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**Language Window**

based on the article “[*Language Acquisition*](http://users.ecs.soton.ac.uk/harnad/Papers/Py104/pinker.langacq.html)” by Steven Pinker

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*Good morning, everyone.* I am glad to see you all here now. My name is Alekseev Vasiliy. *Today I am going to tell you something about the process of language acquisition in childhood.* Has anyone of you ever thought of whether there is a simpler and more efficient way to master a foreign language, than to spend hours per week for many years attending classes at school and university? If a child is able to learn a native language, is it also possible for them to acquire a foreign one by the way as well?

*In my speech I am going to cover several points. The first part is about some details connected with the process of acquisition a language itself. Then goes explanation of what can be done to make a child succeed in learning a foreign language. The last point is about overall benefits that can be derived from the enterprise of early language learning. The presentation will take about 10 minutes. I will be glad to try to answer your questions at the end of it.*

Nowadays there is a trend to make shows with gifted children. *And before we start,* I want to remind you one of the well-known samples of multilingual children. It’s Bella Devyatkina. Maybe you saw her on the TV. At the age of 4 she could speak 7 languages.

*So, let’s start.* The maturation of language circuits during a child's early years may be a driving force underlying the course of language acquisition. Before birth, virtually all the neurons are formed, and they migrate into their proper locations in the brain.

*However,* brain weight, thickness of gray and white matter continue to increase rapidly in the year after birth and then throughout childhood. Synapses peak in number between 1 and 2 years, at which point children have 50% more synapses than adults. Metabolic activity in the brain reaches adult levels by 9 to 10 months, and soon exceeds it, peaking around the age of 4. Synapses start to wither from the age of 2 through the rest of childhood and into adolescence, when the brain's metabolic rate falls back to adult levels. These changes may be responsible for the decline in the ability to learn a language over the lifespan.

Language acquisition begins with the acquisition of a language's sound patterns. The main linguistic accomplishments during the first year of life are control of the speech musculature and sensitivity to the phonetic distinctions used in the parents' language. *Interestingly,* babies achieve these feats before they can produce or understand words, so their learning cannot depend on correlating sound with meaning. They must be sorting the sounds directly.

While interacting with live human speakers, the child can be more of a mind reader, guessing what the speaker might have meant. *That is,* before children have learned syntax, they know the meaning of many words, and they might be able to make good guesses as to what their parents are saying based on their knowledge of how the referents of these words typically act (*for example,* people tend to eat apples, but not vice-versa).

*Here you can see a table with brief descriptions of main stages that comprise the process of language acquisition. Look at the first row.* It shows children’s first words, which are similar all over the planet. Soon vocabulary growth increases. The child begins to learn words at a rate of one every two waking hours, and will keep learning that rate or faster. *Now, look at the second row.* There are a bit more complex phrases than in the previous one. *It also can be seen* that the words in the phrases are in the correct order. *Talking about the third row,* between 2 and 3 years children's language blooms into fluent grammatical conversation very rapidly. The researchers who study it have not even worked out the exact sequence yet. The number of syntactic types increases exponentially, doubling every month, reaching thousands before the third birthday. Children acquire whatever rules their language throws at them. *It is safe to say* that almost all parts of a language are acquired before the child turns four.

Children most definitely do need to hear an existing language to learn that language. They learn whichever language they are exposed to.

*Moreover,* it is not enough to just hear the speech, on the TV *for example.* Communication is also important.

Children do need some kind of linguistic input to acquire a language. There were cases in history when abandoned children somehow survived in forests. The outcome was that the children, when found, were mute. Whatever innate grammatical abilities there are, they are too schematic to generate concrete speech, words and grammatical constructions on their own.

Possible ways to provide a conversation with a child are parents (if they know a foreign language), private teachers or special schools. *For example,* there is one called Moreton First in England. When children join the preschool class at the age of three, they are exposed to 4 languages: English, French, Spanish and Chinese. *It may seem incredible to us,* but as the child’s brain is still growing and developing rapidly, multiple languages can be assimilated just as a single one.

Children learn while playing. That is important. Making language exposure meaningful for children is a key to getting them excited and involved in learning it. Bombarding children with hours of vocabulary will have less impact than introducing them to a few words but within a rich cultural context. It is essential to get children excited about language and culture through pictures, dance, songs.

*It is* *undoubtedly* that learning additional languages improves some mind-brain skills. Teaching children words from another language actually helps them appreciate and understand the workings of languages in general. *It has already been established* that children who learn a language when they are very young have a much better chance of not having a foreign accent when speaking another language. Bilingualism can delay the onset of Alzheimer’s symptoms: one Canadian science team has found that those who spoke two or more languages consistently over many years experienced a delay in the onset of their symptoms by as much as five or six years.

Bilinguals are better at multitasking. *In one experiment,* monolinguals and bilinguals were put into a driving simulator. Through headphones, they were given extra tasks to do — as if they were driving and talking on cellphones. *As a result,* everybody’s driving got worse. *But* the bilinguals’ driving did not drop as much.

*In the end,* I want to say that learning language as early as possible is definitely wholesome, but here we are all finished. We cannot already take any advantage of it. *But* I do hope that if anyone of you find yourself having children in the future, you will remember something from this presentation to help the child. *Because* when you are young, you do not realize what opportunities you possess.

*That’s all. Thank you for your attention.*

[**Language Acquisition**](http://users.ecs.soton.ac.uk/harnad/Papers/Py104/pinker.langacq.html)

*(Only the Introduction)*

*Steven Pinker  
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**1 Introduction**

Language acquisition is one of the central topics in cognitive science. Every theory of cognition has tried to explain it; probably no other topic has aroused such controversy. Possessing a language is the quintessentially human trait: all normal humans speak, no nonhuman animal does. Language is the main vehicle by which we know about other people's thoughts, and the two must be intimately related. Every time we speak we are revealing something about language, so the facts of language structure are easy to come by; these data hint at a system of extraordinary complexity. Nonetheless, learning a first language is something every child does successfully, in a matter of a few years and without the need for formal lessons. With language so close to the core of what it means to be human, it is not surprising that children's acquisition of language has received so much attention. Anyone with strong views about the human mind would like to show that children's first few steps are steps in the right direction.

Language acquisition is not only inherently interesting; studying it is one way to look for concrete answers to questions that permeate cognitive science:

Modularity. Do children learn language using a "mental organ," some of whose principles of organization are not shared with other cognitive systems such as perception, motor control, and reasoning (Chomsky, 1975, 1991; Fodor, 1983)? Or is language acquisition just another problem to be solved by general intelligence, in this case, the problem of how to communicate with other humans over the auditory channel (Putnam, 1971; Bates, 1989)?

Human Uniqueness. A related question is whether language is unique to humans. At first glance the answer seems obvious. Other animals communication with a fixed repertoire of symbols, or with analogue variation like the mercury in a thermometer. But none appears to have the combinatorial rule system of human language, in which symbols are permuted into an unlimited set of combinations, each with a determinate meaning. On the other hand, many other claims about human uniqueness, such as that humans were the only animals to use tools or to fabricate them, have turned out to be false. Some researchers have thought that apes have the capacity for language but never profited from a humanlike cultural milieu in which language was taught, and they have thus tried to teach apes language-like systems. Whether they have succeeded, and whether human children are really "taught" language themselves, are questions we will soon come to.

Language and Thought. Is language simply grafted on top of cognition as a way of sticking communicable labels onto thoughts (Fodor, 1975; Piaget, 1926)? Or does learning a language somehow mean learning to think in that language? A famous hypothesis, outlined by Benjamin Whorf (1956), asserts that the categories and relations that we use to understand the world come from our particular language, so that speakers of different languages conceptualize the world in different ways. Language acquisition, then, would be learning to think, not just learning to talk.

This is an intriguing hypothesis, but virtually all modern cognitive scientists believe it is false (see Pinker, 1994a). Babies can think before they can talk (Chapter X). Cognitive psychology has shown that people think not just in words but in images (see Chapter X) and abstract logical propositions (see the chapter by Larson). And linguistics has shown that human languages are too ambiguous and schematic to use as a medium of internal computation: when people think about "spring," surely they are not confused as to whether they are thinking about a season or something that goes "boing" -- and if one word can correspond to two thoughts, thoughts can't be words.

But language acquisition has a unique contribution to make to this issue. As we shall see, it is virtually impossible to show how children could learn a language unless you assume they have a considerable amount of nonlinguistic cognitive machinery in place before they start.

Learning and Innateness. All humans talk but no house pets or house plants do, no matter how pampered, so heredity must be involved in language. But a child growing up in Japan speaks Japanese whereas the same child brought up in California would speak English, so the environment is also crucial. Thus there is no question about whether heredity or environment is involved in language, or even whether one or the other is "more important." Instead, language acquisition might be our best hope of finding out how heredity and environment interact. We know that adult language is intricately complex, and we know that children become adults. Therefore something in the child's mind must be capable of attaining that complexity. Any theory that posits too little innate structure, so that its hypothetical child ends up speaking something less than a real language, must be false. The same is true for any theory that posits too much innate structure, so that the hypothetical child can acquire English but not, say, Bantu or Vietnamese.

And not only do we know about the output of language acquisition, we know a fair amount about the input to it, namely, parent's speech to their children. So even if language acquisition, like all cognitive processes, is essentially a "black box," we know enough about its input and output to be able to make precise guesses about its contents.

The scientific study of language acquisition began around the same time as the birth of cognitive science, in the late 1950's. We can see now why that is not a coincidence. The historical catalyst was Noam Chomsky's review of Skinner's Verbal Behavior (Chomsky, 1959). At that time, Anglo-American natural science, social science, and philosophy had come to a virtual consensus about the answers to the questions listed above. The mind consisted of sensorimotor abilities plus a few simple laws of learning governing gradual changes in an organism's behavioral repertoire. Therefore language must be learned, it cannot be a module, and thinking must be a form of verbal behavior, since verbal behavior is the prime manifestation of "thought" that can be observed externally. Chomsky argued that language acquisition falsified these beliefs in a single stroke: children learn languages that are governed by highly subtle and abstract principles, and they do so without explicit instruction or any other environmental clues to the nature of such principles. Hence language acquisition depends on an innate, species-specific module that is distinct from general intelligence. Much of the debate in language acquisition has attempted to test this once-revolutionary, and still controversial, collection of ideas. The implications extend to the rest of human cognition.