



# A Brief Overview of Psycholinguistic Approaches to Second Language Acquisition

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## ABSTRACT

With the emergence of Second Language Acquisition (SLA) as a field of study in the 1970s and the 1980s, various theories and approaches, although in many aspects contradictory, were put forward by scholars in the field. SLA is a field of inquiry that abounds in theories, while at the same time no single approach has adequately explained how language acquisition takes place. One reason mentioned in the literature might be that researchers and theoreticians interested in SLA issues have been trained in different disciplines, such as linguistics, psycholinguistics, sociolinguistics and neurolinguistics. This has led them to approach SLA from very different perspectives and treat all the variables involved in the learning process differently. Although the situation appears to be very confusing and frustrating, all the present theories, hypotheses, approaches, and models are all working toward the ultimate goal of a true theory of language acquisition. The present brief paper summarizes the major tenets of psycholinguistics approaches to SLA in general and specific hypotheses and suppositions addressed in the literature.

**Keywords:** SLA; psycholinguistic approaches; full access; no access; partial access

## 1. Introduction

Second Language Acquisition (SLA) is a field of inquiry that abounds in theories, while at the same time no single approach has adequately explained how language acquisition takes place. One reason mentioned in the literature for this might be that researchers and theoreticians interested in SLA issues have been trained in different disciplines, such as linguistics, psycholinguistics, sociolinguistics and neurolinguistics. This has led them to approach SLA from very different perspectives and treat all the variables involved in the learning process differently. Although the situation appears to be very confusing and frustrating, all the present theories, hypotheses, approaches, and models are all working toward the ultimate goal of a true theory of language acquisition. Being so, the different approaches taken by linguists, psycholinguists, cognitive psychologists, sociolinguists, neurolinguists, and even some evolutionary psychologists and SLA researchers are never worthless. Each of them has made an attempt to uncover bits and pieces of the whole complexity of language acquisition. Hopefully, the

continuing and combined efforts made by those concerned with SLA issues will lead to the ultimate success of establishing a true theory in language acquisition as well as in SLA.

In this brief paper, an attempt will be made to elaborate on one of the influential approaches to SLA and investigated in SLAR, namely the psycholinguistic approach. To this end, three of the most commonly asserted psycholinguistic models posed in the literature will be explained: the fossilized UG approach, the recreative approach, and the resetting approach.

## 2. Universal Grammar and SLA

SLA owes a considerable debt to Chomsky for his theory of Universal Grammar (UG). Chomsky argues that language is governed by a set of abstract principles that provide parameters which are given particular settings in different languages. He claims that children learning their first language must rely on innate knowledge of language bestowed upon us by God because otherwise the task of mother tongue acquisition would be an impossible one. Chomsky (1980) has summarized the mechanisms of UG and their role in language acquisition as follows: "UG consists of a highly structured and restrictive system of principles with certain open parameters, to be fixed by experience. As these parameters are fixed, a grammar is determined, what we may call a 'core grammar.'" In this theory, the role of principles (i.e., the crosslinguistically invariant (universal) properties of syntax common to all languages) is to facilitate acquisition by constraining learners' grammars, that is, by reducing the learner's hypothesis space from an infinite number of logical possibilities to the set of possible human languages. The role of parameters (which express the highly restricted respects in which languages can differ syntactically) is to account for cross-linguistic syntactic variation. That is, UG principles admit of a limited number of ways in which they can be instantiated, namely those allowed by the parameters specifying "possible variation". The linguistic evidence available to the child during acquisition allows him to determine which parameter setting characterizes his language. Parameter setting eventually leads to the construction of a core grammar, where all relevant UG principles are instantiated (Epstein, Flynn, & Martohardjono, 1996).

According to Chomsky (1980), the input to which children are exposed is insufficient to enable them to discover the rules of the language they are to learn. This inefficiency is referred to as the "poverty of stimulus" (cited in Ellis, 2003). In other words, the logical problem of language acquisition is that without some endowment language acquisition would be impossible since the input data are insufficiently rich—impoverished—to allow language learning to occur in about five years for child language (Larsen-Freeman & Long, 1991). According to Sharwood Smith (1994), the implicit point in this type of argumentation is that we can not rely on the supposition that the learner works on the input by using a general process of hypothesizing: by creating rules purely by considering the evidence in the input and drawing logical inferences about how the system works. Hence, it appears difficult to accept learners learn the complex grammar of a given target language by using a general hypothesis-formation process.

Based on what was implied previously, the learnability theory discussed in the literature deals with the question, Can a language be learnt only based on the input? For instance, a child learning English must discover that a sentence like Sam kicked fiercely his toy car is ungrammatical. The argument, according to Ellis (2003) is that children cannot learn their language solely on the basis of input if the input consists only of positive evidence—i.e. it provides information only about what is grammatical in the language—since learners can never be sure they will not hear a sentence where the adverb is between the verb and direct object. Negative evidence can make it possible for children to understand that sentences such as the one mentioned are ungrammatical. So the conclusion is that the input does not provide the information necessary for learning to be successful. Of course, this argument was originally put forward with respect to L1 acquisition, but it has also be applied in SLA as well.

To differentiate the linguistic from psycholinguistic perspectives in SLA studies, it appears necessary to give a short account of the main concerns of each of them. As stated by Sharwood Smith (1994), the main onus on the part of theoretical linguists is to provide a theory to explain the abstract principles of language. For example, one can mention the principles associated with the idea of UG. In fact, they do not provide a theory to explain how grammars grow over time. In contrast, one of the main concerns of psycholinguists is to investigate the ways in which the principles of UG operate over time as the learners' grammar gradually develops. Consequently, the psycholinguistic approaches to SLA are basically focused on the role of UG in language acquisition and the gradual development of grammar and its representation in the brain. Being so, the question of access to UG is central to any psycholinguistic approach to SLA. In fact, there is no consensus as to whether adult second language learners have access to UG.

Adjemain (1976) was the first person to propose a model of second language acquisition adopting a Chomskyan approach to interlanguage development. He suggested that interlanguage systems were "natural" in the special sense used by Chomsky: they involve grammars that allow the users to produce an infinite number of novel sentences similar to grammars created by children acquiring their first language. According to Adjemain (1976), IL grammars differ from L1 grammars only in their "permeability" to invasion from the L1 systems. She maintains that IL is subject to infiltration from an alien system, i.e. the learner's L1. It appears that Adjemain's (1976) proposal is akin to the creative construction theory: L1=L2 Hypothesis (cited in Sharwood Smith, 1994).

Stern (2003) briefly enumerates a number of theoretical positions regarding whether adult L2 learners have access to UG as following:

1. Complete access: according to this view there is no such thing as a critical period for language learning. It is argued that learners start with parameter settings of their first language but later learn to shift to the L2 parameter settings. Therefore, full target-language competence is possible.
2. No access: the idea here is that adult second language learners have no access to UG. Instead, L2 learners rely on general learning strategies. Based on this view, L1 and L2 acquisition are totally different. Adult L2 learners will normally not be able to obtain full competence and their interlanguage may manifest "impossible rules"—rules disallowed by UG.
3. Partial access: it is argued here that learners have access to parts of UG but not others. For instance, learners have access only to those UG parameters which are operative in their first language. However, they can switch to the L2 parameter setting through direct instruction involving error correction. In summary, L2 acquisition is partly controlled by UG and partly by general learning strategies.
4. Dual access: another theoretical possibility is that adult L2 learners make use of both UG and general learning strategies. Nevertheless, the use of general learning strategies "blocks" the operation of UG, and causing the learners to generate "impossible" errors and to fail to attain full competence. (Ellis 2003, p. 69)

### 3. The Psycholinguistic Possibilities

#### 3.1. The no-access hypothesis

The no-access hypothesis is typified by Clahsen and Muysken (1986), Clahsen (1988), and Bley-Vroman (1989). This hypothesis claims that child first language and adult second language acquisition are guided by distinct cognitive principles. Under this view, child L1 acquisition is constrained by principles of UG, whereas L2 learners use only "general learning strategies"—UG-independent principles—to guide their construction of the L2 grammar.

The no-access hypothesis often appeals to Lenneberg's (1967) critical period hypothesis for language acquisition.

The first proponents of the CPH were Penfield and Roberts (1959) who assumed that language learning increases in difficulty with age and who linked this difficulty to decreasing cerebral plasticity. Lenneberg (1967) introduced a more detailed theory of a critical period for language acquisition. Based on his analysis of existing clinical literature on unilateral brain damage and hemispherectomies, he concluded that there is progressive lateralization of the language function to the left hemisphere, a process which is complete by puberty. He linked this putative phenomenon to what he believed to be a dramatic decrease in the ability to acquire language. Lenneberg's (1967) hypothesis of complete lateralization by puberty was based on two observations: (1) that aphasia as a result of right hemisphere lesions is more likely to occur in children as opposed to adults and (2) after left hemispherectomies children, but not adults, are able to transfer the language function to the right hemisphere. Both observations suggest equipotentiality for language in children but not in adults.

Clahsen and Muysken (1986), Clahsen (1988), and Bley-Vroman (1989) offer the most radical formulations of the position that L2 acquisition is fundamentally different from L1 acquisition. The basic claim is that L2 acquisition is governed by cognitive faculties that are separate and distinct from the domain-specific language faculty, UG. Bley-Vroman (1989) suggests that L2 learning strategies derive from Piaget's Formal Operating Principles; these include the capacity for "distributional analysis, analogy, hypothesis formation and testing". Based on Bley-Vroman's (1989) Fundamental Difference Hypothesis, it is argued that the difference between L1 and L2 acquisition is "internal, linguistic and qualitative. It is internal, because it is "caused by differences in the internal cognitive state of adults vs. children, not by some external factor or factors such as insufficient input, for example". Furthermore, it is linguistic, in that it is caused by a change in the language faculty specifically, not by some general change in learning ability. Finally, it is qualitative, not just quantitative, in that in L2 acquisition the domain-specific acquisition system is not just attenuated, it is unavailable. These differences in the knowledge sources for the child L1 learner and the L2 learner are schematized in the following table from Bley-Vroman (1989, p. 51 cited in Epstein, Flynn, & Martohardjono, 1996):

Child language development	Adult foreign language learning
A. UG	A. Native-language knowledge
B. Domain-specific learning	B. General problem-solving systems

### 3.2. The partial access hypothesis

In contrast to no-access hypotheses, partial-access hypotheses claims that UG knowledge is not totally unavailable, but that it is limited in very specific ways that vary according to the particular version of the hypothesis. One representative proposal argues that only an L1-instantiated UG remains available to the adult. This would mean that only the invariant principles of UG i.e., those that characterize grammars of all languages would remain accessible to the L2 learner. Under this proposal, the child L1 learner has available the entire range of options provided by UG, namely, all invariant principles and all parameterized principles with settings still available. However, the L2 learner has direct access only to the invariant principles of UG (those that characterize the grammars of all languages). With respect to the parameterized principles for which values were set during the learner's L1 acquisition, only the parametric values instantiated in L1 are available to the learner during L2 acquisition. Where the L1 and the L2 differ in a particular parametric value, the L2 learner--having immutably set the L1 value during L1 acquisition--is hypothesized to be incapable of assigning a new value to this parameter to coincide with the target grammar; or, if a particular value of a parameter is necessary for the acquisition of the L2 but this value is not realized in the L2 learner's L1, then the L2 learner will not be able to acquire this value. One particular version of this proposal, the

Window-Of-Opportunity Hypothesis (Schachter 1989) is stated as following:

All that remains as part of the knowledge state of an adult native speaker of a language is a language-specific instantiation of UG, that of the first language. UG in its entirety will not be available as a knowledge source for the acquisition of a second language. Only a language-specific instantiation of it will be.... If, however, it turns out that in the acquisition of the target some instantiation of principle P is necessary and P is not incorporated into the learner's L1, the learner will have no language-internal knowledge to guide him/her in the development of P. Therefore, completeness with regard to the acquisition of the target language will not be possible. (Cited in Epstein, Flynn, & Martohardjono, 1996).

According to the above-mentioned proposal, UG as it is available to a child L1 learner does not constrain the L2 learner's hypotheses. Grammar construction by the L2 learner is constrained not by principles and parameters of UG but by principles of UG and the immutably set parameters of the particular L1 grammar. Thus, this theory predicts that L2 grammar construction will differ significantly from L1 grammar construction. Further, completeness in L2 acquisition is predicted to be impossible in a wide variety of cases, namely, whenever one or more parametric values do not match or whenever certain L1 principles are not instantiated in the L2.

### 3.3. Indirect access hypothesis

The proponents of this view claim that learners have exclusively access to UG via their first language. In fact, the learners have already set parameters to their L1 values, and this is the basis for their second language acquisition. New parameter-setting are not available to them. If the L2 possesses parameter-settings which are different from those already set in their L1, they have to resort to other mechanisms rooted in general problem-solving strategies.

Schachter (1989) is one of the supporters of the indirect access hypothesis. She combines the indirect access hypothesis with the notion of a critical period for L2 acquisition. She does accept that UG may be available for child L2 learners; however, she argues that there is a CP for acquisition of L2 principles and parameter settings, if these have not been operative in the learner's L1. Schachter (1989) refers to this critical period as a Window of Opportunity.

Schwartz and Sprouse (1994) claim for another variant of the indirect access hypothesis. They maintain that L2 learners transfer all the parameter-settings from from their L1 in an initial stage of language acquisition, but when the L2 fails to conform to their L1 parameter-settigs, they try to revise their hypothesis. In this case, learners make new hypotheses which are constrained by UG. In summary, Ug is accessed via the L1 in a first stage, and directly thereafter (Mitchel & Myles, 1998).

### 3.4. The full access hypothesis

According to this position, UG continues to influence L2 learning for adults as well as for children. The proponents of this view argue that there is no such thing as a critical period after which UG ceases to operate. Flynn (1996) reviewed a range of empirical work with Japanese learners of English as their L2. She noticed that adult Japanese learners of English L2 could successfully re-set the head-direction parameter—that is, from head-last to head-first (cited in Mitchel & Myles, 1998).

Sharwood Smith (1994) uses the term "recreative approach" to imply the same sense. He claims that L2 systems are acquired in the same way as L1, and UG principles are directly imposed without any transfer. In fact, learners "recreate" their L2 grammar as if they were native learners of the language. This position is also referred to as "starting afresh" approach or "back to UG" approach: "back to an unbiased UG unaffected by learner's L1. L2 learner's native language is ignored and plays no part in SLA" p. 155).

### 3.5. The re-setting approach

This recently developed position in fact is a combination of the indirect access and full access positions. It borrows from the indirect access hypothesis the L1 transfer, and from the full access hypothesis the active UG. According to the re-setting approach, L1 represents the starting point or the initial state of SLA. The parameters of UG set for the L1 are applied when possible to the parameters of L2. The learners then have to reset some of those parameters. In this regard White claims that when L1 and L2 systems match, no learnability problem occurs. In fact, learnability problems happen when L1 and L2 systems do not match. She argues that UG is still active in L2 acquisition but its operation is constrained by certain instantiations of UG in L1 carried over to L2 (cited in Sharwood Smith, 1994, p. 161). Sharwood Smith (1994) summarizes the three stages involving the re-setting approach of UG as following:

- a. Initial application of any L1 instantiation of those UG parameters that are relevant.
- b. Recreative application of UG where L1 provides no basis for hypothesis about L2 structure
- c. Reorganization and revising the effects of phase a which results in resetting UG parameters.

### 4. Conclusion

This brief paper intended to review the major tenets of the psycholinguistic approaches to SLA. As mentioned at the outset of the paper, the psycholinguistic approaches are in fact centered around the question of UG and its access to L2 learners in the course of language acquisition. The main question to deal with for psycholinguists is whether L2 learners have any access to UG or not. Different positions were introduced each of which claiming empirical experimentation as supporting evidence. No clear-cut answer is still given. However, it appears that general consensus today is that UG influences SLA, but we need to focus on the modules influenced by UG in SLA.

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