



Recent history of L2 research from psycholinguistic perspectives

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ABSTRACT

The field of SLA is relatively new, but different classifications have been suggested for its development (Mitchell & Myles, 2004). Indeed, there is an anonymous agreement that the establishment of SLA as a field of enquiry goes back to 1950s- 1960s (Schachter, 1998). As for the classification proposed by Ellis (2009), one development dealt with the scope of the field of enquiry. While much of the earlier work had focused on the linguistic, and especially the grammatical properties of learner language, and was psycholinguistic in orientation, later work attended to the pragmatic aspects of learner language and increasingly, employed a sociolinguistic perspective. A second development concerned the increasing attention paid by SLA researchers to linguistic theory, in particular the theory of language associated with Chomsky's model of grammar: Universal Grammar. A third development was the marked increase in theory-led research. Whereas much of the earlier research was of the research-then-theory kind, typically consisting of the collection and analysis of samples of learner language, later research was increasingly theory-led and experimental in style.

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Introduction

Classification of L2 study from a psycholinguistic perspective

Schachter (1998) classifies the study of SLA from a psycholinguistic perspective including: (1) what gets learned — the language, (2) the conditions under which the learning takes place — the context, and (3) what the learner does in order to learn—the learner. Of these three categories, in the last ten years SLA research has placed much emphasis on the first category (the language) and less on the second and third (the context and the learner) although it has paid the latter two considerably more attention recently.

In terms of the language, researchers have by now developed a good-sized fund of linguistic information on the learning of both simple and complex aspects of some languages, specifically English, German, and French; and work intensifies on the learning of other languages as well, such as Japanese, Chinese, Korean, Italian, and Swedish. In terms of the context, and largely because of the Canadian immersion programs, there is a good overall sense of the conditions most favorable to child SLA, although at present less is known about the conditions most favorable to adult SLA. Regarding the learner, researchers probably know least about what the learner does to acquire an L2, no doubt because this is a most difficult area to get a grip on without tightly-controlled, experimental conditions. Mitchell & Myles (2004) propose the following classification for L2 research.

The 1950s and 1960s periods

Behaviorism

In the 1950s and early 1960s, theorizing about SLA was still very much related to the practical business of language teaching. However, the idea that language teaching methods had to be justified in terms of an underlying learning theory was

well-established, since the pedagogic reform movements of the late-19th century at least (Howatt, 1984). The writings of language teaching experts in the 1950s and 1960s include serious considerations of learning theory, as preliminaries to their practical recommendations.

Explanation of second language acquisition (SLA) fell into basic two periods: The behavioral and the post behavioral periods. The first period is recognized by the use of behaviorism a theory borrowed from psychology to account for both first and second language acquisition, and by the use of structural descriptions of language. Subsequently, as empirical research on both first and second language acquisition demonstrated some major problems with the behaviorist account of language learning, the field of SLA entered a post behaviorist era in which multiple theories appeared to account for SLA. There were many competing accounts and explanations of various aspects of SLA at that time (among others, Schumann's Acculturation Model, Tarone's Variable Competence Model, and Andersen's Nativization Model). Some of them have been updated; others have faded from prominence. The dominant theory at that time, however, is one that retains considerable influence today: the Monitor Theory of Stephen Krashen. These two theories have had the lasting impact on SLA, particularly for those concerned with classroom instruction.

From a behaviorist stance, language learning is seen like any other kind of learning, as the formation of habits. It stems from work in psychology that saw the learning of any kind of behavior as being based on the notions of stimulus and response. This view sees human beings as being exposed to numerous stimuli in their environment. The response they give to such stimuli will be reinforced if successful, that is, if some desired outcome is obtained. Through repeated reinforcement, a certain stimulus will elicit the same response time and again, which will

then become a habit. The learning of any skill is seen as the formation of habits, that is, the creation of stimulus-response pairings, which become stronger with reinforcement. Applied to language learning, a certain situation will call for a certain response; for example, meeting someone will call for some kind of greeting, and the response will be reinforced if the desired outcome is obtained, that is, if stimulus of greeting is understood. In the case of communication breakdown the particular response will not be reinforced, and the learner will abandon it in favor of a response that it is hoped will be successful and therefore reinforced.

When learning a first language, the process is relatively simple: all we have to do is learn a set of new habits as we learn to respond to stimuli in our environment. When learning a second language, however, we run into problems: we already have a set of well-established responses in our mother tongue. The SLL process therefore involves replacing those habits by a set of new ones. The complication is - that the old first-language habits interfere with this process, either helping or inhibiting it. If structures in the second language are similar to those of the first, then learning will take place easily. If, however, structures are realized differently in the first and the second language, then learning will be difficult. As Lado put it at the time:

The Audio-Lingual Method emerged in the 1950s and borrowed heavily from behavioral psychology and from structural linguistics. These two fields of scholarship, though developed separately, came to be closely associated during this period.

Behaviorism is a theory of animal and human behavior. It attempts to explain behavior without reference to mental events or internal processes. Rather, all behavior is explained solely with reference to external factors in the environment. You may be familiar with Pavlov's experiments with dogs. Many date the origins of modern behaviorism to this research. In one experiment, a tone sounded whenever the dogs were fed. Thus, when the dogs heard the sound (the *stimulus*), they anticipated a meal, and they would begin salivating (the *response*). What Pavlov demonstrated was that when the dogs heard the sound, yet no food appeared, they salivated anyway. Because of the repeated association of the sound with food, after a series of trials the sound alone caused the dogs to salivate. This is called classical conditioning. Specifically, this means that in a given context, two events are naturally connected (eating and salivating), and then a third event (the sound) is introduced. After a series of repetitions, the association of the third event alone can trigger the response. Salivating in the presence of food is a natural response for dogs; it is a reflex action. Behaviorists believed the same to be true for human behavior: They reasoned, for instance, that if a child cries and then is picked up by a caregiver, he will develop the habit of crying in order to summon the caregiver. If his cry brings no response, he will abandon this strategy. This reliance on association to explain behavior is the hallmark of behaviorism.

Behaviorists claimed there could be an association among the responses themselves, which initially could be triggered by the external stimulus. For example, a mouse moving through a maze would respond to the initial stimulus of a piece of cheese. However, after several trials, the mouse's motor movements (e.g., first turn left, then right, then right again) would soon become associated with one another. In the same way, typists would associate certain letters with one another in a predictable sequence: it is more likely to be followed by them. Simply by typing the sequence, the typist may end up typing a word like

the others. According to behaviorism learners learn without even thinking about it. Similarly, in language learning, after repeated trials the stimuli will result in nearly permanent learning.

Behaviorists contended that mental processes were not involved in this process; it was purely a result of the association of events, a response to environmental stimuli and subsequent reinforcement or punishment. In effect, these are both responses to the response. Reinforcement encourages continuation of the response behavior whereas punishment discourages continuation of the response. A rat that engages in a behavior (e.g., running on a wheel) and then receives food is more likely to engage in this behavior again. If it receives a shock, it is more likely to stop the behavior. These ideas were soon applied to human behavior, along with the notion that thoughts, feelings, and intentions are not necessarily involved in human behavior, which, like animal behavior, is seen as set of responses to external stimuli. This concept is central to behaviorism and contrasts sharply with approaches to learning that followed it.

Within the behaviorist theory, all learning- including language learning is seen as the acquisition of a new behavior. The environment is the most indeed, perhaps the only-important factor in learning. Learning consists of developing responses to environmental stimuli. If these responses receive positive reinforcement, they will become habits. If the responses receive punishment (in this case error correction), they will be abandoned. And so the process goes on, with the child learning language through habit formation. A child learns a language by imitating sounds and structures that she hears in the environment. If she produces an utterance that brings a positive response, she is likely to do so again. If there is no response or a negative response, repetition is less probable. Thus, language learning is seen as similar to any other kind of learning, from multiplication to yodeling: imitation of models in the input, practice of the new behavior, and the provision of appropriate feedback.

According to behaviorism, SLA occurs in a similar fashion. To learn a second language (L2), one must imitate correct models repeatedly. Learning of novel forms can also occur through analogy; for example, learners of English can acquire plural marking on nouns by analogy to previously learned

Take the example of an English (as a first language) learner learning French as a second language and wanting to say *I am twelve years old*, which in French is realized as *J'ai douze ans* (= I have 12 years), and now consider the same learner learning the same structure in German, which is realized as *!eh bill zwolf Jahre alt* (= I am 12 years old). According to behaviorist view of learning, the German structure would be much easier and quicker to learn, and the French one more difficult, the English structure acting as a facilitator in one instance, and an inhibitor in the other. Indeed, it may well be the case that English learners have more difficulty with the French structure than the German one, as many French teachers would testify after hearing their pupils repeatedly saying **Je suis douze* (I am 12) (note: asterisks are traditionally used in linguistics in order to indicate ungrammatical sentences), but more about that later.

As for teaching, the implications of this approach were twofold. First, it was strongly believed that practice makes perfect; in other words, learning would take place by imitating and repeating the same structures time after time.

Second, teachers needed to focus their teaching on structures which were believed to be difficult, and as we saw above, difficult structures would be those that were different in the first and second languages, as was the case for the

English-French pair cited above. The teacher of French, in our example, would need to engage his or her pupils in many drilling exercises in order for them to produce the French structure correctly.

The logical outcome of such beliefs about the learning process was that effective teaching would concentrate on areas of difference, and that the best pedagogical tool for foreign language teachers was therefore a sound knowledge of those areas. Researchers embarked on the huge task of comparing pairs of languages in order to pinpoint areas of difference, therefore of difficulty. This was termed Contrastive Analysis (or CA for short) and can be traced back to Fries, who wrote in the introduction to his book *Teaching and Learning English as a Foreign Language*: 'The most effective materials are those that are based upon the scientific description of the language to be learned, carefully compared with a parallel description of the native language of the learner. Work in this tradition has some continuing influence on second or foreign language pedagogy.'

Critique

Linguistics and psychology had gone through major developments from the 1950s to the 1960s, both witnessed. Linguistics saw a shift from structural linguistics, which was based on the description of the surface structure of a large corpus of language, to generative linguistics that emphasized the rule-governed and creative nature of human language. This shift had been initiated by the publication in 1957 of *Syntactic Structures*, the first of many influential books by Noam Chomsky.

In the field of psychology, the pre-eminent role for the environment which was argued by Skinner - in shaping the child's learning and behavior was losing ground in favor of more developmentalist views of learning, such as Piaget's cognitive developmental theory, in which inner forces drive the child, in interaction with the environment.

Chomsky's views of learning had a determining role in the decline of behaviorism. Chomsky's criticisms focused on a two major issues: a) The creativity of language, and b) Given the complexity and abstractness of linguistic rules, it is amazing that children are able to master them so quickly and efficiently.

The 1970s periods

First language acquisition

It seems that children all over the world go through similar stages, use similar constructions in order to express similar meanings, and make the same kinds of errors. From this necessarily brief and oversimplified account of 1970s first language acquisition research, the following characteristics emerge:

1) Children go through stages, 2) These stages are very similar across children for a given language, although the rate at which individual children progress through them is highly variable, 3) These stages are similar across languages, 4) Child language is rule-governed and systematic, and the rules created by the child do not necessarily correspond to adult ones, 5) Children are resistant to correction, and 6) Children's processing capacity limits the number of rules they can apply at any one time, and they will revert to earlier hypotheses when two or more rules compete.

Error Analysis

These findings reported above soon come to the attention of researchers and teachers interested in second language acquisition. This was the case, not only because of their intrinsic interest, but also because the predictions made by Contrastive

Analysis did not seem to be borne out in practice. Teachers were finding out in the classroom that constructions that were different in pairs of languages were not necessarily difficult, and that constructions that were similar in two languages were not necessarily easy either. Moreover, difficulty sometimes occurred in one direction but not the other. For example, the placement of unstressed object pronouns in English and French differs: whereas English says *I like them*, French says *Je les aime*. Contrastive Analysis would therefore predict that object pronoun placement would be difficult for both English learners of French and French learners of English. This is not the case, however; whereas English learners of French do have problems with this construction and produce errors such as **J'airne les* in initial stages, French learners of English do not produce errors of the type *I them like*, as would be predicted by Contrastive Analysis. The task of comparing pairs of languages in order to design efficient language teaching programmes now seemed to be disproportionately huge in relation to its predictive powers: if it could not adequately predict areas of difficulty, then the whole enterprise seemed to be pointless.

These two factors combined - developments in first language acquisition and disillusionment with Contrastive Analysis - meant that researchers and teachers became increasingly interested in the language produced by learners, rather than the target language or the mother tongue. This was the origin of Error Analysis, the systematic investigation of second language learners' errors. The language produced by learners began to be seen as a linguistic system in its own right, worthy of description. Corder (1967) was the first to focus attention on the importance of studying learners' errors, as it became evident that they did not all originate in the first language by any means. The predictions of Contrastive Analysis, that all errors would be caused by interference from the first language, were shown to be unfounded, as many studies showed convincingly that the majority of errors could not be traced to the first language, and also that areas where the first language should have prevented errors were not always error-free. For example, Hernandez-Chavez (1972) showed that although the plural is realized in almost exactly the same way in Spanish and in English, Spanish children learning English still went through a phase of omitting plural marking. Such studies became commonplace, and a book-length treatment of the topic appeared in 1974.

In a review of studies looking at the proportion of errors that can be traced back to the first language, R. Ellis (1985a) found that there was considerable variation in the findings, with results ranging from three per cent of errors attributed to the first language, with a majority of studies finding around a third of all errors traceable to the first language. Error Analysis thus showed clearly that the majority of the errors made by second language learners do not come from their first language.

The next question therefore was: where do such errors come from? They are not target-like, and they are not first language-like; they must be learner-internal in origin. Researchers started trying to classify these errors in order to understand them, and to compare them with errors made by children learning their mother tongue. This was happening at the same time as we make developments in first language acquisition, which we mentioned above, whereby child language was now seen as an object of study in its own right, rather than as an approximation of adult language. In SLL research, coupled with my interest in understanding learner-internal errors, interest in over the character of the second language system was also growing.

The term interlanguage was coined in 1972, by Selinker, to refer to the language produced by learners; both as a system which can be described at any one point in time as resulting from systematic rules, and as the series of interlocking systems that characterize learner progression. In other words, the interlanguage concept relies on two fundamental notions: the language produced by the learner is a system in its own right, obeying its own rules; and it is a dynamic system, evolving over time. Interlanguage studies thus moved one step beyond Error Analysis, by focusing on the learner system as a whole, rather than only on its non-target-like features.

Morpheme studies and second language learning

As far as second language acquisition research is concerned, the most important empirical findings of this period were probably the results of the so-called morpheme studies, and at a conceptual level, Krashen's Monitor Model, which was a logical theoretical development arising from such studies.

Brown had found a consistent order of emergence of 14 grammatical morphemes in English in his longitudinal study that it presents many similarities with first language acquisition, even though there are differences. These were major empirical findings that undermined contemporary beliefs about how second languages are acquired.

Before examining the theoretical proposals advanced to explain such findings, let us pause for an instant on the last point, namely the finding that acquisitional patterns in first and second language learning were both similar and different, as it is still today an issue that is fiercely debated and highly controversial. Remember that the discovery of acquisition sequences in first language acquisition was linked to the theory that children are endowed with a language faculty that guides them in the hypotheses they make about the language around them. Brown's order of acquisition of grammatical morphemes was seen as evidence to support this view. So, what can we make of the finding that second language learners also follow an order of acquisition, but that this order is different? The fact that they do follow such an order suggests that they are indeed guided by some set of internal principles, as children are. On the other hand, the fact that this order varies from that found for first languages, suggests that these internal principles are different, in some respects at least.

A somewhat confused picture therefore emerges from the empirical work characteristic of the 1970s, and the 1980s research agenda has tried to address some of these issues. But before we turn to the 1980s, we need to consider a highly influential attempt to conceptualize these issues in the first comprehensive model of second language acquisition, Krashen's Monitor Model.

Krashen's theory evolved in the late 1970s in a series of (articles (Krashen, 1977a, 1977b, 1978), as a result of the findings outlined above. Krashen thereafter refined and expanded his ideas in the early 1980s in a series of books (Krashen, 1981, 1982, 1985)

Krashen based his general theory around a set of five basic hypotheses:

1. The acquisition- learning hypothesis
2. Monitor model hypothesis
3. The Natural Order hypothesis
4. The Input hypothesis
5. The Affective Filter hypothesis.
4. The 1980s and beyond

We will not review this period in detail here, as the rest of the book is devoted to outlining the different approaches and the empirical work attached to them, which followed from the 1980s to the present day. In this section, we will briefly summarize the ongoing research agenda that arose from the major developments of the 1970s.

By the mid-1980s, SLL research was no longer subordinate to the immediate practical requirements of curriculum planning and language pedagogy. Instead, it had matured into a much more autonomous field of inquiry, encompassing a number of substantial programmes of research, with their distinctive theoretical orientations and methodologies. The links with other related disciplines have by no means disappeared, however, and we will see throughout this book that many new links have developed. Research into the structure of language(s) and its use continues to be extensively drawn upon, and so is research into language variation and change. New links have emerged with cognitive science (e.g. the development of fluency; the role of consciousness), with neuro-psychology (e.g. connectionist models; modularity of the brain) and with socio-cultural frameworks (Vygotskian learning theory) that have greatly enriched our perception of the many facets of second language acquisition.

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