

## THE MONITOR MODEL: SOME METHODOLOGICAL CONSIDERATIONS

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The Monitor Model has been proposed (Krashen 1975, 1977a) as a general model for adult second-language performance. The model claims that adult second-language performers have two means of internalizing the rules of a target language: (1) language *acquisition*, which is primarily subconscious, is not influenced by overt teaching or error correction, and is very similar to primary language acquisition in children; (2) language *learning*, which involves the conscious representation of pedagogical rules, and is influenced by teaching and error detection. The model hypothesizes that learning is available to the adult second-language performer only as a Monitor—that is, people use conscious grammar only to alter the output of the acquired system. This paper examines the Monitor Model and presents a methodological critique of the research on which the model is based. An attempt is made to provide an outline of an alternate model that more parsimoniously accounts for the data and that ties into a theory of human information processing generally.

There are two different subjective experiences that I seem to have as I process my speech in another language—in this case, German. In the first experience, I seem to be operating by “feel”: I feel immediately that something is wrong with the sentence, *Ich habe nicht das Kind gesehen*. In the second case, I seem to operate more by “rule”: I think that something is wrong with the sentence, *Ich habe ihm es gegeben*, but to be sure I have to go back to a rule I have tucked away that tells me that when there are two pronouns in an indirect object construction, the accusative precedes the dative.

There is a theory of adult second-language performance that neatly accounts for these two subjective experiences. It is called the Monitor Model. I am going to begin by briefly discussing the model and the evidence on which it rests. Subsequently I will argue that the evidence is too fragile to support the theoretical edifice that has been constructed and that, in any event, the model is based upon a rather questionable distinction.

## THE MONITOR MODEL

The Monitor Model has been proposed by Stephen Krashen of the University of Southern California. The model is essentially a theory of processing a second language (L2), but it may have some implications for first language (L1) as well. What Krashen posits is that an adult L2 performer can "internalize" the rules of a target language via one of two separate systems: (a) an implicit way, called subconscious language *acquisition*, and (b) an explicit way, conscious language *learning*. Language acquisition is similar (if not identical) to the process by which children acquire L1. Krashen claims that it comes about through meaningful interaction in a natural communication setting. Speakers are not concerned with form, but with meaning; nor is there explicit concern with error detection and correction. This contrasts with the language learning situation in which error detection and correction are central. Formal rules and feedback provide the basis for language instruction in typical classroom settings. Nonetheless, for Krashen it is not the setting per se but the conscious attention to rules that distinguishes language acquisition from language learning. In the natural setting an adult can receive formal instruction by asking informants about grammar and by receiving feedback from friends. Similarly, language can be acquired in the classroom when the focus is on communication—for example, through dialogues, role-playing, and other forms of meaningful interaction.

Table 1 outlines the acquisition-learning distinction. "Acquisition" is said to correspond to the tacit knowledge of a native speaker in Chomsky's sense (Houck, Robertson, & Krashen in press, Krashen 1977a). In the acquisition process, input stimulates the operation of a Language Acquisition Device. The process is governed by universal strategies available to all acquirers (Krashen 1978). Krashen describes this as a "creative construction process," whereby the native speaker acquires the structures of the language in a fairly stable order.

"Learning" is said to be the conscious internalization of the rules of a language. One of the uses of learning is to monitor one's own performance and to correct that performance so that it corresponds with what has been learned. The Monitor, however, is (a) not available to all performers, (b) tends to be limited to the simpler parts of language, and (c) can best be applied only when time is available and when focus is not on communication but on form and correctness (Krashen, Butler, Birnbaum, & Robinson, in press).

TABLE 1  
*The Monitor Model.*

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Adult second language performance is a function of:

- (a) Acquisition: subconscious, implicit rule internalization, attention to meaning not form, typical of "naturalistic" settings
- (b) Learning: conscious, explicit rule internalization, attention to rules of grammar, typical of formal classroom instruction

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Thesis: (1) Adult second language performance initiated by acquisition.  
 (2) Learned component serves only as a Monitor, which alters the form of the output when

- i) enough time
- ii) concern with form or correctness

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Thus:

Learning  
↓

Acquisition —————→ Output

(Creative Construction Process)

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For Krashen, "The fundamental claim of the Monitor Model is that conscious learning is available to the performer only as a Monitor," (1977b:2). Utterances are initiated by the acquired system with conscious learning used to alter the output of the acquired system, sometimes before and sometimes after the utterance is produced. In other words, production is based on what is "picked up" through communication, with the Monitor altering production to improve accuracy toward target language norms (Krashen, no date-a).

It should be noted that in Krashen's model, self-correction does not come only from what has been "learned." The acquisition process also monitors performance—e.g., when native speakers self-correct in their first language. Krashen seems to distinguish monitoring with a small "m" (which occurs in both acquisition and learning) and the use of the Monitor (which occurs only in learning). His statements on this point, however, are contradictory (Krashen 1976, 1977b, 1977c, 1978; Krashen, Butler, Birnbaum, & Robertson, in press).

To summarize, Krashen argues that two processes are involved in L2 performance. The first, acquisition, accounts for the subjective "feel" that one has that something is right or wrong; the second, learning, accounts for the fact that we can consciously call to mind rules that we use in monitoring our speech production.

The utility of the model, Krashen maintains is that it provides a non-*ad hoc* account of a variety of phenomena in L2 performance.

### Evidence for the Monitor Model

Table 2 lists the areas that Krashen has identified as providing support for the Monitor Model. I will review the evidence briefly here. More extensive discussions can be found in Krashen (1977b, 1977c, no date-a).

*Morpheme studies.* When conditions for "Monitor-free" performance are met (little time, focus on communication rather than form), adult ESL performers show *difficulty orders* for certain grammatical morphemes that correlate highly with the difficulty orders for those morphemes in child L2 (Krashen 1977c). Krashen calls this order the "natural order" and sees it to be the product of the "creative construction process" or acquisition. That is, in the Monitor-free condition, adults and children show the same pattern of errors because they share the same, "natural" system for internalizing the rules.

When conditions are such that monitoring occurs, the "natural order" is disturbed (Larsen-Freeman 1975). Once the Monitor

TABLE 2  
*Evidence supporting the Monitor Model.*

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1. Morpheme Studies:
    - "Natural order" of difficulty in Monitor-free conditions (acquisition)
    - "Natural order" disrupted by the Monitor (learning)
  2. Aptitude and Attitude Tests:
    - Aptitude and attitude tests statistically independent
    - Aptitude shows strong relationship to L2 proficiency in "monitored" test situations
    - Attitude shows strong relationship to L2 proficiency when sufficient intake and when Monitor-free measures are used
  3. A "Feel" for Grammaticality:
    - Adult judgments of grammaticality of utterances in artificial languages
    - More "feel" judgments for "harder" items
  4. Individual Differences:
    - Evidence of different users of the Monitor—optimal, over-users, under-users
  5. Interference Phenomena:
    - Structures acquired earliest also show L1 influence
    - Interference less common in naturalistic—acquisition-rich—environments
    - More interference in classroom—acquisition-poor—environments
  6. Adult-Child Differences:
    - Conscious learning not a strong predictor of L2 success in children
    - Attitudinal factors predict children's success
  7. Other Forms of Post-Critical Period Learning:
    - Tennis as acquired, not learned
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operates, conscious rules come into play—that is, the learning system is activated—and a different difficulty order is found. Krashen maintains that this is because those rules that are easy to learn—such as the regular past and the third person singular in English—are easier under monitored conditions. Since these rules are redundant and therefore unnecessary for communication, they are more difficult under Monitor-free conditions. The reverse is true of other morphemes such as the definite and indefinite articles, which are difficult to teach and have to be acquired through communication. The use of the article is therefore easier under Monitor-free (acquisition) than under monitored (learning) conditions (Krashen, Butler, Birnbaum, & Robertson, in press).

The “natural order” has been obtained with adult subjects using the Bilingual Syntax Measure (Bailey, Madden, & Krashen 1974), with the SLOPE test (Fuller, in press), in free speech (Krashen, Houck, Guinchi, Bode, Birnbaum, & Strei 1977), and in compositions written by ESL students (Krashen, Butler, Birnbaum, & Robertson, in press). Larsen-Freeman (1975) obtained similar results when she used the Bilingual Syntax Measure. She also administered a pencil-and-paper task and found a different difficulty order. Houck, Robertson, and Krashen (1978) replicated this study with very similar results. Krashen, Sferlazza, Feldman, and Fathman (1976) also found a different order when they administered the SLOPE test to subjects so that the responses were in writing. In these last three instances, the assumption is that the subjects monitored their output: The use of the Monitor was presumably responsible for the breakdown of the “natural order” in morpheme difficulty.

*Aptitude and attitude tests.* The Monitor Model is also viewed as a way of accounting for work on L2 aptitude and attitude (Krashen, in press). The argument is that aptitude tests are directly related to conscious learning, and that attitude tests are directly related to acquisition and only indirectly related to conscious learning. Aptitude tests correlate with achievement on school-type tests (Gardner & Lambert 1972), and the abilities measured by aptitude tests “look very much like they require a conscious meta-awareness of language, that is quite similar, if not the same as conscious learning” (Krashen 1977b:4).

Attitudinal factors are seen to relate to acquisition in that they (a) “encourage intake” and/or (b) enable the performer to utilize language heard for acquisition. Factors that encourage intake are those motivational and personality variables that determine whether students avail themselves of informal language

contexts. Factors enabling the performer to utilize language heard for acquisition are those motivational and personality variables that determine the extent to which students will be "open" to the second language. Krashen (in press) speaks in this context of a "low affective filter" that "allows in" a great deal of the input to the Language Acquisition Device versus a "high or strong filter" that filters out input language.

The evidence presented in favor of the Monitor Model is that aptitude and attitude are statistically independent. This is seen to follow from the model since aptitude and attitude relate to very different and independent parts of language performance and internalization. Research also indicates that the aptitude factor relates to L2 proficiency in classroom—that is, monitored—situations. Attitudinal factors seem to relate to communication skills as measured by oral-aural tests, especially when there is sufficient intake from the surrounding environment.

A "*feel*" for grammaticality. The argument here is that the Monitor Model provides an explanation for the subjective "feel" for grammaticality that adults experience, in some cases without ever having known a conscious rule. Krashen (1975) cited Braine's (1971) finding that adult subjects, who attended to and repeated sentences in an artificial, meaningless language, were able to discriminate "grammatical" from "anomalous" sentences with a high degree of accuracy. Many of the subjects who could perform the task were unable to state the syntactic principles involved. Rather, they reported that they relied on whether a given sentence "sounded right." Krashen (1975) argued that this is evidence that language acquisition and not learning was involved, since subjects did not depend on a set of consciously learned rules.

Krashen, Butler, Birnbaum, and Robertson (in press) conducted a study in which they tested the hypothesis that simpler, less complex structures (from a pedagogical point of view) would be judged by rule and more complex structures by feel. ESL students made judgments of the grammaticality of English sentences and were asked whether they based their judgments on feel or rule. If rule, they were asked to write the rule. Judgments based on feel were obtained in 26% of the cases and predominated for article judgments. Since the use of the article in English is conceptually complex, Krashen and his associates argued that the Monitor Model was supported.

*Individual differences.* The Monitor Model is also seen to predict variation in L2 performance among adults (Krashen 1975). Performers vary in the degree to which they use conscious

monitoring. At one extreme are individuals who monitor whenever possible and therefore show variable performance. Such individuals typically produce "correct" forms in edited writing and in careful speech, but make more errors in casual speech where time pressures preclude monitoring. At the other extreme are subjects who rarely, if ever, monitor. Their performance is apparently dependent on acquisition alone. Self-correction in written and careful speech is typically less successful and is done "by feel."

The evidence for different types of Monitor users is based on case studies (Krashen 1975, 1976). A successful Monitor user is one who is capable, given enough time, of correcting errors in spoken language with great accuracy. Such a performer uses the Monitor when it is appropriate to focus on form. The over-user may be unable to communicate in speech. Such an individual tries to remember and use grammatical rules before speaking, but since there is usually not enough time to do so, speech is full of false starts, repetitions, and other repairs. The under-user, on the other hand, utilizes conscious rules rarely in performance, relying on acquired competence to communicate. Such individuals often do not know the rules, never having consciously learned them.

*Interference phenomena.* The Monitor Model is also seen to shed light on the question of L1 interference in L2 performance (Krashen 1977a, 1977b, 1977c, no date-b). Krashen (1977c) argued that L1 may serve as a substitute utterance initiator in cases where early production is required and too little L2 has been acquired. L2 performers are seen to fall back on L1 when they do not have enough acquired competence in L2. In support of this notion, Krashen (1977b) cited evidence that structures that L2 performers tend to acquire earliest and easiest—e.g., word order—are also those that show L1 influence (Duskova 1970, LoCoco 1975). Another source of evidence is the finding that interference is more prevalent in acquisition-poor environments—such as foreign language classrooms—but is less common in naturalistic—"playground"—child L2 acquisition (Dulay and Burt 1974).

When not enough is acquired, the L2 performer may use L1 structures with the Monitor adding morphology and some word order. This Krashen (1977b) called "performance without acquired competence." In more detailed analyses (Krashen 1977a, no date-b), he distinguished three modes of adult L2 performance. In mode I, utterances are initiated in L1 surface order without any grammatical morphemes or movement transformations. In mode II, performers also utilize the surface structure of L1 for utterance initiation in L2, but there are some movement transformations

(based on L1) and bound morphemes are provided by the Monitor. Mode III represents the acquisition of the target language. These modes are not seen as developmental stages and performers can start and end at any point.

*Adult-child differences.* Krashen (in press, no date-a) argues that the Monitor Model helps to explain child-adult differences in attainment in L2 performance. The Monitor is thought to have its origin in Piaget's *formal operations* stage of development. Piaget maintained that at about the age of 12 children grow significantly in their ability to think abstractly. They become capable of relating abstract concepts to other abstractions and of dealing with them as though they were objects. This new ability allows the adolescent to conceive of an abstract theory of language or a grammar.

The Monitor—the product of formal operations—can improve performance (Krashen, no date-b). On the other hand, formal operations are seen to be a source of self-consciousness, which interferes with successful language acquisition (Krashen, in press, no date-a). Increased self-consciousness, feelings of vulnerability, and lowered self-esteem often characterize adolescence and lead to a lowered ability to acquire L2.

As evidence for the model, Krashen (in press) cites research that indicates that conscious learning is not a strong predictor of L2 success in children. In contrast, attitudinal factors seem to predict children's performance. With adults, aptitude factors and attitudes predict performance. This is because adults are thought to utilize conscious learning to a much greater extent than is true of children.

*Other forms of post-critical period learning.* Krashen (1978) argues that the acquisition-learning distinction that forms the basis of the Monitor Model fits other forms of adult post-critical period learning as well. The specific examples he gives relate to athletic skills, especially tennis. Krashen maintains that tennis is a complex skill that is better acquired than learned. He cited Gallwey's (1974) book, *The inner game of tennis*, as providing evidence for this proposition. In Krashen's terms, Gallwey's argument is that too many tennis players over-use the Monitor. They are too conscious of the rules they have learned and do not use the natural acquisition process to internalize the complex skill of tennis. Tennis lessons usually over-emphasize form, just as language teachers over-emphasize syntax. The language teacher, like the tennis teacher, should allow students to work on the basis of their own acquired, tacit knowledge, rather than overwhelming them



with rules and with feedback about errors. When teaching is directed at elucidating what the student already has acquired, the result, according to Krashen, may be a very gratifying "Eureka" experience on the part of the student.

### LANGUAGE LEARNING AND DISCOVERY PROCEDURES: AN ALTERNATE MODEL

At this point I would like to examine the Monitor Model more closely and then go on to propose the outline of a somewhat different model of L2 performance, one which I believe avoids difficulties inherent in the Monitor Model and which corresponds to much contemporary thinking about the language development process. In the concluding section of this paper I will take another look at the evidence Krashen cites for his theory and see if it can be explained as well from this new perspective.

#### The Acquisition-Learning Distinction

The main difficulty I have with the Monitor Model is with the acquisition-learning distinction. This is the dubious distinction to which I referred in the beginning of this paper. The distinction rests ultimately, on whether the processes involved are "conscious" (as in learning) or "subconscious" (as in acquisition). Krashen does not attempt to define conscious or subconscious. He does, however, operationally identify conscious learning with judgments of grammaticality based on "rule" and subconscious acquisition with judgments based on "feel" (Krashen, Butler, Birnbaum, & Robertson, in press). The difficulty with such an approach is that it is impossible to know whether subjects are actually operating on the basis of "rule" or "feel". Krashen, Butler, Birnbaum, and Robertson (in press) had subjects state the rule when they made judgments on the basis of "rule," but the subjects may have done so because the demand characteristics of the situation stressed rule articulation. Moreover, subjects may have given "feel" answers because they were not quite sure as to how to articulate the rule on the basis of which they had operated.

The difficulty in knowing whether a given process involves "feel" or "rule" (acquisition or learning) can be seen from the examples I gave at the beginning of this paper. While I "feel" that something is wrong with *Ich habe nicht das Kind gesehen*, I also know that there is a rule about the placement of negatives.

Similarly, while I have to have recourse to the rule to be sure that *Ich habe es ihm gegeben* is correct, I also have a feel that *Ich habe ihm es gegeben* is wrong. At least in my own inspection, it is unclear whether I am working on the basis of "rule" or "feel."

There is another difficulty I have with the learning-acquisition distinction. The central thesis of the model—one reiterated by Krashen again and again—is that what one has "learned" is not available for initiating utterances; only what has been acquired can be used for this purpose. Although Krashen (1978) describes this proposition as the "essence" of the Monitor Model, he does not provide evidence on its behalf. In fact, he hedges somewhat on this point. While the model is proposed as a general model applying to all stages of L2 performance (Krashen 1977a, no date-b), at one point Krashen (1975) seems to have restricted the model to "somewhat advanced stages of second language acquisition/learning," since "a fair amount of time may be required until enough of the target language is acquired so that a basis is present for utterance initiation" (p. 9).

Introspectively at least, it seems that we initially approach complex tasks, such as learning a second language or tennis, deliberately and consciously. Krashen (1977c) argues that this is not the case: that since there are a limited number of grammatical rules, adults must acquire some items (without rules) right from the start. It may be, however, that they initially work with L1 and the rules of L2, as Krashen elsewhere (1977a, no date-b) seems to imply.

The question of which comes first, learning or acquisition, like the question of the use of "rule" or "feel" in judgments of grammaticality, cannot be resolved in these terms. Arguments on either side depend on subjective, introspective, and anecdotal evidence. I would suggest another distinction—one that is more empirically based and ties into a general theory of human information processing. This is the distinction between "controlled" and "automatic" processing (Schneider & Shiffrin 1977; Shiffrin & Schneider 1977). The advantage of this distinction is that it enables one to avoid disputes about "conscious" or "subconscious" experience, since the controlled-automatic distinction is based on behavioral acts, not on inner states of consciousness.

If memory is viewed as a large and permanent collection of nodes that become increasingly interassociated through learning, we may think of two different types of storage: (a) the long-term store where most of the nodes are passive and inactive, and (b) a

short-term store of currently activated nodes. A *controlled process* is a temporary sequence of nodes activated by the individual utilizing short-term store. Because active attention is required, only one such sequence may be controlled at a time without interference. Controlled processes are therefore tightly capacity-limited, but capacity limitations are balanced by the ease with which such processes can be set up, modified, and applied to new situations.

Two features of controlled processes are especially relevant to our discussion. First, not all controlled processes are available to conscious perception. Many are not because they take place so quickly. Second, controlled processes regulate the flow of information between short-term and long-term store. Since learning is the transfer of information to long-term store, controlled processes are seen to underlie learning.

An *automatic process* is defined as a sequence of nodes that nearly always become active in response to a particular input configuration and that is activated without the necessity of active control or attention by the individual. Since automatic processes utilize a relatively permanent set of associative connections in long-term store, most automatic processes require an appreciable amount of time to develop fully. Once learned, an automatic process is difficult to suppress or alter.

Automatic processes are learned following the earlier use of controlled processes. Once established, they do not require attention. Their speed and automaticity will usually keep their constituent elements hidden from conscious perception. After automatic processes have been set up at one stage in the development of a complex information-processing skill, controlled processes are free to be allocated to higher levels of processing.

In L2 learning, for example, the initial stage will require moment-to-moment decisions, and controlled processes will be adopted and used to perform accurately, though slowly. As the situation becomes more familiar, always requiring the same sequence of processing operations, automatic processes will develop, attention demands will be eased, and other controlled operations can be carried out in parallel with the automatic processes as performance improves. In other words, controlled processes lay down the "stepping stones" for automatic processing as the learner moves to more and more difficult levels (Shiffrin & Schneider 1977).

This seems to describe what often happens in the initial stages of L2 learning. For example, Duskova (1969, quoted in Krashen,

no date-b) states that "many of the recurrent errors (found in her subjects' L2) reflect no real deficits in knowledge, since most learners know the pertinent rule and can readily apply it, but the mechanical application does not yet work automatically" (p. 16). That is, the learner has not yet gone from the controlled to the automatic mode of operation. At least at this point, it does not seem that "subconscious" acquisition generates the utterance, with "conscious" learning entering in as a Monitor, as Krashen would have it (although, as I mentioned, Krashen may wish to restrict his model to later stages).

### Schemata and Discovery Procedures

Assuming that language is learned and that learning involves controlled and automatic processes, how does one characterize first and second language learning? At the risk of oversimplifying, I would like briefly to propose that language learning involves the development of "schemata" and the use of "discovery procedures."

*Development of schemata.* In learning L1, the child brings some information to the task. The child is not a *tabula rasa*. The morpheme studies, for example, provide evidence that the child does not simply acquire syntactic forms in L1 in accord with their frequency in input (Brown 1973). On the other hand, language input is increasingly being seen as an important factor in L1 learning (Snow 1972, Snow & Ferguson 1977). Obviously, both internal and external factors are involved in the development of L1. This was well put by Stern and Stern in 1907:

In his form of speech, a child learning to speak is neither a phonograph reproducing external sounds nor a sovereign creator of language. In terms of the contents of his speech, he is neither a pure associative machine nor a sovereign constructor of concepts. Rather, his speech is based on the continuing interaction of external impressions with internal systems . . . (quoted in Blumenthal 1970:87).

Internal systems—whether they be thought of in terms of a genetically preprogrammed Language Acquisition Device, a universal supergrammar, or the product of the cognitive makeup of the child—work on external input and produce a series of grammars. How this happens is still shrouded in mystery. In any event, these grammars, or syntactic infrastructures, or what I would call *schemata*, develop in the direction of target language norms (although there may be relapses or "backsliding" along the

way). Incidentally, I believe that schemata develop at all levels of linguistic functioning—the semantic, phonological, pragmatic, etc.

Essentially the same process occurs in L2 learning. That is, the learner uses internal systems to work on external input and produce a series of schemata. These schemata are “approximative systems” (Nemser 1971) or “interlanguage” (Selinker 1972), which for the most part “fossilize” at some distance from the target language norm.

*Discovery procedures.* I believe that the language learner possesses certain *discovery procedures* that are used to work on input and to generate schemata. These can be either “acquisition heuristics” or “operating procedures”. The first—acquisition heuristics—are universal to all language learners and affecting learning. Operating procedures, on the other hand, are thought to be more variable in usage and affect performance.

Table 3 lists, rather tentatively, what I believe to be some—no doubt not all—discovery procedures in L1 and L2 learning and performance. Notice I do not use the term “strategy” because, to me at least, this has the connotation of conscious usage. These discovery procedures may be used consciously or subconsciously in the sense that they may or may not be available to introspection.

The first *acquisition heuristic* I list is simplification. This may be a misnomer, since, strictly speaking, the child or L2 learner cannot be said to simplify what they do not possess (Corder 1974). At least in the psychological sense, simplification may be the wrong term. However, the schemata produced by L1 and L2

TABLE 3

*Two discovery procedures used by the language learner to work on input and to generate “schemata.”*

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I. <i>Acquisition Heuristics</i> (universal and affect learning)
Simplification
Generalization
Imitation
Avoidance
Slobin’s “Operating Principles”

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II. <i>Operating Procedures</i> (variable and affect performance)
Use of Formal Rules
Use of Repairs
Rote Memorization
Talk/Listen Variation
Wong-Fillmore’s “Social and Cognitive Strategies”

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learners are linguistically simpler, syntactically and morphologically, than target language norms. Presumably, learners operate on some least-effort principle, transforming more complex input into more "simple" output. Note that speakers also simplify their language (relative to adult-adult norms) when speaking to children learning L1 or to foreigners (Ferguson 1975, 1977).

Generalization refers to the tactic of using what is known to resolve the riddle of what is unknown. The backsliding of L1 learners (going from *went* to *goed* or *feet* to *foots*) is an instance of how learners use generalization to cope with the overload caused by too many new irregular forms. The L2 learner will use generalization to solve problems posed by the language on analogy with the old one. Such transfer from L1 is more likely to occur in the early stages of the learning process (Taylor 1975) or when the learner is faced with recalcitrant problems (Wode 1976). It is also more likely to occur in classroom than in naturalistic learning situations (Selinker, Swain, & Dumas 1975).

Imitation is postulated to be a universal discovery procedure for L1 and L2 learning. There seems to be considerable variation on this score with some L1 learners showing little tendency to imitate utterances (Bloom, Lightbown, & Hood 1975). If, however, imitation is viewed more generally—for example, imitating the use of questions or expansions in discourse with parents—then imitation can be viewed as an important aspect of L1 learning (Clark 1977, Whitehurst & Vasta 1975). Similarly in L2, children have been repeatedly observed to imitate whole utterances before having mastered the parts (Hakuta 1974, Huang, 1971, Wong-Fillmore 1976). This imitative use of "prefabricated constructions" or "formulaic expressions" that are gradually analyzed has not been studied in adult L2 learners, but is probably used in naturalistic settings and is presumably part of the thinking behind classroom pattern practice drills.

Avoidance has received little attention in L1, no doubt because the evidence is hard to come by. Some evidence exists from the study of bilingual children who have been observed not to use constructions they possess in one of their primary languages in a second language where the linguistic structures are more complex (Imedadze 1967, Mikes & Vlahovic, in Slobin 1971). The phenomenon of avoidance seems to be more common in L2 (Schachter 1974), and poses serious methodological problems for any analysis of errors in the L2 learning process (Schachter & Celce-Murcia 1977).

The final acquisition heuristic I list refers to what Slobin (1971) called "operating principles." These are seen to be relatively specific universals in the ontogenesis of grammar. They include such tactics as "Pay attention to the ends of words," "Pay attention to the order of words and morphemes," "Avoid interruption or re-arrangement of linguistic units," and "The use of grammatical markers should make semantic sense." Hatch (1976) has noted that some L2 learners show behavior that contradicts these operating principles, but these discrepancies seem to be the result of generalizing from L1 or of early fossilization in L2.

Note that "operating principles," which are thought to be universal and affect learning, are distinct from what I refer to as *operating procedures*, which are subject to considerable individual variation in use and affect performance. I suspect that operating procedures are more important in L2 than in L1—performance being more variable in L2, both in terms of the rate of improvement and level of achievement attained. Presumably all L1 learners pass through the same developmental stages and achieve target language norms. This is not necessarily the case in L2.

The first operating procedure I list is the use of formal rules. Of course, children use rules in learning L1, but I mean here the retrieval of rules that have been formally learned. For example, we may have recourse to formal rules learned in grammar school in editing such sentences as *The boy in the car was seen by her and me*, or *Whomever I gave the book to, returned it*. In a second language, recourse to formal rules is much more common, especially if the individual has learned the language primarily through error correction and rule isolation in the classroom. Of course, there is individual variation in rule usage, as Krashen points out. Moreover, the rules people articulate may not characterize actual performance in L2. Nor is it necessarily the case that, when given time to apply rules in L2, people improve their performance. Rules can be inadequately and inappropriately internalized.

By the use of repairs I mean employing certain filler constructions as conversational tactics. Children do this in L1 when they say *You know what?* This gives them the floor and allows them to rehearse what it is that they want to say. In L2, repairs are quite useful as elicitation devices to get topic clarification (Hatch 1978). By saying *huh*, or echoing sentences to get them recycled, or using *pardon me* or *I don't understand*, L2 learners signal to native speakers that they need help. If they recycle the same topic with different native speakers, L2 learners build up vocabulary and can concentrate on morphology and syntax. Again

there is considerable room for variation here—some learners simply nod as if understanding when in fact they do not, while other learners persist until they know what the speaker has said.

Rote memorization refers to the deliberate rehearsal of vocabulary on the part of the L2 learner without situational support. Whereas children usually are able to converse about objects in the immediate here and now, adults are often required to talk about abstract topics and themes (Hatch 1978). Consequently, vocabulary development becomes the prime task of adult L2 learners. As Hatch pointed out (1978), adults carry dictionaries, not grammars, when they travel in foreign countries.

By talk/listen variation I mean the tendency of individual L2 learners to take either a more active or more passive stance toward the target language. Some learners—especially, but not necessarily, children—plunge right in and start talking without concern about the errors they make. Other learners prefer to listen and develop their ability to comprehend what is being said before they attempt to do much communicating. No doubt such variation relates to personality factors—anxiety level, attitude and motivation, ego permeability, social distance, inhibition and self-consciousness, and so forth (Schumann 1975).

Finally, there are the “social and cognitive strategies” observed by Wong-Fillmore (1976) in the child L2 learners she studied. These are listed in Table 4. Since the imperative to be like one’s peers is experienced to a greater degree by children in the playground setting than by adults (who often have the support of a husband or wife, or friends who speak their L1), such strategies may not be used to the same extent by adults. If they are not forced to communicate, adults may come to rely on such operating procedures as the use of rules, rote memorization, and listening rather than on the strategies Wong-Fillmore’s children used.

I should point out that while operating procedures are thought to affect performance, they may also lead to new learning. Individuals do learn aspects of the language by applying formal rules and memorizing vocabulary. The point of the learning-performance distinction is simply to indicate that there is considerable variation in the use of operating procedures, and hence fluctuations in performance are more likely to be due to their use than to the use of what I term acquisition heuristics.



TABLE 4  
*"Social and cognitive strategies" in children learning L2*  
*(from Wong-Fillmore 1976).*

Social Strategies	Cognitive Strategies
S-I: Join a group and act as if you understand what's going on, even if you don't.	C-I: Assume that what people are saying is directly relevant to the situation at hand, or to what you are experiencing. Metastrategy: Guess.
S-II: Give the impression—with a few well-chosen words—that you can speak the language.	C-II: Get some expressions you understand, and start talking. C-III: Look for recurring parts in the formulas you know.
S-III: Count on your friends for help.	C-IV: Make the most of what you've got. C-V: Work on big things first; save the details for later.

### EVIDENCE FOR THE MONITOR MODEL REVISITED

There is no doubt that Krashen has done us a service in elaborating his Monitor Model. He has applied the model to a variety of phenomena in L2 research, thereby providing a powerful conceptual framework for examining these disparate phenomena. Much of his "evidence," however, is not evidence at all in any formal sense. What Krashen has done is simply to show that one can talk about certain phenomena in terms of the acquisition-learning distinction. There may, however, be other ways of talking about these phenomena that are equally valid and more parsimonious.

For example, the argument that adults experience a "feel" for grammaticality (Table 2, number 3) rests on rather swampy empirical ground. The data rely on introspective reports that are

contaminated by instructions that require subjects who said they were operating by "rule" to specify the rule they used (Krashen, Butler, Birnbaum, & Robertson, in press). It is not too surprising that there were fewer "rule" judgments and more "feel" judgments for the "harder" items under these conditions. Ultimately, the argument rests on the subjective experience that one sometimes seems to use rules and sometimes seems not to. Another way of saying this that avoids recourse to subjective states is to say that the behavior in question sometimes involves controlled processes and sometimes is so well learned that it involves automatic processes. Operationally, this could be tested by using reaction time measures, for example, since controlled processes require more time than automatic processes.

The argument regarding individual differences (Table 2, number 4) can be viewed in the same terms. Rather than saying that some individuals are optimal, some under-, and some over-users of the Monitor, one could say that people vary in the extent to which they use controlled processes in L2 learning. Other sources of individual differences, of course, are the different operating procedures language learners employ in their L2 performance.

Similarly, adult-child differences (Table 2, number 6) can be viewed as resulting from different operating procedures used by learners of different ages. Adults tend to focus more on vocabulary, are often, but not always, more inhibited, tend to use formal rules to a greater extent than is true of children. It should be noted that Krashen seems to assume that children are more successful L2 performers than adults and that conscious application of the Monitor interferes with communication. This runs counter to some strong evidence that adolescents (who are in the stage of formal operations and would be expected to be heavy Monitor users) are superior to children and adults in "naturalistic" L2 learning (Snow & Hoefnagel-Höhle 1978).

Krashen also argues that other forms of postcritical period learning can be accounted for on the basis of the Monitor Model (Table 2, number 7). In his tennis example, performance is seen to reach the point where subconscious acquisition becomes more important than consciously learned rules. At this point, acquisition guides performance with learning entering in as a Monitor (just as in his view of L2 performance). But this does not typify the entire process: at many points along the way performance seems to be governed primarily by conscious learning. One consciously and deliberately learns the rudiments and then learns more complicated

motor patterns as performance improves. Krashen's contention, that acquisition is central and learning peripheral (Krashen 1977c), does not seem to correspond to experience.

I am not sure there is a critical period for L2 learning (McLaughlin 1977, 1978b), but in any event it seems better to me to speak of controlled processes becoming automatic as they are practiced and committed to long-term store. As I said earlier, the advantage of this approach is that the focus is on the behavioral processes themselves and not on conscious or subconscious experience. I would like to turn now to three areas where Krashen has attempted to go beyond appeals to conscious experience and provide empirical evidence in support of his theory.

### Morpheme Studies

As I noted, the evidence from morpheme studies (Table 2, number 1) is that under "Monitor-free" conditions a "natural order" of difficulty is obtained in L2 performance. This Krashen regards as the product of acquisition. When conditions are such that the Monitor operates, the natural order is disrupted. This Krashen sees to be the product of learning.

Aside from the circularity of this argument, there is the question of what conditions lead to Monitor use. At first, Krashen said that the Monitor operates when the performer has enough time, and later he added that the performer must be focused on form. Yet giving subjects time and focusing them on form by having them correct spelling and grammar in written composition does not seem to produce use of the Monitor, since one still finds the "natural order" of morpheme difficulty (Houck, Robertson, & Krashen 1978; Krashen, Butler, Birnbaum, & Robertson, in press). Apparently, in order to bring out the conscious grammar, one needs to give subjects time, inform them that a potential error exists, and indicate where that error may be (Krashen 1977c). Such a test, Krashen calls a "discrete point" test, an example being Larsen-Freeman's (1975) condition in which subjects were given items such as *Last year he (work) \_\_\_\_\_ in a factory.* Larsen-Freeman found an order of difficulty different from the "natural order," presumably because the Monitor was activated.

The SLOPE test also seems to be a "discrete point" test. In this test subjects are shown pictures and given items such as *Here is a ball. Here are two \_\_\_\_\_,* with the expectation that they will provide the plural. Yet the SLOPE test yields the "natural order" (Fuller, in press; Krashen, Sferlazza, Feldman, & Fathman 1976).

Krashen, Sferlazza, Feldman, and Fathman (1976) did find that the written version of the SLOPE test yielded a different order, but Fuller (in press) did not.

What the research indicates is that adult L2 learners generally produce a definite order of morpheme difficulty. It has been suggested that this order relates to the frequency of the morphemes in the speech heard by L2 learners (Larsen-Freeman 1976). It may be that this order is disrupted under conditions that focus the subject's attention on rules of grammar, but we are not sure precisely what these conditions are and, in any event, it does not seem necessary to invoke a Monitor to account for this finding. It is enough to say that the task demands may be such as to alter "normal" response tendencies. It could be that most conditions tap learning, but that individual differences in performance become more prominent when the task requires grammatical accuracy of a particular sort.

### Aptitude and Attitude Tests

Krashen has argued that the statistical independence of aptitude and attitude tests indicates that two different processes are involved in performance in L2 (Table 2, number 2). Aptitude is seen to be related to learning and conscious use of the Monitor. Attitude is seen to be related to acquisition and "Monitor-free" performance. Whereas aptitude tests are predictive of success in a classroom learning situation, attitude tests predict communication skills as measured by oral-aural tests.

The distinction is no doubt an important one. Krashen (no data-a) has argued that the classroom should mimic as much as possible the "natural" setting so that learners are exposed to meaningful input. I have also advocated more emphasis upon a communication model in classroom teaching and less emphasis on formal rules and error correction (McLaughlin 1978a). Through role-playing, dialogues, and cooperative tasks, learners can experience the target language as a useful tool for communication.

There is little doubt that learning a language to read in that language or to pass a PhD requirement is a different task than learning a language to be able to communicate in that language. Too often classroom instruction is oriented toward reading skills and linguistic manipulation, in spite of the fact that many learners want to be able to communicate in the language. I think it is sufficient to say that there are two different tasks involved, one oriented toward formal rules and the other oriented toward

meaningful communication. Since the tasks are different, it is not surprising that different tests correlate with the different tasks.

### Interference Phenomena

Although Krashen regards certain findings concerning interference as "evidence" for the Monitor Model (Table 2, number 5), it does not seem to me as much evidence as restatements of known phenomena in the terminology of the model. Since the model postulates that utterances are initiated through the acquired system, Krashen sees L1 as providing a substitute utterance initiator when competence in L2 is lacking. This is the case early in the learning process, and so more transfer errors occur in the initial stages (Krashen 1977c). It seems, however, that early sentences can also be produced by using the Monitor to alter the surface structure and word order of L2 vocabulary (Krashen 1977b). It is not clear what the consequences for interference are in this case. Nor is it clear whether the model is meant to be applied to early sentences (Krashen 1975).

Researchers have indeed found more interference in the classroom than in naturalistic settings (McLaughlin 1978b). It is not clear to me why the Monitor Model predicts this. Why is it that the use of the Monitor leads to interference? Cannot interference occur in the acquisition process as well? The theory says nothing about this and consequently all attempts to explain interference phenomena in these terms is *ad hoc*.

### CONCLUSION

I believe that the Monitor Model does have a basis in subjective experience, but I do not believe that subjective experience should be the testing grounds for a theory of language processing. Krashen has called our attention to certain interesting phenomena—especially to the finding that the same order of difficulty is found for certain English morphemes in L2 learners regardless of age, primary language, or experience with English. His pedagogical advice—that classroom instruction should be oriented more toward communication and less toward formal rules and error correction—is undoubtedly well taken.

Yet his model fails, I believe, because its empirical underpinnings are weak. The evidence he cites is often not evidence at all or can be explained more parsimoniously in other terms. I am

particularly uncomfortable with the learning-acquisition distinction, since the distinction rests ultimately on whether the processes involved are conscious or subconscious. Furthermore, Krashen does not provide any evidence at all for the main hypothesis of the model—that what is learned is not available for initiating utterances, but that only what is acquired can be used for this purpose.

I believe that a more successful model is one that avoids recourse to conscious or subconscious experience and that ties into human information processing generally and the literature on language development. I have tried to outline the rudiments of such a model in this paper. A model that focuses on behavioral acts is falsifiable—a property which is unfortunately lacking in models that depend on appeals to conscious experience.

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