

Look Who's Talking

What happens when a child learns to speak? If you think about it, the power of speech is a remarkable one. In three short years, a baby becomes a master of a language, and does so without schooling. Yet most of us are so familiar with children automatically learning language that we do not stop to think about how great the accomplishment is. Amazingly, language is acquired naturally by the child – without formal instruction. But how? Language experts in psychology have stopped taking language development for granted – as something that just happens. They have begun doing the kind of research necessary to reveal that language acquisition is *pre-programmed* process of learning. Parents provide speech environments to their offspring, but they don't exactly teach their kids to speak. Children do that on their own. A growing body of research is demonstrating that children learn their language through an astonishingly rapid and spontaneous process of pronunciation, word formation, and phrase construction – a process culminating in an ability to masterfully combine words into true sentences by the age of five.

The process begins quite early in the infant's life. During the first six months of life, babies' vocalizations are dominated by crying, cooing, and laughing. Needless to say, these expressions have a limited value in communication. But soon, babies are babbling – producing a wide variety of sounds resembling speech, but without meaning. As children develop, babbling becomes a complex and increasing resembles the language spoken by mature speakers in their environment (Boyson 124). These trends probably reflect ongoing brain development and the

maturing of the infants vocal apparatus (Slobin 229). They also represent the influence of daily exposure to the language used by family members. Babbling lasts until about eighteen months, and continues for a while even after the children begin to use words, phrases, and sentences.

At about ten to thirteen months of age, children begin to utter sounds roughly corresponding to words. This is when parents begin to shout, “The baby is talking!” Psychology professor Robert Gleason of Cal State Sacramento has been studying this development for several years using local daycare children as the subjects of his experiments. He explains in person the process by which children come to transform sound into words: “Most infants’ first words are similar in phonetic form and meaning- even in different languages. The initial words resemble the syllables that infants babble spontaneously, and typically refer to people and things in the child’s immediate environment. For example, words like *mama*, *dada*, *papa*, *pa*, and *ma* are often the same or similar in different languages, because the babies who utter these words are at similar stages of development whatever the culture and whatever the language. Chinese, American, and Russian babies all say “mama.” Notice that *mama* is quite a bit easier to say than most words.”

After children utter their first words, their vocabulary grows slowly for the next few months (Boyson 146). Toddlers typically can say from ten to fifty words by eighteen months. However their *receptive* vocabulary is larger than their *productive* vocabulary. To put the idea differently, they can *understand* more words spoken by others than they can actually *produce* themselves. Toddlers can understand fifty words months before they can produce fifty words (Gleason). And these fifty words are simple, tending to refer to objects more than actions (Slobin 228). Simple one word syllables nouns like “ball,” “cat,” “dog,” “car,” “boy” form the whole child’s vocabulary. But that’s just the beginning.

Youngsters' vocabularies soon begin to grow at a dizzying pace. Psychologists explain that development is a "vocabulary spurt", and it often begins at eighteen months of age (Goldfield 725). By the age of six, the average child will have the vocabulary of about 10,000 words ("Human Language Development"). In building these impressive vocabularies, some two year olds learn as many as twenty new words a week ("Children and Early Language Development"). But how can this pace be maintained?

This impressive speed appears to be sustained by a process known as "fast mapping." Fast mapping is the process at which children map a word onto an underlying concept after only one exposure to the word. Thus children often add words like dog, ball, and cookie to their vocabularies after their first encounter with objects that illustrates these concepts ("Human Language Development").

Of course these strategies to learn new words are not flawless. Toddlers often make errors, and these errors are called *overextensions* ("Children and Early Language"). An overextension occurs when a child incorrectly uses a word to apply to a wider set of objects or actions than it is meant to. For example, the child might use the word, *ball*, for anything that is round – oranges, apples, or even the moon. Most people are familiar with children who use the word, "doggy" to refer to any mammal. Overextensions are not random, and they typically make sense from the perspective of the child. (They correspond to the scope of the child's vocabulary and experience. After all, what would we adults call some newly discovered mammal? "That's some kind of bear." Or "That's some kind of a giant lizard.") (Boyson 214). In any event, these overextensions usually appear in a child's speech between the ages of one and two-and-a-half. Specific overextensions typically last several months, and fade away as the child learns the correct word for the object he is trying to name. The use of these overextensions shows that the

child is actively trying to learn the rules of the language. Furthermore, overextension sometimes leads parents to correct to their child's speech, so this process may itself help children to learn words and concepts (Human Language Development).

What causes overextension? Overextensions are often based on the appearance of object, particularly their shape. Furthermore, overextensions are more common in children's production of words than their comprehension of words, and this difference leads to some researchers to speculate that the major cause of overextension is simply that children lack the right word for all the things they see and experience (Slobin 225). For instance, the child who uses the word *apple* to refer to all round objects – balls, cherries, or the dome of a sports arena – may be trying to identify and distinguish an apple from cherries months before he can verbally express the difference with individual words. The difference implies that the child knows that an apple is different from the moon, but simply hasn't yet learned what to call the other object – and so he calls it an apple (Carnap 322).

When toddlers increase their ability to communicate as they learn new words, they take the next step in language acquisition: word pairs and phrases. Professor Gleason explained this process with several colorful expressions: “Children appear to compensate for their limitations by using single words and pairs of words to represent the meaning of many words. Psychologists call this combination *holophrases*. Holophrases are two-word utterances that appear to function like sentences. For example, a two year old who wants a banana is unable to say, ‘I want a banana,’ so she might say ‘Me banana’ or ‘want banana.’ Is this a sentence or a word-pair? Many psychologists argue that it is best called a *holophrastic utterance*. Look at it this way: if a child points at two cars and accurately says, “Mama car, Dadda car,” there seems to be more than a set of four words: there seems to be a sentence hidden inside there. True, the articles are missing; the

verbs are missing. But these elements of the sentence are hidden in those crudely expressed word pairs. This idea is the theory of holophrases.” Professor Gleason had one last warning remark on this connection: “Not all Psychologists accept this theory, so a lively debate continues in this field.”

Children typically begin to combine words and holophrases into sentences between 18 and 24 months of age. Early sentences are characterized by psychologists as *telegraphic* because they resemble old fashion telegrams-messages stripped of all but essential words. Rather than saying, “Please give me the doll,” the child of two is likely to say, “Give Lydia doll” (“Children”). From this point of a child’s growth, tracking language development becomes more difficult, because different children begin to achieve different levels of sentence complexity. Most of this difference is expressed in sentence length (Gleason).

To deal with complexity, researchers sometimes track language development by measuring children’s “mean length of utterance” (MLU). This measure is defined as the average length of a child’s statement measured in syllables. MLU increases rapidly from one to three years of age, growing from 1.5 to 4.5 syllables (Reznick 187).

By the end of the third year, most children can express complex ideas through the use of grammatical singulars and plurals, and present and past tense, but their efforts to learn the rules of the language continue to generate revealing mistakes (“Language” 657). At this age, children begin to commit what language scientists call *overregularization*. Overregularization happens when children take real grammatical rules and incorrectly generalize them where they don’t apply. For example, three year olds will say things like, “After school, the girl goed home,” or “I hitted the ball.” What is happening with mistakes like these? Well, English usually marks the past tense with an “ed” syllables. So, while I listen to my Ipod today, I listened to my Ipod

yesterday. The “ed” shows the past tense. But not always. English also has irregular verbs like “go” and “hit” which do not take this *ed* ending: today I *go*, yesterday I *went*. Children don’t learn these fine points of grammar immediately. So three and four year olds take the most regular rules of grammar and *overregularize* them to all sentences: “I *goed*, I *hitted*, I *runned*, I *eated*,” and so on. (Slobin 236) these mistakes of overgeneralization put cuteness in the speech of children, but they also reveal the process of language acquisition (Reznik 203).

Young people make their greatest strides in language development in their first four years of life. However, they continue to refine their language skills during their school-age years. They generate longer and more complicated sentence as they move through school and receive formal training in written language. One of the most important developments during these school years is that overregularizations decline as children are taught the details of written grammar and the grammatical exceptions that go with adult language (Boyson 193). More improvements are on the way.

As their language skills develop, school-age children begin to appreciate ambiguities in language. They can, for instance recognize two possible meanings in such sentences as *visiting relatives can be bothersome*.

1. “Relatives who come to visit us often cause us trouble and bother.”

2. “When we go to visit relatives, we often find it a real hassle.”

Which of these two interpretations is the correct interpretation of the sentence, *visiting relatives can be bothersome*? There is no answer to this question, because the sentence is hopelessly ambiguous. Children begin to see these ambiguities by about eight years of age. This interest in ambiguities indicates that children are developing “metalinguistic” awareness the ability to mentally reflect on the issue of the use of language (“Children”). As metalinguistic awareness

grows, children begin to “play” with language, coming up with puns and jokes. They begin to make more frequent and sophisticated use of metaphors such as “My teacher is a pain in the ...” A just-awake ten year old with messy hair would understand the humor in this remark from a parent: “You surely are looking beautiful this morning.” A seven year old probably would not understand the irony of this remark. A ten year old would. This difference shows language development in action (Reznick 284).

As children grow up, they learn more and more language. But the real work is largely complete by the age of ten. After ten, people add to their already powerful grasp of their native language. As such, scientists are impressed by how much children learn about their language at so early an age.

What then is this process of language development? In the final analysis, what’s most striking about children’s language development is how swiftly and spontaneously it occurs. Bright high school students receiving daily instruction often struggle to learn a foreign language, but ordinarily toddlers acquire a mastery of their native language without real instruction in a brief three-year period. Science can only conclude that speech is “natural” to humans, and it develops not so much from the environment as from the brain and the nervous system. Like walking, talking is just something we humans do. And so we see it with children. Progressing through the babbling stage their parents love so much, one year old children are combining words into short phrases. At three most kids can speak in simple sentences. The process culminates with five year olds – who truly speak a language, all without much instruction. Sounds, words, phrases, sentences. These steps form the pathway to language, and it is a breathtakingly swift pathway that only humans can navigate.

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