Language growth is marked by very notable individual differences in both developmental status and rates of change. Children at the same chronological age may be operating on very different levels in terms of language skill (Fenson et al., 1994). Moreover, young girls are often more verbal than young boys. For example, Huttenlocher, Haight, Bryk, Seltzer, and Lyons (1991) found that girls started to spurt in their vocabulary before boys, independent of the vocabulary to which they were exposed.

The approaches and instruments used to study language development are quite straightforward. Some involve simply recording and transcribing what children say (MacWhinney, 2000). Other studies use controlled experimentation that ask children to answer questions, repeat sentences, or make grammaticality judgments. We can also study children by

asking their parents to report about them. Each of these methods has different goals, and each also has unique possibilities and pitfalls associated with it. Having obtained a set of data from children or their parents, we next need to group these data into measures of particular types of language skills, such as vocabulary, sentences, concepts, or conversational abilities.

Overall measures of the child's productions and the parental input can sometimes obscure the fine-grained dynamics of the learning process. By themselves, frequency and diversity do not lead to successful language learning. It is also important for parents to adjust their linguistic input to the child's level of language ability or just slightly beyond it. If the child says, "Bobby no like it," the most effective response is one that reformulates or recasts the child's meaning, as in "Oh, Bobby doesn't like it?" A careful analysis of interactions between parents and their children shows that children soon come to follow their parent's lead when presented with gentle expansions in this form (Bohannon, MacWhinney, & Snow, 1990). More severe attempts at overt correction are usually less successful. For example, the parent could say, "No, don't say 'no like it', say 'doesn't like it'." Unfortunately, this type of overt didactic correction tends to confuse the child and interrupt the flow of the conversation.

Children learn more from accurate input than from correction. In this sense, it is best to help children with language learning by focusing on positive cases, rather than errors. Consider the case of a child who produces "goed" instead of "went". This is a typical case of the process of pattern overgeneralization in language learning. Rather than overtly correcting this child for the error, it is better to simply recast or rephrase the production using "went." The reinforcement of the correct target in the child's auditory lexicon will eventually lead to its dominance over the erroneous overgeneralization.

B. Theoretical and Empirical Review of the Language Literature

Linguists tend to think of language as having a universal core from which individual languages select out a particular configuration of features, parameters, and settings (Chomsky,

1982). From this perspective, the shape of language development is determined by how formal universal constraints play out during the child's development. Although children in different countries learn very different languages, linguists tend to see all children as acquiring basically the same set of abstract structures and relations. By delineating the common characteristics involved in all cases of language learning, linguists are able to further clarify the basic structural aspects of human language.

An alternative approach to the dynamics of language development is to assume the perspective of the child. By taking this perspective, we can understand the challenges the child faces and the ways in which each are overcome. One scholar who attempted to assume this viewpoint was William James (1890) who described the world of the newborn as a "blooming, buzzing confusion." However, we now know that, on the auditory level at least, the newborn's world is remarkably well structured. The cochlea and auditory nerve provide extensive pre-processing of signals for pitch and intensity. In the 1970s and 1980s, researchers (Aslin, Pisoni, Hennessey, & Perey, 1981) discovered that human infants were specifically adapted at birth to perceive contrasts such as that between /p/ and /b/, as in *pit* and *bit*. Subsequent research showed that even chinchillas are capable of making this distinction. This suggests that much of the basic structure of the infant's auditory world can be attributed to fundamental processes in the mammalian ear. Moreover, there is evidence that some of these early perceptual abilities are lost as the infant begins to acquire the distinctions actually used by the native language (Werker, 1995). Beyond this basic level of auditory processing, it appears that infants have a remarkable capacity to record and store sequences of auditory events (Saffran, Newport, & Aslin, 1996). It is as if the infant has a taperecorder in the auditory cortex that records input sounds, replays them, and accustoms the ear to their patterns.

Children tend to produce their first words sometime between 9 and 12 months. One-year-olds have about 5 words in their vocabulary on average, although individual children may have none or as many as 30; by 2 years, average vocabulary size is more than 150 words, with a range

among individual children from as few as 10 to as many as 450 words. Children possess a vocabulary of about 14,000 words by 6 years of age (Templin, 1957); adults have an estimated average of 40,000 words in their working vocabulary at age 40 (McCarthy, 1954). In order to achieve such a vocabulary, a child must learn to say at least new words each day from birth.

Whereas vocabulary development is marked by spectacular individual variation, the development of grammatical and syntactic skills is highly stable across children. Children's early one-word utterances do not yet trigger the need for syntactic patterns, because they are still only one word long. By the middle of the second year, when children's vocabularies grow to between 50 and 100 words, they begin to combine words in what has been termed "telegraphic speech". Utterances typical of this period include forms such as "where Mommy", "my shoe", "dolly chair", and "allgone banana."

At this same time, children are busy learning to adjust their language to suit their audience and the situation. Learning the pragmatic social skills related to language is an ongoing process. Parents go to great efforts to teach their children to say "please" and "thank you" when needed, to be deferential in speaking to adults, to remember to issue an appropriate greeting when they meet someone, and not to interrupt when others are speaking. Children fine tune their language skills to maintain conversations, tell stories, argue for favors, tattle on their classmates or ask for favors. Early on, they also begin to acquire the metalinguistic skills involved in thinking and making judgments about language.

Beyond the basic skills of reading and spelling lie the more advanced forms of literate expression. Children vary markedly in their ability to articulate explanations, narratives, arguments, and logical analyses. Gifted children often excel in the acquisition of specialized vocabulary, which further supports the child's entry into the worlds of literature, scientific discourse, and cultural analysis. Through literate activities such as reading and writing, language provides the means for self-learning and self-expression. The acquisition of reading and literacy poses a set of developmental challenges to the child (Bruner, 1987; Nelson, 1998). The human

species has been using spoken language for at least 200,000 years. The ability to produce and comprehend rapid speech has been supported by nearly 10,000 generations of natural selection. However, writing and reading have arisen in the last 5,000 years and adaptation to these tasks is supported by only 250 generations of natural selection. Thus, it is not surprising to find that so many children have trouble learning to read and are diagnosed as "dyslexic"(Booth, Perfetti, MacWhinney, & Hunt, 2000).

Communication skills are good indicator of the child's current developmental progress. They are also the primary vehicle of development in other domains. For instance, language facilitates growth in cognitive skills such as categorization, reasoning and problem-solving, particularly when such tasks involve abstractions. Beginning about 2 years of age, language is used as the major indicator of intellectual functioning. In using language, children are able to talk about the causes, consequences, and objects of their emotional experience (Bloom, 1995), thereby learning how to regulate their emotions.

C. Developmental Stability of Language

During the first five years, the stages of language acquisition are marked by a series of fairly well defined milestones. In the1st month, newborns respond to the human voice; by their 9th month, infants understand simple words; by their 18th month, toddlers comprehend simple questions; by their 48th month, children can correctly interpret complex commands. In the 2nd month, newborns begin to coo; around their 12th month infants produce their first words; between 18 and 24 months, toddlers produce simple sentences; by 48 to 60 months, children have mastered the basics of grammar almost completely. They are able to invert auxiliaries when asking questions, compose complex sentences with embedded clauses, add particles for negatives and passives, and control selection of the correct complementizer ("for", "to," and "that").

In adolescence, the focus of education is no longer on the mechanics of language and

literacy, but rather on the use of literacy and oral language skills to gather, interpret, and convey information. In adulthood, success is also contingent on literate command of reading, writing, and formal oral expression. The link between literacy skills and economic success was examined in the recent National Adult Literacy Study (Kirsch, Jungeblut, Jenkins, & Kolstad, 1993). In this national survey, individuals with more limited literacy skills were less likely to be employed, earned less, and were more likely to be employed in non-professional occupations than were those who displayed more advanced skills. Not surprisingly, poverty was much more common among individuals with the lowest literacy skills. In addition, better literacy was also associated with one indication of good citizenship practices – voting in elections. It has also been found that literacy skills can act in a protective fashion for children at high-risk because of poverty and familial problems (Werner & Smith, 1982).

Moreover, individual differences in language tend to be stable in the sense that children who have more words in their vocabularies at 2 years will be the children who are performing better in verbal tests of intelligence at 4 years (Bornstein & Haynes, 1998). Children who acquire language early are often regarded as "advanced", whereas the failure to use language productively is one of the most common markers of developmental delay. Early language development is one of the best predictors of long-term cognitive and communicative skills. Hart and Risley (1995) reported that in 29 of the 42 children they followed from preschool to school age both vocabulary growth and usage (age 3) were correlated with vocabulary comprehension, global language, and reading comprehension (9-10 years of age).

D. Factors that Affect the Development of Language

Language is enormously complex. Fortunately, children can rely on a wide range of support mechanisms to move them continually through the language learning process. Support can come from parents, peers, schools, and other organizations. Each new experience in which the child engages is a new opportunity for language learning. Often these new experiences

involve use of language in new social contexts with new groups, outside of the familiar family context. To the degree that teachers and parents can use these learning activities to promote literate practices, the child will become more and more competent in language use.

Children come to the language-learning task with a strong desire to communicate. Children's very early sensitivities to sound and their earliest vocal expressions give evidence of strong biological influences. Very soon, however, verbal perception and production become subject to the linguistic environments provided by parent, home, and culture. Language growth builds on a foundation of parent-child interaction, but it includes ever-expanding contexts outward from the family to community, social class, and cultural context.

Thus, language learning begins with the give-and-take of social interactions between child and parent. Parents often take advantage of periods of joint visual attention to label or comment on what the child is looking at. Mothers, fathers, caregivers, and even older children often use “baby talk” or “motherese” when addressing very young children. Motherese has several unique characteristics that distinguish it from speech directed to adults, including short sentences, greater repetition and questioning, and higher and more variable intonation. Specific parent-provided experiences or aspects of the environment have significant roles to play in the growth of specific verbal skills in children (Belsky, Rovine, & Taylor, 1984; Goldfield, 1987; Tamis-LeMonda, Bornstein, Baumwell, & Damast, 1996).

Children must speak to others and be spoken to in order to learn language; exposure to spoken language on television cannot substitute for actual interactive conversation. For example, Dutch children with extensive exposure to German television do not learn German (Snow et al., 1976). Learning of language and literacy depend on a wide array of social, situational, and linguistic supports. Children growing up in cultures with less access to parental input may show some delay in the acquisition of certain aspects of language (Scollon, 1976).

One of the best predictors of a child’s vocabulary development is the amount and diversity of input the child receives (Huttenlocher et al., 1991). We also know that verbal input

can be as great as three times more available in educated families (Hart & Risley 1995) than in less educated families. These facts have led educators to suspect that basic and pervasive differences in the level of social support for language learning lie at the root of many learning problems in the later school years. Social interaction (quality of attachment, parent responsiveness, involvement, sensitivity, control style) and general intellectual climate (providing enriching toys, reading books, encouraging attention to surroundings) predict developing language competence in children as well (van IJzendoorn, Dijkstra, & Bus, 1995). Relatively uneducated and economically disadvantaged mothers talk less frequently to their children compared with more educated and affluent mothers, and correspondingly, children of less educated and less affluent mothers produce less speech. SES relates to both child vocabulary and to maternal vocabulary (Fenson et al., 1994). Middle-class mothers expose their children to a richer vocabulary, with longer sentences, and a greater number of word roots.

As children move on to higher stages of language development and the acquisition of literacy, they rely increasingly on broader social institutions. They may rely on Sunday School teachers as their source of knowledge about Biblical language, prophets, and the geography of the Holy Land. They will rely on science teachers to gain vocabulary and understandings about friction, molecular structures, the circulatory system, and DNA (Keil, 1989). They will rely on peers to introduce them to the language of the streets, verbal dueling, and the use of language for courtship. They will rely on the media for exposure to the verbal expressions of other ethnic groups and religions. When they enter the workplace, they will rely on their co-workers to develop a literate understanding of work procedures, union rules, and methods for furthering their status. By reading to their children, by telling stories, and by engaging in supportive dialogs, parents set the stage for their child's entry into the world of literature and schooling. Here, again, the parent and teacher must teach by displaying examples of the execution and generation of a wide variety of detailed literate practices, ranging from learning to write through outlines to taking notes in lectures (Connors & Epstein, 1995).

E. Conclusions

Children need to know language for many purposes, not the least of which include carrying on extended conversations, comprehending and composing narratives, providing reasoned answers, and just plain learning.

Language encompasses impressive accomplishments in the physical, perceptual, cognitive, and social spheres of development. It is a complex "system" with multiple components, multiple antecedents, and multiple implications. There is a bidirectional relation between successful language and literacy learning and children's well-being. In order to participate successfully in the family and the peer group, the child needs to develop adequate control of language and verbal expression.

Language is a unique marker of humanity. It distinguishes the human species from the rest of the creation, and it allows us to share our thoughts and feelings. Language is the most complex skill that any of us will ever master. Despite this sophistication, nearly every human child succeeds in learning language. This suggests that language is optimally shaped to mesh with our neurological, physical, cognitive, and social abilities. Although all children achieve the basic use of language, they differ markedly in the extent to which they acquire the more elaborated aspects of language and literate practices. Successful learning can facilitate well-being, but it must be provided within an appropriate sociological context. By better understanding the ways in which literate practices are treated within the various subcultures in American society, we can promote the child's learning and the growth of a democratic society.

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