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The Great Lacuna: Lexicon Acquisition in SLA Theory/Models

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In this paper, I will attempt to do two things: 1) explain briefly the claims of four current SLA theories, and 2) discuss the implications of those claims for lexicon acquisition.

Explanation of Krashen's model

The four SLA models which will be explained include those espoused by Krashen, Schumann, Lamendella, and Hatch. Krashen's model is probably the currently best known. It contains several specific hypotheses and has been expounded in many different places. The exposition of the model which I will be using is one which was given in an article by Krashen in 1981 entitled, "The 'Fundamental Pedagogical Principle' in Second Language Teaching." In this paper, Krashen lists five specific hypotheses. The first is the "Acquisition-Learning" hypothesis. This hypothesis states that there are two ways of developing skill in a second language: acquisition and learning. Acquisition is a natural subconscious process similar to the process used in first language acquisition and it is not affected by error correction. Learning is a conscious process involving instruction and error correction.

The second hypothesis is called the "Natural Order" hypothesis. This hypothesis claims that structures are acquired in a "predictable order" regardless of the order in which they are presented in the classroom.

The third hypothesis which is part of Krashen's model is the "Monitor" hypothesis. This hypothesis claims acquisition has the main role in any language production and that learning only contributes in a minor "editing" or "monitoring" function. In other words, we first generate what we want to say on the basis of what we have acquired and then, if we have time and reason to focus on form, and if we know an applicable rule, we will fix what we have generated so that it conforms to the rule.

The fourth hypothesis, called the "Input" hypothesis, claims that we acquire language, "not by focussing on structure but by understanding messages" (p. 54). It also claims that the best way to teach is to provide comprehensible input (input which is $i + 1$ or just one small increment beyond the current knowledge of the learner) and that the best input is not tinkered with in order to specifically aim at $i + 1$.

The final hypothesis included in Krashen's model is the "Affective Filter" hypothesis. This hypothesis claims that several affective variables relate directly to success in second language acquisition. These factors include anxiety (which should be low), motivation (which

should be instrumental in "necessity" environments and integrative in "luxury" environments), and self-confidence (which should be high).

Krashen summarizes his model with what he calls "The Fundamental Principle in second language acquisition," namely, "people acquire second languages when they obtain comprehensible input, and when their affective filters are low enough to allow the input 'in'" (p. 57).

Implications of Krashen's model for lexicon acquisition

Now let's examine the implications that Krashen's model has if it is applied to lexicon acquisition. We will begin with the "Acquisition-Learning" hypothesis and ask whether this dichotomy seems as true for lexicon as for syntax. Several questions help clarify the issue. For example, if we ask whether the second language lexicon can be acquired subconsciously without instruction, there is no question but what the answer is "Yes." The millions who have gone abroad and returned with spatterings of foreign words attest to this as do those who have read foreign texts and learned words without looking them up. So far the model seems to apply. And what about learning? Can second language words be learned? Thousands of textbooks with word lists and millions of students who have used them or lists of their own making attest to this. The issues become less clear when we follow the implications of Krashen's theory further. Is there a real difference between second language lexicon acquisition and second language lexicon learning? More importantly, can learned words become "acquired"?

Here the issue is more messy. What does it mean with regard to the new word you looked up in the dictionary and tried to memorize? Does that word never get so it flows naturally in production or does it only flow naturally in production after it has been seen in lots of other contexts and is, thus, acquired? If this latter explanation is true, does that imply that acquisition triggers learning (Why did you look up the word in the first place?) or that learning speeds up acquisition (Did it help in any way to look up the word?) or that the whole foray into the dictionary and learning was a waste of time? The answers to these questions have implications not only for second language lexicon acquisition but also for first language acquisition as we use dictionaries in similar ways in our native languages. Maybe these issues draw us back to more basic ones, such as the question of whether second language learning is any different from first language learning. The answer to this basic question seems much less clear with regard to the area of the lexicon even than it is with regard to other areas of language.

The second hypothesis in Krashen's model claims that grammatical structures are acquired in a predictable order. Krashen (1981) discusses how many critics of his theory have pointed out the fact that this claim is limited in its scope to just a few points of morphology. Krashen argues with his critics saying that some studies have broadened the list of morphemes studied (Krashen, Sferlazza, Feldman and Fathman, 1976; Turner, 1978; and van Naerssen, 1981, for example), but also by pointing out work by Scarcella (forthcoming) showing that there was a natural acquisition order in a different language domain, namely, discourse. Following these ideas for the purposes of this paper, what would it mean

in terms of second language lexicon acquisition? Is lexicon acquired in some particular order just as morphology is or discourse is regardless of instruction or language background? If so, what would the order be based on--semantic field? frequency? saliency of some type?

The lexicon is a much larger set to be learned than morphology or even syntax. Would it be nonsense to make claims about natural order of acquisition with regard to the lexicon simply because of learnability issues (you can't learn something without sufficient examples of it) or does the natural order boil down to a general frequency issue (as Larsen-Freeman claimed for the morphology acquisition order)? If it comes down to a specific frequency issue (the frequency with which any particular individual hears a word), then there would be no universal acquisition order. We are left with an acquisition principle instead.

Other questions arise as we examine the third hypothesis, the "Monitor" hypothesis. This hypothesis says that we generate first from our unconscious or acquired language and then fix it with our learned language if we have time, focus on form, and if we know the rule. This is somewhat of a puzzle with regard to the second language lexicon. Do we generate second language only from "acquired" vocabulary and are all of our further word searches scrambles through our "learned" vocabulary? What does that mean when we generate first language and then have obvious word searches? Do we have acquired and learned vocabularies in both first and second languages or does this hypothesis not make sense with regard to the lexicon because the lexicon is so meaning-centered rather than form-centered? Is the "monitor" purely a syntax phenomenon not applying to broader issues of second language acquisition?

The fourth hypothesis is the input hypothesis which claims that people acquire by understanding messages which are just slightly beyond their level of competence. Krashen also claims that input should **not** be crafted (at least for structure) in order to get $i + 1$ but that a variety of situations will allow comprehensible input to come out in just the right proportions. It seems natural to think that vocabulary will be acquired if it appears in comprehensible contexts. This, after all, is one of the main reasons that reading is used for vocabulary development in the first language. It is less clear whether the lexicon in the input could be crafted in some way. This question is tied to the earlier questions of whether there is an acquisition order with the lexicon and, if so, what the basis of the order is. Furthermore, vocabulary is always much more at the heart of any message than structure is, so isn't just stating that the message must be comprehensible already suggesting that the vocabulary presented will be deliberately chosen in some way?

The final hypothesis in Krashen's model is the "Affective Filter" hypothesis which says acquisition, presumably including lexicon acquisition, is better with low anxiety, appropriate motivation, and greater self-confidence. Here the questions to be asked are somewhat different from those asked of the other hypotheses. For example, with the anxiety issue, some research into first language lexicon acquisition has shown quite clearly that high anxiety may facilitate word learning. Words which have produced embarrassment of any kind for learners seem

to be words which are never forgotten. So does the affective filter work in the same way with lexicon acquisition? I will leave the issues of motivation and self-confidence for others to examine the implications. Overall, I think it is quite clear that Krashen's model is much less explanatory when we think of lexicon acquisition than it is when we consider syntax acquisition.

Explanation of Schumann's model

Schumann's model is entitled "The Acculturation Model" and I am using his exposition of it from the Gingras volume (1978) as a basis for my explanation. In the model Schumann argues that two groups of factors--social factors and affective factors--combine into a single variable which is called acculturation, and that this variable is the "major causal variable" in second language acquisition. Schumann chooses these two groups of factors over other possibilities which he names, including personality factors, cognitive factors, biological factors, aptitude factors, personal factors, input factors, and instructional factors. Furthermore, he makes his claims only for natural language learning, that is, learning without formal instruction.

Schumann says that the social variables going into the acculturation model include social dominance, adaptation, enclosure, cohesiveness, size, congruence, attitude, and intended length of residence. The affective variables include language shock, culture shock, motivation, and ego-permeability. Schumann claims that when certain conditions are met with regard to all of these factors, second language acquisition will be greater. An unspoken assumption of the model seems to be that more friendly interaction will take place if the conditions are met and that more friendly interaction will inevitably lead to more second language learning. Schumann argues that the only way that instruction could override the strength of the acculturation factor is with radical steps such as the Foreign Service Institute or the Army language schools employ: student selection, intensive (five hours or more per day) instruction, extended periods of study, very small classes, well-trained teachers, specially prepared materials, and a wash-out system.

Implications of Schumann's model for lexicon acquisition

Now let's look at the implications of Schumann's model for lexicon acquisition. Essentially all that is being said is that more lexicon will be acquired if social and affective factors exist which bring the two language societies into more contact. I think it is hard to argue with such a claim. I also think it is hard to be satisfied with such a claim, for what has it really explained? Do we know any better how the lexicon is acquired? Is it purely a frequency issue--because you interact more, you see and/or hear more words? Is it a context issue--because you are with native speakers, words are found in context where their meanings can be observed? Is it a friendliness issue--the friendlier your interaction with native speakers, the more you learn?

How can we explain the acquisition of some words in the lexicon and not others--do the same factors named immediately above influence the quality (exact selection) of the lexicon acquired as well as the quantity? Also, I think it is evident that the radical steps in instruction which Schumann claims are necessary if instruction is to

override acculturation do not have to be so radical for lexicon acquisition to take place. Learners can read books and pick up words; they can make their own lists and learn words; they can get tapes and learn words. How much lexicon they acquire may very well depend more on instructional factors or input factors or cognitive factors or personal factors. The main causal claim for acculturation is weak when lexicon acquisition is considered.

Explanation of Lamendella's model

The third language acquisition model to be examined is one proposed by Lamendella. I will use Lamendella's description of the model in his article entitled, "General principles of neurofunctional organization and their manifestation in primary and nonprimary language acquisition," as the principle basis for my explanation of the model.

One of Lamendella's main claims is that there are neurophysiological functional systems; that is, there are particular anatomical structures and/or physiological processes which handle particular functions. The communication function is shared by limbic and neocortical systems. The limbic system basically handles nonverbal information while Broca's area handles speech production and Wernicke's area handles speech recognition. Higher level brain structures (the neocortex) are less genetically determined and more capable of "high degrees of individual learning" and "have the capacity to develop new, non-wired-in information frames and skill schemata."

Lamendella claims that, just as there is a "metasystem" for communication, there is also a "metasystem" for cognitive information processing. He thinks it is very likely that the two metasystems share subsystems and are highly integrated. Both systems have several levels which develop as a process of human development and the development of a new level in either of the metasystems may add new information to old, integrate old information with new, differentiate or specialize to a particular function, or superimpose a new "template" entirely.

When an individual attempts to learn a new language, there is likely to be a reversion to a lower level in the communication metasystem or, particularly in a formal instructional setting, the individual may not use the communication metasystem at all, but use the cognitive metasystem instead.

Implications of Lamendella's model for lexicon acquisition

What implications are there in Lamendella's model for lexicon acquisition? To begin with, it suggests that there should be somewhere in the human body, and more especially in the brain, where the lexicon would be stored. This idea seems to fit with facts that neurolinguists have found. Electrical charges in particular areas of the brain will produce voicing of particular words. However, we are still left with the problem of how the words got there, whether first and second language lexicons are generally in the same place or distinctly separated, and whether first and second language lexicons are hooked with anatomical/physiological correlates in the same manner. Further puzzles arise as we try to figure out how certain words (cusswords in particular) are assigned to the limbic system while other words are not. Also, do

we know what happens to cusswords in a second language? Are they also assigned to the limbic system?

If it is true that the higher level brain structures can learn quickly, producing new information frames (for reception) and new skill schemata (for production), are second language words any harder to learn than first language words? If so, why? Might it be a problem with a faulty information frame (based on inability to hear the sounds of words correctly or to grasp their meanings) or a faulty skill schemata (based on inability to produce sounds of words correctly) or both? Do strange sounds make learning some words more difficult than learning others? There is some evidence that words with difficult sounds are learned even in a first language much later than words with less difficult sounds and that bilingual children learn the phonologically easiest word for an object or a concept first regardless of which language it is in.

Also if it is true that second language learners might switch to the cognitive metasystem rather than the communicative metasystem, why does that happen? What consequences does it have in the lexicon? If it is producing less than native-like speech, what can be done to ensure that the communicative metasystem handles the new language input?

As can be seen, Lamendella's model does allow for discussion of lexicon acquisition and not just syntactic acquisition. Nonetheless, the application of the model raises more questions than it answers.

Explanation of Hatch's model

Hatch has called her model the "Experiential" model. I am using a paper about the model written by Hatch and Hawkins as the best explanation of the model. Briefly, these are the main points of the model.

First, Hatch claims that there are three integrated mental systems of knowledge--the social, the cognitive, and the linguistic. She implies that these systems will have neuroanatomical correlates (p. 3). Further, Hatch says that there is an interactive relationship between internal mental systems and external experience and "that language develops as a result of the external experience that continually feeds the internal mental systems" (p. 20). She points out that the experience can be incidental or intentional to language learning. With these two principles in place the Hatch model is then built on adaptations of ideas first proposed by Shank and Abelson (1977) and Kempen and Hoenkamp (1981).

Shank and Abelson have pointed out that in any learning, the learner builds a "knowledge structure" that serves to organize events and make them understandable for him or her. Any knowledge structure can be built, revised, or added to. These authors say these things take place as we build up specific "scripts" or "appropriate sequences of events in a particular context" (p. 41.) The scripts are built up out of plans which are defined as "sequences of actions that are intended to achieve a goal" (p. 72). Notice that a script is location or environment specific while a plan is location general. Hatch and Hawkins point out that we learn possible applicable plans through our experience. One

very important part of building scripts is the learning of the appropriate language to use at each point in the sequence.

Hatch and Hawkins say that, if language learning is to take place, the learner must recognize that there are new elements in his/her experience and figure out where and how the new information is generalizable. Using the ideas of Incremental Procedural Grammar, Hatch and Hawkins make claims for an internal "conceptualizer" which decides what needs to be communicated and presents it to the "formulator" which must find the best pragmatic and syntactic structures for the ideas and give them to the "articulator" which is responsible for saying the utterances. They claim that the formulator will use any resources available to it--memorized chunks of language, rules, information from the L1, etc. However, the formulator will also note when there has been a gap in what was needed. Later the formulator may "find" the very thing in the current experience that had been missing in the expression of some previous idea. The formulator will then store the gap filler for use in the future. Thus, the recognition of new elements in the experience (whether in the language, cognitive, or social domain) leads to learning.

Implications of Hatch's model for lexicon acquisition

As can be seen, the Hatch and Hawkins model has very direct implications for the learning of the lexicon. The model implies that lexicon learning (as well as learning of other features of the language) takes place because of two things--one internal and one external. Internally there must be some cognizance of the fact that something new is needed. Externally the opportunity to find what is needed must present itself.

Nevertheless, this model still leaves gaps in explanation of what happens with lexicon acquisition. How would it explain, for example, the incapability of learners to retain words which they want very much to remember for future use? And why are some gaps so obvious to the adult language learner while others are filled so naturally that no gap is even noticed? These and other questions need exploration.

Conclusion

At the outset I said that I was going to describe four models of second language acquisition and then look at their implications for the acquisition of the lexicon. I did not say why, and I would like to make that purpose explicit now. As linguists, we have seemed to focus very strongly on syntax, morphology, and phonology and very little on the lexicon and yet the lexicon seems to be the very touchstone by which language acquisition is gauged in the world. Notice that it is first words of babies which are recorded in baby books, not first phonemes, or first uses of normal word order. The world recognizes the acquisition of lexicon as the sign that language is being acquired. The same is true of second language learning also. As Higgins and Johns (1984) have pointed out, if a speaker says something to non-linguists using English pronunciation and English syntax but German words, they will say that he or she is speaking German, not English. If the speaker says something using German pronunciation and German syntax, but English words, they will say that he or she is speaking English (p.13). I

propose that explanation of lexicon acquisition be one of the main standards, if not the main standard by which we judge second language acquisition theory. Until lexicon acquisition is explained, we still have some explaining to do.

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