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Video Activity: Language Acquisition in Young Children features video clips of a new sign language created by deaf Nicaraguan children and provides insights into how language evolves.

THINK CRITICALLY: What standard should be used to decide which of these five children knew the vocabulary word?

Language Learning

Brain maturation, myelination, scaffolding, and social interaction make early childhood ideal for learning language. Young children are language sponges; they soak up every verbal drop they encounter, mastering vocabulary and grammar at a rapid pace.

Preoperational thinking—egocentric and illogical—helps with language. One of the valuable (and sometimes frustrating) traits of young children is that they talk nonstop to many people and even to themselves and their toys—unfazed by misuse, mispronunciation, ignorance, stuttering, and so on (Marazita & Merriman, 2010). Egocentrism has advantages; this is one of them.

The Vocabulary Explosion

The average child knows about 500 words at age 2 and more than 10,000 at age 6 (Herschensohn, 2007). That's more than six new words a day. These are averages. Estimates of vocabulary size at age 6 vary from 5,000 to 30,000.

Estimates vary because it is hard to know how many words a child understands, in part because some tests of vocabulary are more stringent than others (Hoffman et al., 2013). For example, after children listened to a book about a raccoon that saw its reflection in the water, they were asked what *reflection* means. Which of these five answers is correct?

1. "It means that your reflection is yourself. It means that there is another person that looks just like you."
2. "Means if you see yourself in stuff and you see your reflection."
3. "Is like when you look in something, like water, you can see yourself."
4. "It mean your face go in the water."
5. "That means if you the same skin as him, you blend in" (Hoffman et al., 2013, pp. 471–472).

At About This Time: Language in Early Childhood

Approximate Age	Characteristic or Achievement in First Language
2 years	<i>Vocabulary:</i> 100–2,000 words <i>Sentence length:</i> 2–6 words <i>Grammar:</i> Plurals; pronouns; many nouns, verbs, adjectives <i>Questions:</i> Many "What's that?" questions
3 years	<i>Vocabulary:</i> 1,000–5,000 words <i>Sentence length:</i> 3–8 words <i>Grammar:</i> Conjunctions, adverbs, articles <i>Questions:</i> Many "Why?" questions
4 years	<i>Vocabulary:</i> 3,000–10,000 words <i>Sentence length:</i> 5–20 words <i>Grammar:</i> Dependent clauses, tags at sentence end ("... didn't I?" "... won't you?") <i>Questions:</i> Peak of "Why?" questions, many "How?" and "When?" questions
6 years	<i>Vocabulary:</i> 5,000–30,000 words <i>Sentence length:</i> Some seem unending ("... and ... who ... and ... that ... and ...") <i>Grammar:</i> Complex, depending on what the child has heard, with some children correctly using the passive voice ("Man bitten by dog") and subjunctive ("If I were ...") <i>Questions:</i> Some about social differences (male–female, old–young, rich–poor) and many other issues

In the same study, when a story included “a chill ran down his spine,” children were asked what *chill* meant. One child answered, “When you want to lay down and watch TV—and eat nachos” (Hoffman et al., 2013, p. 473).

FAST-MAPPING After painstakingly learning one word at a time between 12 and 18 months of age, children develop interconnected categories for words, a kind of grid or mental map that makes speedy vocabulary acquisition possible. Learning a word after one exposure is called **fast-mapping** (Woodward & Markman, 1998) because, rather waiting to hear a word in several contexts, children hear a word once and quickly stick it into a category in their mental language grid.

Language mapping is not precise. For example, children rapidly connect new animal names to already-known animal names. Thus, *tiger* is mapped easily if you know *lion*, but a leopard might be called a tiger unless someone introduces the word *leopard*. A trip to the zoo facilitates fast-mapping because zoos scaffold, placing similar animals near each other.

fast-mapping

The speedy and sometimes imprecise way that children learn new words by quickly categorizing them.



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I Want a Pet Young children are more fascinated than afraid of snakes, spiders, and—as shown here at the London Pet Show—scorpions. Although some children are temporarily cautious, phobias are learned, not innate. Many children want a pet; many adults say no. Who should prevail?

Picture books offer many opportunities to advance vocabulary through scaffolding and fast-mapping. A mentor might encourage the next steps in the child’s zone of proximal development, such as that tigers have stripes and leopards spots, or, for an older child, that calico cats are almost always female and that lions with manes are always male.

This process explains some vocabulary errors. For example, 2-year-olds fast-map color words (K. Wagner et al., 2013). *Red* could be used for orange. Similarly, all women may be called mothers, all cats called kitties. As one team of scientists explains, adult words are the result of slow-mapping (K. Wagner et al., 2013), which is not what young children do.

WORDS AND THE LIMITS OF LOGIC Closely related to fast-mapping is a phenomenon called *logical extension*: After learning a word, children use it to describe other objects in the same category. One child told her father she had seen some “Dalmatian cows” on a school trip to a farm. Instead of criticizing her foolishness, he remembered the Dalmatian dog she had petted the weekend before, and he realized that she saw Holstein cows, not Jersey ones.

Bilingual children who don't know a word in the language they are speaking often insert a word from the other language. That mid-sentence switch may be considered wrong, but actually it is evidence of the child's drive to communicate. When children master theory of mind, they realize who understands which language, and they adjust when speaking to a monolingual person.

Some English words are particularly difficult for any child—*who/whom, have been/had been, here/there, yesterday/tomorrow*. More than one child has awoken on Christmas morning and asked, "Is it tomorrow yet?" A child told to "stay there" or "come here" may not follow instructions because the terms are confusing. Better to say, "Stay there on that bench" or "Come here to hold my hand." Every language has difficult concepts that are expressed in words; children everywhere learn them eventually.

Extensive study of children's language abilities finds that fast-mapping is only one of many techniques that children use to learn language. When a word does not refer to an object on the mental map, children master it in other ways (Carey, 2010). Some words are too abstract; they are ignored. Always action helps. A hole is to dig; love is hugging; hearts beat.

Acquiring Grammar

Remember from Chapter 3 that *grammar* includes structures, techniques, and rules that communicate meaning. That makes grammar essential for speaking, reading, and writing well.

BRAIN AND BASICS As soon as they start speaking, children use basic grammar, first in holophrases and then in combining words. For example, English-speaking toddlers know word order (subject/verb/object), saying, "I eat apple," rather than any of the five other possible sequences of those three words. They use plurals, tenses (past, present, and future), and nominative, objective, and possessive pronouns (*I, me, and mine or my*).

Children apply rules of grammar as soon as they figure them out. They use their own theories about how language works and use their personal experiences regarding when various rules apply (Meltzoff & Gopnik, 2013).

For example, toddlers learn to add *s* to form the plural, asking for cookies, blocks, and so on. Soon children add an *s* to make the plural of words they have never heard before. If preschoolers are shown a drawing of an abstract shape, told it is called a *wug*, and then shown two of these shapes, they say there are two *wugs* (Berko, 1958).

Children apply the rules of grammar when they should not. This error is called **overregularization**. By age 4, many children overregularize that final *s*, talking about *foots, tooths, and mouses*. This signifies knowledge, not ignorance. They are smart enough to apply the rules of grammar (Ramscar & Dye, 2011). The child who says, "I goed to the store" needs to hear, "Oh, you went to the store?" rather than criticism.

More difficult to learn is an aspect of language called **pragmatics**—knowing which words, tones, and grammatical forms to use with whom (Siegal & Surian, 2012). In some languages, it is essential to know which set of words to use when a person is older or not a close friend or family member, or even which grandparents are their fathers' parents and which grandparents are their mothers'.

In English, knowledge of pragmatics is evident when a 4-year-old pretends to be a doctor, a teacher, or a parent. Each role requires different speech, an early sign that theory of mind is beginning (Lillard & Kavanaugh, 2014).

However, pragmatics takes years to develop; adults certainly do not always adjust their communication to their audience. Young children are worse at this. Without an understanding of how other people might think, children often blurt out questions that embarrass their parents ("Why is that lady so fat?" or "I won't kiss grandpa

overregularization

Applying rules of grammar even when exceptions occur, making the language seem more "regular" than it actually is.

pragmatics

The practical use of language, adjusting communication according to audience and context

because his breath smells.”). The pragmatics of polite speech require more understanding than many young children possess.

Learning Two Languages

Language-minority people (those who speak a language that is not their nation’s dominant one) suffer if they do not also speak the majority language. In the United States, those who are not proficient in English often have lower school achievement, diminished self-esteem, and inadequate employment, as well as many other problems. Fluency in English can erase these liabilities; fluency in another language then becomes an asset.

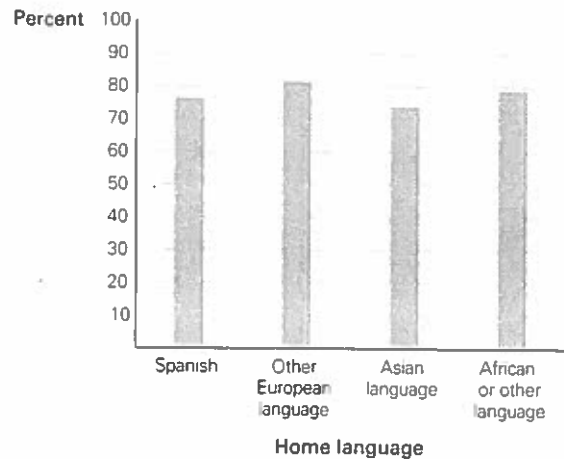
In the United States, 15 percent of children entering kindergarten in 2011 spoke a language other than English at home (Mulligan et al., 2014). Some already speak English, and most of them learn English at school, but their achievement tends to be lower unless they are bilingual before age 6. By contrast, in many African, Asian, and European nations, most schoolchildren are bilingual, and some are trilingual, and their fluency advances their intellectual achievement.

Some adults fear that young children who are taught two languages might become semilingual, not bilingual, “at risk for delayed, incomplete, and possibly even impaired language development” (Genesee, 2008, p. 17). Others have used their own experience to argue the opposite, that “there is absolutely no evidence that children get confused if they learn two languages” (Genesee, 2008, p. 18).

This second position has much more research support. Soon after the vocabulary explosion, children who have heard two languages since birth usually master two distinct sets of words and grammar, along with each language’s pauses, pronunciations, intonations, and gestures. Proficiency is directly related to how much language they hear (Hoff et al., 2012).

Early childhood is the best time to learn languages. Neuroscience finds that when adults mastered two languages when they were young, both languages are located in the same areas of the brain with no impact on the cortex structure (Klein et al., 2014). Bilingual adults keep the two languages separate, activating one and temporarily inhibiting the other when speaking to a monolingual person. They may be a millisecond slower to respond when they switch languages, but their brains function better overall.

U.S. Schoolchildren Whose Home Language Is Not English but Who Speak English “Very Well”



Data from U.S. Census Bureau, 2011.

FIGURE 5.5 Mastering English: The Younger, the Better Of all the schoolchildren whose home language is not English, this is the proportion who, according to their parents, speak English well. Immigrant children who attend school almost always master English within five years.

Camels Protected, People Confused Why the contrasting signs? Does everyone read English at the international airport in Chicago (O’Hare) but not on the main road in Tunisia?



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Far worse is learning no language, as happened to many deaf children in former years when teaching sign language was thought to be detrimental. Instead of learning signs and then learning to read a spoken language as deaf children now do, they were confused and lost. Current evidence suggests that early learning of one language, including sign language, makes it easier to learn other languages (Skotara et al., 2012).

Most published research finds that being bilingual benefits the brain lifelong, further evidence for plasticity. Indeed, the bilingual brain may provide some resistance to Alzheimer's disease in old age (Costa & Sebastián-Gallés, 2014). However, some scholars contend that evidence is mixed on the cognitive advantages of bilingualism, noting that the published research may not represent the complexity of this issue (de Bruin et al., 2015).

In any case, learning a “foreign” language in high school or college, as required of most U.S. children, is too late for fluency. After childhood, the logic of a new language can be understood: Adults can learn the rules of forming the past tense, for instance. However, pronunciation, idioms, and exceptions to the rules are confusing and rarely mastered after puberty. The human brain is designed to learn language best from ages 2 to 6.

Note, however, that many adults who speak the majority language with an accent are nonetheless proficient in comprehension and literacy in that language (difference is not deficit). From infancy on, hearing is more acute than speaking. Almost all young children mispronounce whatever language they speak, blithely unaware of their mistakes. With maturation, pronunciation improves—if a child has heard proper pronunciation in childhood.

LANGUAGE LOSS AND GAINS Schools in all nations stress the dominant language, sometimes exclusively. Consequently, language-minority parents fear that their children will make a *language shift*, becoming fluent in the school language and forgetting their home language. Language shift occurs everywhere if theory-theory leads children to conclude that their first language is inferior to the new one (Bhatia & Ritchie, 2013).

Remember that young children are static thinkers (preoperational). Consequently, they center on the immediate status of their language (not on future usefulness or past glory), on appearance more than substance. No wonder many shift toward the language of the dominant culture.

If a child is to become fluently bilingual, everyone who speaks with the child should show appreciation of both cultures, and children need to hear twice as much talk as usual (Hoff et al., 2012). If the parents do not speak the majority language, their child will benefit if they talk, listen, and play with the child extensively in the

Bilingual Learners These are Chinese children learning a second language.

OBSERVATION QUIZ

Could this be in the United States? (see answer, page 188) ►

