Introducing Second Language Acquisition

Perspectives and Practices

Kirsten M. Hummel

WILEY Blackwell

Introducing Second Language Acquisition

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To my father, for the inspiration of his example:
kind to all and always supportive
Louis E. Hummel

And to my daughters, for daily joys and for keeping me grounded
Louissa and Marlyse

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1 Introduction

Welcome to this introduction to second language acquisition. What is second language acquisition (SLA)? In brief, this term refers to beginning the learning of another language after a first language (L1) has been acquired.

Note that opinions vary about what might be considered the earliest age from which second language learning would be differentiated from simultaneous language acquisition or bilingual first language acquisition (two languages learned at the same time). In general, however, second language acquisition describes learning another language after the early years of childhood. (Note that the importance of age in acquiring another language will be discussed in Chapter 7, and issues related to bilingual acquisition and bilingualism will be discussed in Chapter 9.)

Second language acquisition is a phenomenon found among people from all parts of the world and all walks of life. The well-known biblical story about the Tower of Babel is one of the earliest references to the importance and urgency of knowing another language. According to the biblical account, in order to prevent people from cooperating in their goal of building a tower in the town of Babel that would reach heaven, God commanded "Go to, let us go down, and there confound their language, that they may not understand one another's speech." The tactic was successful and different language groups abandoned their project and moved to separate areas of the world.

Of course it is not necessary to believe the biblical story of Babel to understand the importance of being able to communicate with one's neighbor or with an individual on the other side of the globe. The desire to learn another language might stem from a personal choice to broaden one's horizons or from a more complex set of life circumstances, such as an urgent need to find a job in a new country. In addition, the growing ubiquity of international travel, along with electronic means of communicating across time zones, has increased

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opportunities to interact with speakers of other languages and, for many, may trigger the desire to undertake the learning of another language.

Cartoon 1.1 2/15/2000, http://www.reverendfun.com/needy/.

Second language acquisition is a phenomenon that millions of individuals worldwide are engaged in, and it is also a distinct field of study. The principal aim of this book is to provide an overview of the main concepts, issues, and debates in the field of second language acquisition, referring to past and current research to illustrate these issues. There has been a huge increase in empirical research in the past few decades on a wide variety of dimensions related to SLA. Discussions throughout the book will refer to this research by highlighting specific studies to clarify important concepts and themes.

Research into second language acquisition is a truly multidisciplinary endeavor. Some of the major disciplines that contribute to SLA include theoretical linguistics, education, psychology, and sociology. In the past several decades, the field of second language acquisition has increasingly come to be recognized as a discipline of its own, supported by an abundant research literature. Universities now regularly offer courses in "second language acquisition" whereas in earlier years the subject was only briefly reviewed in the context of a basic introductory linguistics or second language pedagogy course, if at all. Today, disciplines as varied as theoretical linguistics, speech pathology, and educational psychology refer to aspects of the SLA research literature in their own fields, and in some instances data from SLA are used in testing theoretical models or describing concepts in other disciplines.

Note that an additional distinction between "second" language acquisition and "foreign" language acquisition is an important one in some contexts. In such cases, "second language acquisition" applies to circumstances in which the language learned (the target language) is generally the dominant language used in the learner's environment (such as an immigrant's learning English in the United States), while "foreign language acquisition" indicates that the learner lives in the L1 environment and contact with target language speakers is not widely available (such as learning English in Beijing, China). In this regard, in the context of learning English, a frequent abbreviation is "ESL" to refer to "English as a second language" and "EFL" for "English as a foreign language". The use of the term "second language acquisition" throughout this book generally includes

foreign language acquisition, although the latter term will be used when it is important to make a distinction between the two circumstances.

The study of second language acquisition also generally encompasses the acquisition of a third or additional languages (sometimes referred to as the study of multilingualism), although research specifically devoted to describing how third (or more) language acquisition might resemble or differ from SLA is increasing.

In addition, this book uses the terms "acquisition" and "learning" interchangeably as this usage has been generally adopted by scholars in the field (see, for example, Ortega, 2009, p. 5).

Why study second language acquisition? To start, here are a number of questions that one might one want some answers to:

- Is second language acquisition like first language acquisition?
- Does the first language help or get in the way of second language learning?
- What are some of the circumstances in which people learn a second language?
- Do innate capacities play an important role in second language acquisition?
- Why do we make mistakes in a second language?
- Do learners need their errors to be explicitly corrected?
- Are there any universal processes affecting SLA?
- Is there a teaching method that has proved to be more successful than others?
- Can adults learn to speak a second language as well as native speakers?
- What about individual differences? Are there factors that enable some people to learn aspects of a second language better or faster than others?
- Are there certain learning strategies that seem particularly useful?
- What happens when children learn two languages at the same time? Do they end up confused and does one or both of their languages suffer?
- Can bilinguals "turn off" or ignore one of their languages?

Our exploration throughout the field of SLA will offer some responses to the preceding questions. We begin in Chapter 2 by examining first language acquisition. A basic understanding of this universal process, noting ways in which it resembles or differs from second language acquisition, should be useful for gaining a clearer view of SLA. In the following chapter, Chapter 3, the reader is introduced to some of the variety of contexts, both naturalistic and classroom-related, associated with the learning of a second language. Chapter 4 presents an overview of main theoretical views underlying the field. Chapter 5 recognizes the importance of SLA applications to language teaching, an area of interest for a growing number of practitioners: predominant teaching approaches and methods are presented, followed by a look at some current instructional issues. Development of the L2 learner's language is the focus of Chapter 6. Chapter 7 begins an exploration into individual difference factors, by focusing on the effect of the learner's age on SLA. Additional individual difference factors, such as aptitude and motivation, are discussed in Chapter 8. Finally, in Chapter 9, the overlapping discipline of bilingualism is explored, with a look at characteristics of simultaneous language acquisition along with the possible cognitive effects of bilingualism.

To help illustrate concepts and issues, starting with Chapter 3 on language learning contexts we will follow six fictional language learners who are profiled throughout the book. These individuals each have their own unique backgrounds and experiences with second language acquisition. The learners profiled are:

- Mila, a widowed woman with two teenaged sons, who immigrated to the United States from her native war-ravaged Bosnia during the early 1990s;
- Steve, an American university student who chose to study abroad in Beijing for a year;
- Linda, a Boston schoolteacher who followed her passion for Italian opera to Tuscany, Italy;
- Alberto, growing up bilingual in English and Spanish in Southern California;
- Walid, also bilingual, but in Arabic and English, living near Detroit, Michigan;
- Xia Mei, a native speaker of Cantonese who is learning English in an immersion program at her high school in Hong Kong.

In addition, to clarify connections between research and practice, throughout the chapters the reader will encounter "Language learning in practice" textboxes illustrating the more practical applications of discussed research and theoretical approaches. Other features have also been included to aid in understanding the book's material. For example, new terms which may be unfamiliar to readers are bolded throughout the text and defined in the margins as well as in the end-of-book glossary. Also, readers can test their own knowledge after reading each chapter by doing the "Self-assessment questions" and by checking their answers at the online site (www.wiley.com/go/hummel). Classroom discussions can be stimulated after each chapter using the "Discussion questions" feature and students can undertake projects with reference to the "Exercises/Study projects" section. Each chapter also contains an annotated "Further reading and viewing" section which allows students to follow up on subjects treated in that chapter.

Since second language acquisition is an area of study that is increasingly recognized as relevant to a number of disciplines, I have attempted to write this book so that it will be accessible to any undergraduate student needing a basic introduction to the field. I hope it is also accessible to the general reader without a specialized academic background who is simply interested in learning more about second language acquisition.

We will begin this exploration by looking at first language acquisition. I hope you enjoy the journey!

reference

Ortega, L. (2009). *Understanding second language acquisition*. London: Hodder Education.

2 First Language Acquisition

Anyone concerned with the study of human nature and human capacities must somehow come to grips with the fact that all normal humans acquire language, whereas acquisition of even its barest rudiments is quite beyond the capacities of an otherwise intelligent ape.

(Noam Chomsky, 1968, p. 59)

Chapter outline

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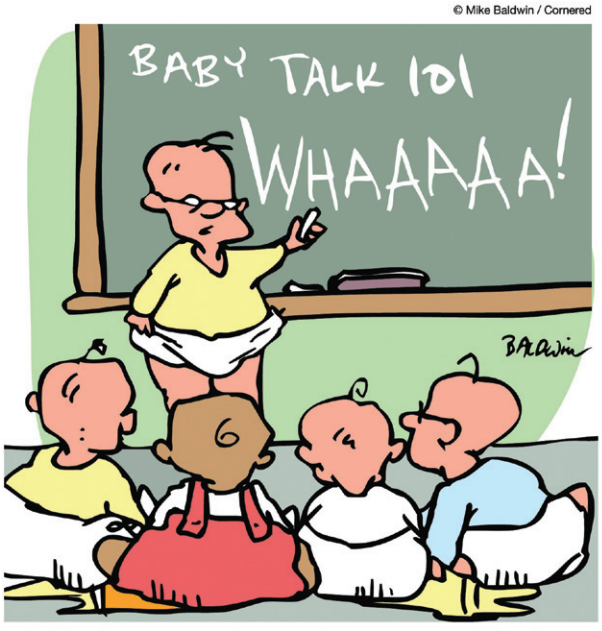
2.0 chapter overview

The term "second language acquisition" suggests that a first language has already been acquired. Having a basic knowledge about first language acquisition, an ability that is an essentially universal aspect of the general human condition, can be considered as fundamentally important in order to better understand second language acquisition. This chapter will begin by providing a basic description of L1 development and by presenting theoretical views proposed to explain the processes underlying that development. The second part of this chapter will present some of the dimensions along which L2 acquisition differs from or parallels the L1 acquisition process.

2.1 from sound to word



"This is a good one. It means, 'Until my every need is met, your life will be hell.'"

Cartoon 2.1 www.CartoonStock.com.

Babies are born into the world unable to linguistically articulate specific desires, needs, feelings or intentions. However, as anyone who has had any experience with infants realizes, babies do manage to communicate in very vocal and physical ways, through various forms and intensities of crying, cooing, other sounds, and by using physical movements and gestures. In the space of a few short months, such responses come to be gradually replaced by more language-like sounds and by 12 months of age many children are already uttering their first words.

Considerable research has gone into examining the L1 acquisition process and much of this information reveals that infants appear to come into the world equipped to acquire the language they are exposed to in their environment. Linguists often use the term "prewired" to describe this state of readiness. In fact, many linguists argue that innate structures are the only reasonable explanation for the rapidity of development and universality of stages that characterize first

language acquisition. Noam Chomsky, the pre-eminent linguist of our times, uses the analogy of the child's "learning" to walk: the child does not need to be taught to walk, he or she simply begins to put one foot ahead of the other, as soon as the child is able to stand erect (Searchinger, 1995). Similarly, acquiring the language used in one's environment unfolds in the same way: children do not need to be deliberately "taught" to speak, they simply begin to do so.

Substantial evidence supports the idea of a genetic predisposition for language. For instance, a number of studies have shown that infants show a preference for the human voice, and in particular for the mother's voice, as young as three days old (DeCasper & Fifer, 1980). The preferences of very young infants can be measured using a technique known as **high amplitude sucking (HAS)**. In this technique, infants are exposed to sounds while their sucking rate on a pacifier is measured; an increase in rate is thought to indicate increased interest as well as the infant's detection of a stimulus difference. This technique therefore capitalizes on several facts: babies like to hear sounds, they lose interest when a sound is presented repeatedly, and they regain interest when a new sound is presented. The HAS technique is reliable from approximately one to four months of age.

high amplitude sucking (HAS) A technique used to study infant perceptual abilities; typically involves recording an infant's sucking rate as a measure of its attention to various stimuli.

The HAS technique has revealed that newborns prefer speech sounds to non-speech sounds (Vouloumanos & Werker, 2007). Young infants also prefer looking at the human face, and prefer gazing at mouth movements that move in synchrony with the speech produced by those movements. The groundwork for conversational interaction is apparent in the early gaze-coupling, or eye contact, behavior between the caregiver and the infant. Even at early pre-verbal stages, interactional patterns characterize infant–caregiver communication; for example, infants wait for adult vocalizations in response to their own, and their sounds become more speech-like following adult speech addressed to them.

Another remarkable finding is that young children from many different cultures and languages of origin are able to perceive a multitude of sound differences, even those not occurring in the language of their environment, an ability known as 'sound" or "auditory discrimination," while adults are often unable to differentiate those same sounds if they are not used in the native language. However, by the ages of 10 to 12 months, this sound discrimination ability already begins to disappear if the distinction is not reinforced as a part of the language spoken in that child's environment. For instance, in a study involving adults and infants, researchers (Werker & Tees, 1984) examined a contrast occurring in Hindi which involved dental (tongue against the teeth) and retroflex (with the tongue curled back in the mouth) variants of the sound "t" (/t/ vs /ṭ/), a contrast that does not occur in English. While Hindi-speaking adults are able to perceive this sound difference without difficulty, English-speaking adults generally are unable to do so. Werker and Tees examined children's perceptual abilities for the Hindi contrast, as well as for a Salish (a language spoken by First Nations people in British Columbia) contrast between two consonantal sounds produced in the back part of the mouth: velar /k'i/and uvular /q'i/. In this experiment with young infants in a head-turning experiment (infants are found to

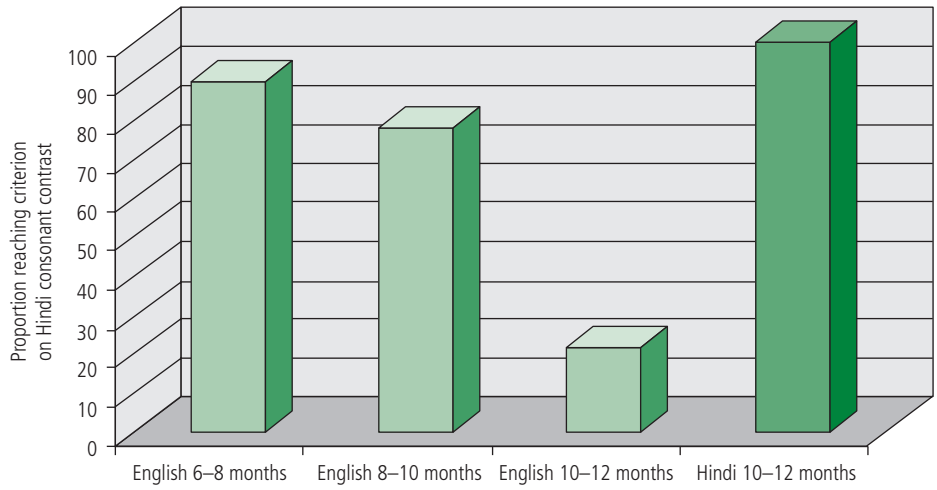


Figure 2.1 English L1 and Hindi L1 infant perception of Hindi consonant contrasts (Werker & Tees, 1984).

turn their head when they detect a novel stimuli), the researchers found that 6- to 8-month-old English-speaking infants were able to perceive the Hindi contrast, as well as the Salish contrast. By 8 to 10 months, however, the infants could no longer perceive the Salish contrast. And by 10 to 12 months of age, the children no longer perceived the Hindi contrast either. In contrast, children from native Hindi- and Salish-speaking families continued to perceive the contrasts occurring in their native languages. The results for English L1 and Hindi L1 infant perception of Hindi contrasts are illustrated in Figure 2.1.

Numerous other studies examining other sound distinctions and languages of different types have found similar results (Estonian vs Finnish vowels: Cheour, *et al.*, 1998; German vowels: Polka & Werker, 1994; Catalan vowels: Bosch & Sebastián-Gallés, 2003). It appears that certain sound contrast perceptions are not maintained if those contrasts are not used in the infant's language environment. It is thought that this winnowing out of unnecessary perceptive distinctions allows the child to reserve mental space for those contrasts that are important in his or her language.

Another argument that children come "prewired" for language is the fact that despite significant geographic and cultural differences, babies all over the world appear to go through similar linguistic stages and reach linguistic milestones at similar ages, although at the same time, there is also a certain amount of individual variation associated with the specific ages for those milestones. The first recognizable pre-linguistic stage is that of "babbling," occurring as early as three to four months of age, when the infant begins to produce a certain number of distinct sounds, usually taking the form of a consonant-vowel sequence (see Table 2.1 for stages of babbling). Studies (e.g., Davis & MacNeilage, 1995) have shown that certain combinations are more frequent than others cross-culturally.

Table 2.1 Development of babbling.

4 to 6 months onset	Marginal babbling
6 to 8 months onset	Vocal play (low and high sounds) Babbling: reduplicated babbling (bababa) predominates first, followed by nonreduplicated, or variegated babbling (badagu)
8 to 12 months onset	Jargon, or conversational babbling

For instance, bilabial stops (sounds like p, b, and m, produced using the lips) tend to be quite frequent in babbling, and are often associated with the low, back vowel "a", giving a sequence such as "ba-ba-ba." Sounds not frequently found in babbling across languages include the liquids /r/ and /l/. An early phase of babbling is sometimes referred to as **reduplicated babbling** since the consonant-vowel (CV) sequences tend to be repeated. Later on, **nonreduplicated** or "variegated" babbling begins to predominate since infants begin to vary the particular CV sequences they produce (e.g., "ba-ga-da"). Nor is babbling restricted to the vocal channel; interestingly, it has been found that deaf children raised by signing parents tend to engage in manual babbling from approximately seven months of age (e.g., Petitto & Marentette, 1991). Their manual babbling has its own distinctive rhythm and occurs in the same "signing space" that is normally used for sign languages.

reduplicated babbling Babbling in which consonant-vowel combinations are repeated, such as "ba-ba-ba."

nonreduplicated babbling (variegated) Babbling in which young children vary the consonant-vowel sequences used; for example, "ba-da-ga."

Some correspondence has been found between babbling and later language. For instance, in a study of French, English, Japanese, and Swedish L1 infants, beginning at 10 months of age, the proportion of labial (produced with one or both lips) vocalizations was found to be related to the proportion of those used in the child's language environment (Vihman, Kay, de Boysson-Bardies, Durand, & Sundberg, 1994).

Children seem able to comprehend their first words between seven and ten months, although some children are in advance of or behind their peers. A landmark in linguistic development occurs at approximately 1 year of age, at the same time that many young children are beginning to take their first step, when a first recognizable word may be heard (e.g., "mama" or "da" for dog). This "first-word" stage is sometimes called the "holophrastic" stage, derived from the Greek words "holo" (one) and "phrastic" (phrase or sentence), referring to the idea that the single words appear to substitute for the thought conveyed in a full sentence.

First words are often produced in a form somewhat different from the target adult word. Phonological processes, such as assimilation, in which a sound is produced in a similar manner to a neighboring sound (e.g., "z" which is voiced, instead of voiceless "s" before a voiced vowel) or substitution of sounds (e.g., "t" instead of "s") may be applied unconsciously by the child, facilitating the child's articulation of the target word. Another common process occurs when an initial consonant cluster (sequence of two consonants, as in "kl") is simplified by omission of one of the consonants, as in "keen" for "clean".

The transition from babbling to single words is not abrupt: children continue to babble sounds at the same time as they begin to produce early words. Eventually, however, fewer babblings occur and single words come to predominate in the child's speech.

First words tend to name people and objects common in the child's universe: mama, papa, cat, juice, cookie, etc. Nouns tend to predominate, forming close to 50% of word types for young children. Other word categories consist of verbs or action words ("go," "up," etc.), modifiers ("big," "fast"), and social/personal words ("hi," "bye").

overextension A child's use of a word for objects or items that share a feature or property; for example, using "dog" to refer to all animals with four legs.

underextension A child's use of a word with a narrower meaning than in the adult's language; for example, "dog" to refer only to the family's pet.

Another common occurrence in early word learning is the child's using a word beyond its usual sphere of reference, known as **overextension**. An example of this is a child's using the word "cat" while pointing to any four-footed creature in the local pet shop: dogs, mice, or even furry ferrets. **Underextension**, when a word is used less broadly than its true domain of reference, also occurs, although it is more difficult to detect, since it is not as obvious if a child is failing to provide a label as when actually mislabelling as in overextension. An example of underextension is a child's using the word "dog" only for his/her pet collie, but not for the neighbor's pet poodle. Various estimates suggest as many as 30% of words are overextended at least some of the time during the first two years of the child (e.g., Clark, 1993; Rescorla, 1980). By 2.5 years of age, however, only rare occasions of over- or underextensions are thought to occur.

2.2 from word to sentence

At approximately the time that children have about 50 words in their vocabulary and are about 18 months old, they often begin to put two words together in the same intonational phrase unit. While previously words were uttered as isolated units, parents may begin to notice that their child is attempting to communicate a desire or intention by using two-word units, such as "mama juice" ("I want Mom to give me some juice," or "baby up," meaning "Pick me up!"). This stage is often called the "two-word stage" and it appears to characterize children's linguistic development as a distinct developmental period.

Some children have been observed to go through a "word spurt" period that has been found to begin when they are about 18 months old and which lasts for a few months (e.g., Clark, 1993). During this period, new words spring up in the child's vocabulary on an almost daily basis. Some researchers (Goldfield & Reznick, 1990) suggest only some children show a spurt while others show a linear pattern of vocabulary growth. One proposed explanation for the word spurt is "fast mapping," i.e., that children are able to remember a word after very limited exposure to that word.

Another important stage occurs when children begin to link together more than two words, and enter what has been termed the "telegraphic stage." At this point, children may produce strings of two-, three-, and even four- or more

word long units. The label "telegraphic" is used to reflect the fact that these strings tend to omit function words, such as articles, conjunctions, and prepositions, and largely consist of content words, such as nouns and verbs. For example, one child beginning to grow beyond the two-word stage was heard to say "Baby Allison comb hair."

Various methods have been used historically as well as currently to examine L1 speech. For example, Charles Darwin, the nineteenth-century naturalist best known for his theory on evolution, made detailed diary recordings describing one of his sons' L1 acquisition. More recently, researchers have developed a system to measure early linguistic development by calculating the average number of **morphemes**, the meaning-bearing units of language (words, such as "dog" and also prepositions like "to" and "at" and grammatical markers like "–ed" for past and a final "s" for plural in English), per utterance, i.e., the **mean length of utterance (MLU)**. Roger Brown, a psychologist at Harvard University with a strong interest in language development, carried out a landmark longitudinal study (1973) with three young children (known by the pseudonyms Adam, Eve, and Sarah) between the ages of 20 and 36 months old, and found that while each child went through similar stages, and tended to acquire forms in a similar order, each child had her or his own unique rate of development, as calculated in terms of MLU (see Figure 2.2).

Brown found that the children acquired grammatical units, i.e., morphemes such as the plural "–s," the past tense regular "–ed" ending, and the ending marking the progressive aspect ("–ing"), in a strikingly similar order, although not at the same rate (see Table 2.2). He also found that frequency of the forms in the **input**, the language of the children's environment, did not appear to affect their order of acquisition.

morphemes Smallest meaning-bearing unit of language (e.g., word units, like "dog," and grammatical inflections, like the plural "-s.")

mean length of utterance (MLU) Measurement used to calculate the development of children's grammar; number of morphemes divided by number of total utterances.

input The language to which an individual is exposed in the environment.

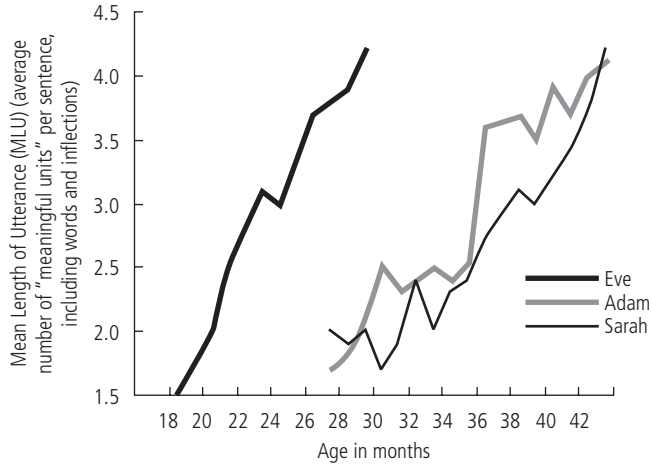


Figure 2.2 Development of MLU in three children (Brown, 1973).

Table 2.2 Order of acquisition of English morphemes (from Brown, 1973).

–ing
in, on
plural –s
possessive –s
the, a
past tense –ed
3rd person singular –s
auxillary "be"

Figure 2.3 Berko's (1958) Wug Test.

Other studies have found important evidence that children are able to generalize rules to items they have never been exposed to. As part of a simple, yet ingenious experiment, Jean Berko devised the "Wug" test (Berko, 1958), in which nonsense words were presented to children along with their images (see Figure 2.3), and children were asked to pluralize the novel item, such as saying "wugs" for the nonsense word "wug." In Berko's study, as many as 76% of 4- to 5-year-olds got the correct plural ending (wug—wugs, heaf—heafs) and an almost universal 97% of 5- to 7-year-olds provided the correct form. The test also revealed that children are similarly able to provide the correct past tense "–ed" suffix to novel items (e.g., *rick* becomes *ricked*). Such results reveal that children are able to apply underlying rules to new exemplars. The Wug test reveals that children are able to do more than simply produce a rote imitation of utterances they have been exposed to in the environment.

Studies also reveal that children reorganize their growing grammatical knowledge in systematic ways. For instance, children may produce a correct irregular form, such as "went," early on, then over-regularize or over-generalize the form as "goed," only to finally produce once again the correct target form "went." This can be illustrated by a U-shaped curve as can be seen in Figure 2.4.

Children's knowledge of language continues to develop throughout childhood and adolescence, but, remarkably, by the age of five or six, complex syntactic constructions and virtually the entire phonological repertoire of their language are well in place in most children.

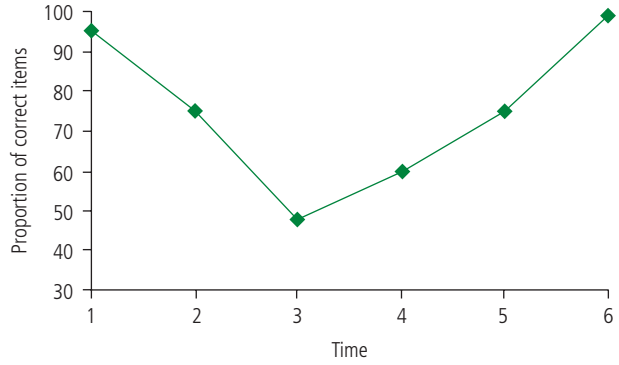


Figure 2.4 U-shaped curve representing the learning of irregular grammatical items.

2.3 theoretical views

One basic fundamental distinction underlying various theoretical views about L1 acquisition revolves around the extent to which language is viewed as basically the result of innate processes, i.e., **nativism** or a nativist view, and the extent to which environmental factors are considered as primarily responsible, i.e., **empiricism** or an empiricist view. This debate is far from recent: the ancient Greek philosophers were interested in the same distinction. Plato proposed that humans are born with certain "innate ideas," while Aristotle mused about the "blank slate" that marks a person's coming into the world.

nativism A theoretical approach emphasizing the innate, possibly genetic, contributions to any behavior.

empiricism Theoretical view that emphasizes the role of the environment and experience over that of innate ideas or capacities.

behaviorism Theoretical view proposing that learning principles can explain most behavior, and observable events, rather than mental activity, are the proper objects of study.

2.3.1 behaviorist view

B. F. Skinner (1904–1990), an American psychologist, was perhaps the best known proponent of an extreme empiricist, or behaviorist, view of language acquisition, known as **behaviorism**. He viewed the child as a passive recipient, subjected to environmental influences. In this view, language was considered as "verbal behavior," and only what was observable and measurable was accepted as a means to evaluate language acquisition; no attempt was made to hypothesize about non-perceptible mental events. Behaviorists such as Skinner explained vocabulary comprehension through "classical conditioning," or the pairing of a stimulus and a response. In concrete terms, Skinner proposed that when an infant hears the word "milk" on receiving his bottle, he comes to associate the word "milk" with that nutritive substance. Along the same lines, productive vocabulary is explained by "operant conditioning": When the child utters a word that produces the desired effect, then the child is more likely to reproduce that word and, in contrast, words that do not trigger hoped-for responses tend to disappear. For example, if a child says "mama" in the mother's presence, the child is reinforced by receiving the desired attention. On the other hand, if the child says "mama" when the mother is not present, the link between the word and its referent is not reinforced. Eventually the child's mother becomes the stimulus evoking the response "mama," such that a bond is established between the mother and the word "mama." This approach also anticipates a role for direct imitation. Imitation is considered to be self-reinforcing, and allows a shortcut so that tedious shaping of each verbal response is not necessary.

While the behaviorist view of language acquisition had considerable impact on the field, it was sharply criticized by researchers, in particular linguists, who, by the late 1950s, had come to very different conclusions about the language acquisition process. Most notably, Chomsky (1959, p. 42) wrote a strongly worded critique of Skinner's book *Verbal Behavior* in which he argued: "I have been able to find *no support* whatsoever for the doctrine . . . that slow and careful shaping of verbal behavior through differential reinforcement is an absolute necessity." In fact, most research studies have reported that there is little evidence of direct reinforcement of children's utterances. Further, linguists point

out that imitation accounts for little syntactic learning and, in any case, is infrequent beyond age two. In addition, children produce forms like "goed" and "wented," which they do not hear in the environment. Also, importantly, the behaviorist view fails to explain creativity, the fact that children produce novel utterances, like "the paper is soaky" (for "soaking wet," see Clark, 1993) that do not resemble utterances they hear in their environment.

2.3.2 universal grammar

universal grammar (UG) The innate principles and properties that characterize the grammars of all human languages; also used to describe the theoretical view associated with this concept.

While behaviorists highlighted the environment as the principal agent in bringing about language, a radically different view emerged largely in reaction to that mechanistic behaviorist model. In the **Universal Grammar (UG)** view, the environment serves essentially only as a trigger for language development. The UG approach views language as unique and different from other cognitive systems. It suggests that humans possess what can be considered as a "language faculty," i.e., a universal set of underlying principles, called UG, which lends its name to this theoretical approach. The existence of UG allows children to form hypotheses about language when they are exposed to a finite set of examples from their environment. In this regard, UG linguists refer to what has been called the "logical problem of language acquisition," i.e., that without UG, language learning would be impossible because the input data are insufficiently rich to allow acquisition to occur. The inadequacy of the input is also referred to as the "poverty of the stimulus." In other words, the language that children are exposed to is characterized by abbreviated utterances, interruptions, ungrammatical sequences, etc., such that they could not possibly receive enough information about all the grammatical, possible sentences of the language by exposure alone; something else must be helping children induce the rules of the language, and that something is the proposed "Universal Grammar" they are born with as part of their genetic endowment. This approach is therefore nativist, in emphasizing the biologically inherited aspect of UG.

The species-specific nature of language is also emphasized in this approach: language is unique to humans; other species' communication systems are fundamentally different from human language.

Language learning in practice: Human language vs animal communication

There is a long history of interest in examining animal communication systems to see whether they resemble human language and whether certain animal species (such as chimpanzees) can be taught language. Hockett (1960) assembled a list of design features that he considered necessary for a system to be considered a true "language." In general, animal communication systems lack important features included in that list such as:

- "semanticity" (having a fixed relationship between a signal and its meaning);
- "arbitrariness" (a signal has no intrinsic relationship with the meaning it conveys, i.e., the relationship is related by convention—for example, the word "sun" is completely arbitrary to represent the object "the sun" in English);
- "discreteness" (language consists of discrete, distinct units, such as phonemes, the sound units of language, and words);
- "displacement" (ability to refer to things or events that have occurred at another time or place, as in reference to past events); and
- "productivity" (a potentially infinite number of different utterances can be produced).

As for attempts to teach language to various species, there has been limited success, whether the studies involve apes (Patterson, 1978) or chimps (Savage-Rumbaugh *et al.*, 1993) learning sign language, or bottlenosed dolphins trained to respond to sound patterns (Herman, Richards, & Wolz, 1984).

There is considerable evidence for the biological basis for language that the UG approach emphasizes. As pointed out earlier in this chapter, children manifest an early sound perception discrimination ability that appears to fade away if the sound contrasts are not used in the language of the child's environment. We have also noted the developmental similarities in stages and the fact that certain milestones are attained in a similar sequence and at generally similar times (babbling, first word, two-word sequences, etc.). Such evidence has been used to support the notion that children are indeed "prewired" to acquire language.

On the other hand, others point out that the linguistic view gives too little attention to the role of the environment and the crucial role played by interaction between the child and his or her social network, as discussed in the following section.

2.3.3 interactionist approach

Interactionism and interactionist approaches to explaining L1 acquisition give explicit acknowledgment to the contribution of both innate structures and the role of the environment. In particular, the social interactionist view, which includes proponents such as Berko Gleason, the creator of the Wug test discussed in an earlier section, argues that while there is substantial evidence that innate structures allow for language acquisition, the role of the environment is more important than acting as a simple trigger for development, as proposed in the linguistic approach. Social interactionists give importance to the interplay between linguistic structures, cognitive abilities, and the social and linguistic environment. Language is viewed as a communicative act and the language environment and the child constitute a dynamic system. Piper (1998, p. 161) sums up this approach in the following way:

interactionism
Theoretical viewpoint that recognizes the role of experience and the environment, as well as the contribution of innate capacities.