THE LEAST A SECOND LANGUAGE ACQUISITION THEORY NEEDS TO EXPLAIN

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Valid descriptions of second language acquisition (SLA) are syntheses of well-attested empirical findings about process and product in interlanguage development related to universals and variance in learners and learning environments. Theories of SLA are attempts at explanation of those findings, an important component of which will be one or more mechanisms to account for change. Description and explanation are two points on a continuum in theory construction, however, not a dichotomy, and while theories differ in scope and so legitimately often relate only to partial descriptions, they need to account for major accepted findings within their domain if they are to be credible. Identification of “accepted findings”, therefore, is an important part of theory construction and evaluation. Such findings will be the least a SLA theory needs to explain. Sample accepted findings are proposed, along with some implications for current SLA theories.

Second language acquisition: some structural characteristics

Second language acquisition (SLA) is a relatively new, interdisciplinary field of inquiry. While several important studies appeared much earlier, most empirical work has been done since 1960 by researchers drawing heavily (although some would say not heavily enough) upon theory, research findings and research methods in a variety of fields, including education, psychology, linguistics, anthropology, foreign languages, ESL and applied linguistics. Data-based SLA research is presented at a variety of conferences, most of which were originally designed for something else¹, and is published in a wide range of journals, only three of which (Language Learning, Studies in Second Language Acquisition and Second Language Research) are primarily devoted to

¹ Examples include TESOL, AILA and AERA. The Second Language Research Forum (SLRF) is the only regular international conference devoted exclusively to SLA research findings.

to it. Important results often go unnoticed because they appear in obscure regional publications or remain buried between the covers of MA and Ph.D. theses on dark library shelves. There is very little funding available, and virtually none at all in the US, where many SLA researchers work.

Each of these characteristics has a negative impact on the state of knowledge. SLA’s brief history means that few issues have yet been investigated exhaustively. The dearth of funding compounds this since, as a result, what tends to be very labor-intensive work generally has to be conducted cross-sectionally and on small samples. The varied disciplines represented among scholars in the field not infrequently produces skepticism about results obtained using research methods from other traditions; in SLA, there are people with enough different types of training that there is usually someone ready to question the validity of almost any type of research - from controlled laboratory experiments, through work using interview data, grammatical judgments and other kinds of introspection, to longitudinal case studies and ethnographies. Also, some SLA research with origins in one source discipline, e.g. theoretical linguistics, often seems irrelevant to that inspired by developments in another, e.g. social psychology.2 Finally, the shortage of specialist SLA conferences and the fragmented publication of written findings makes it difficult to review the literature to assess what is known about a given topic. What is “the literature” on SLA?

Description and explanation in theory construction

These problems afflict other fields, no doubt, but they are particularly acute in this one. It is often difficult to determine just what is known, or thought to be known, about SLA at any time, and by whom. It becomes very dangerous to claim that X is an established fact or that Y has attained the status of a generalization or perhaps even of a law when there is disagreement over what constitute legitimate data and when researchers and textbook writers are not necessarily reading or respecting the same literature. Yet the identification of at least some uncontroversial results is a prerequisite for developing and evaluating theories in any field. A synthesis of well-attested empirical findings

2 To illustrate, it is difficult to relate findings on access to Universal Grammar in adult SLA from work stimulated by Chomsky’s ideas to the results of studies of non-native speech accommodation to an interlocutor motivated by Giles’ Accommodation Theory.
about process and product in interlanguage development related to universals and variance in learners and learning environments is essential for a valid description of SLA. The description, in turn, delineates the scope of the problem to be solved; it becomes part of the data for which a theory needs to account and against which it may be testable. The description specifies what is acquired; the theory explains how.

Or so goes the traditional account. Several qualifications are in order, however. To begin with, most, but not all, forms of theory attempt to explain how. Axiomatic and causal-process forms, for example, do. The set-of-laws form does not. It consists of a compilation of repeatedly observed patterns, but does not necessarily seek to explain them (Reynolds, 1971; Long, 1985).

Second, what counts as an explanation varies from one discipline and scientific sub-community to another, and over time (Cummins, 1982; Trusted, 1979; Bunge, 1985). For some, such as behaviorists in several fields, biochemists and many psychologists, explanation means the empirically verified ability to predict future events (either that or when they will occur); for others, such as some ethnographers and anthropologists, it may mean post hoc understanding of a single past event. For some, a purported explanation must be empirically testable, for others, it need not, and for still others, e.g. theorists in some branches of contemporary physics, it cannot, due to the current unavailability of technology required to conduct such a test.

Third, the work undertaken to produce a description really does more than provide a mere collation of the data to be explained, for it is also the beginning of explanation, not a separate activity from theorizing, as is often thought (Pronko, 1988), so that description and explanation are better viewed as two overlapping circles or as two points on a continuum (Figure 1). What researchers select for observation is seldom arbitrary, but reflects their own or others' biases about what is likely to be important, or “worth studying”. The
choice is already an implicit theoretical claim, that is. In addition, with the possible exception of certain kinds of constitutive ethnography (Mehan, 1978), what is incorporated into the resulting description is usually both far less and far more than what was observed.

What emerges from a study is far less than what was observed because researchers eliminate what they consider to be irrelevant detail and draw attention to recurrent patterns, as well as to any striking deviations:

(1) The frequency of No V constructions declined as that of Don’t V constructions increased.
(2) Subjects’ suppliance of plural s was more target-like on the picture description task than in the narrative.
(3) Whether or not learners exhibited adverb-fronting on the pre-test predicted their control of particle separation after instruction.

Descriptive statements like (1) to (3) (those in area A of Figure 1) are observations. They record that learning or some kind of interlanguage change occurred or failed to occur, and are neutral as to how or why. Their very inclusion in a final report, however, inevitably reflects the investigator’s initial assessment of their potential significance for explanation.

What emerges from a study is far more than what was observed, on the other hand, in that many descriptive statements about patterns take the form of generalizations and/or link two or more variables in a way which implies a potential causal relationship. To a greater or lesser degree, that is, they are abstractions from the data, and abstraction is an essential step in constructing theories of every kind:

(4) Accuracy was greater on tasks performed after planning than on tasks performed with no planning.
(5) After equivalent periods of exposure, child starters score higher on proficiency tests than learners who begin as adults.
(6) Constructions (such as topicalization) which involve movement of an element from final to initial position are learned before constructions (such as particle separation) which require both disruption of a string and movement of an internal element to a salient (initial or final) position.

Consciously or not, descriptive statements like (4) to (6) (those in area B in Figure 1) already suggest at least low level potential explanations for the findings they record.

While descriptions are the basis for theory construction, theories need not account for all the facts in every description to be viable. Theories, after all, rarely purport to address every kind or aspect of SLA. That is, they vary greatly in scope. A particular theory may deal with naturalistic, instructed or mixed learning, with children or adults, with specific language skills and modalities (oral or written, comprehension or production), with a specific cognitive capacity or resource (such as memory, attention or aptitude), a specific psycholinguistic process (such as transfer, restructuring or stabilization), a specific linguistic system (such as phonology, syntax or pragmatics), a specific subsystem (such as syllable structure, tense-aspect-modality, relative clauses or politeness), and so on. The variance in scope makes it legitimate for theories to relate to different partial descriptions, or to selected findings in the field:

(7) "... SLA is just one aspect of acculturation and the degree to which a learner acculturates to the TL group will control the degree to which he acquires the second language." (Schumann, 1978, 34)

(8) "There are two independent ways of developing ability in a second languages. ‘Acquisition’ is a subconscious process identical in all important ways to the process children utilize in acquiring their first language, while ‘learning’ is a conscious process that results in ‘knowing about’ language." (Krashen, 1985, 1)

(9) "... second language learning, like any other complex cognitive skill, involves the gradual integration of subskills as controlled processes initially predominate and then become automatic..." (McLaughlin, 1987, 139)
In fact, as the statements in (7) to (9) (area C of Figure 1) show, in addition to ignoring vast bodies of SLA research findings, theoretical claims of greater or lesser scope, i.e. explanations, may not refer explicitly to SLA research findings at all.

Mechanisms

A theory which somehow managed to refer to every accepted finding about SLA would still not necessarily provide an explanation of the SLA process, even in the unlikely event that all the findings turned out to be true. For explanatory power, a theorist needs to propose one or more mechanisms to account for change. In the present context, mechanisms are devices which specify how cognitive functions operate on input to move a grammar at time 1 to its new representation at time 2, the output of which is observable in learner data, in this case, an interlanguage sample.

Mechanisms in theories of first language acquisition are discussed, among others, by Atkinson (1982), McShane (1987) and MacWhinney (1987). Behaviorist theories, they note, have relied upon data-driven mechanisms of association, differentiation and generalization. Innatist theories typically employ some form of hypothesis-testing constrained by innate knowledge, e.g. Chomsky’s Language Acquisition Device. A taxonomy of mechanisms governing some of the possible relationships which can hold between stages in a developmental sequence is provided by Flavell (1972). These include addition, substitution, modification (either by differentiation or generalization), inclusion and mediation.

Mechanisms in the SLA literature to date tend to be rather vaguely defined and poorly supported. A partial list includes some borrowings from first language research, plus restrictive and elaborative simplification (Meisel, Clahsen and Pienemann, 1981; Meisel, 1983), conformative simplification (Stauble, 1981), regularization (Long, 1982), nativization and denativization (Andersen, 1983), and hypothesis-testing constrained by innate knowledge of language universals, either syntactic (White, 1985; Flynn and O’Neil, 1989) or semantic (Bickerton, 1984; Adamson, 1988).

In addition to specifying mechanisms driving development from one stage to the next, Atkinson (1982) proposes, an adequate explanation will also
identify why the stages in a developmental sequence have to occur in exactly
the order they do, and cannot occur in some other order (see also, Johnston,
1985). Few proposals of this type have yet been made in SLA theory, but one
example is Rutherford’s interesting attempt to explain various morphological
and syntactic accuracy and acquisition orders in terms of markedness
(Rutherford, 1982).

Another SL example is that originally proposed by Clahsen, Meisel and
Pienemann to account for German SL word order (e.g. Clahsen, 1987; Meisel,
Clahsen and Pienemann, 1981), and later extended to a variety of
morphological and syntactic constructions in ESL (Pienemann and Johnston,
1987). Clahsen et al claim that the surface structures observed at each of five
stages in the development of German SL word order reflect the cumulative
shedding of three underlying processing strategies, the Canonical Order
Strategy, the Initialization-Finalization Strategy and the Subordinate Clause
Strategy. The strategy combinations are hierarchically related such that each
new one entails and adds to the sophistication of the previous one, thereby
gradually allowing psycholinguistically more complex structures to be
processed. At stage X + 1 (initialization-finalization), for example, the learner
can move elements from one salient position to another (string-initial to string-
final position or vice versa), but only if this does not disturb the canonical
word order. Thus, in ESL, the learner can produce utterances like In Vietnam, I
am teacher (Adverb-fronting). At stage X + 2 (disruption and movement into a
salient position), the learner is no longer constrained by the Canonical Order
Strategy, and can move string-internal elements to salient (initial or final)
position, too, producing utterances like Have you job? (Yes/no inversion) and
You take your coat off (particle separation). Whatever the merits of this
particular analysis (for a critique of the model, see White, 1989a), it is an
attempt to move beyond presentation of observed series of structures as
developmental sequences with no attempt to explain why they occur in the
order they do.

Some accepted SLA findings

Whether referring to empirical findings or not and whether specifying
explanatory mechanisms or not, theories ultimately have to account for the
well attested facts in their domain if they are to be taken seriously. A proposed explanation for something which either ignored or could not account for one or more of its most salient characteristics and/or for some other well established facts would lack credibility. A theory that birds can fly because they eat flying insects, for example, would immediately be rejected (among other reasons) because many flying birds do not eat insects, many animals that eat flying insects cannot fly, and because such an explanation would ignore a salient characteristic of all flying birds (as well as a few non-fliers), i.e. wings.

Theorists take care to survey such known facts about whatever it is they are trying to understand when evaluating theories in a field and when constructing their own. As explained earlier, certain structural characteristics of the field unfortunately make this rather easier to do with respect to a theory of why birds fly than one of why some people learn and others fail to learn a second language. Such difficulties and disagreements notwithstanding, the following are a few examples of what I would claim are well established findings about learners, environments and interlanguages, along with some of the challenges they pose current SLA theories.³

**Learners**

Wide variation in learners’ abilities (e.g. intelligence), states (e.g. motivation) and traits (e.g. extroversion) have relatively little effect on most aspects of (first or second) language acquisition by young children, which is strikingly regular in both course, rate and ultimate attainment, and in which success is the norm (Slobin, 1982). Individual differences do affect adult first (e.g. American Sign Language) or second language development, on the other hand. SLA processes and sequences are again fairly regular, but learning rate and ultimate SL attainment are highly variable and failure is common (Newport, 1984; Ellis, 1985). Differences in learners’ starting age (Krashen, Long and Scarcella, 1979; Scovel, 1988), aptitude, attitude and motivation (Skehan, 1989; Spolsky, 1989), for example, are systematically related to variance in rate of progress and ultimate attainment. The role of affective factors appears to be indirect, however, perhaps influencing such matters as the amount of contact with the L2, or time on task (Schumann, 1986), and to be subordinate to more powerful

³ Space limitations preclude surveys of supporting literature. For each generalization, references are provided to recent reviews and/or to key studies of the phenomenon concerned. The very existence of reviews, of course, attests to the familiarity of many of the results.
developmental and maturational factors. The most positive attitudes to target language speakers and the strongest motivation, for example, cannot overcome psycholinguistic constraints on learnability at a particular stage of development (Clahsen, 1987; Meisel, Clahsen and Pienemann, 1981; Pienemann and Johnson, 1987; Schmidt, to appear) or maturational constraints on what older starters can achieve (Long, in press). Both L1 and L2 development appear to depend on the same universal cognitive abilities, e.g. the capacity for implicit and inductive learning, and to be subject to the same cognitive constraints, e.g. limited human memory, attentional resources and information-processing capacity (McLaughlin, 1987; Schmidt, 1990; to appear).

Environments

Variation in the linguistic environment has surprisingly little effect on first language acquisition by children, where a high degree of success is achieved even under conditions of quite severe linguistic deprivation (Gleitman, 1986). The effect on adult language learning of differences in the amount and kind of input available is much greater, and varies among different groups of learners in part as a function of L1/L2 relationships (Larsen-Freeman and Long, in press). Both children and adults need the language they encounter to be comprehensible for it to become potential intake (Krashen, 1985). Comprehensibility is not dependent on linguistic "simplification" from the source (speaker/writer), which is often absent, but may result from interactional, or elaborative, modifications, which are frequently the product of negotiation for meaning between the source and the learners themselves (Hatch, 1978; Long, 1983; Parker and Chaudron, 1987). Exposure to comprehensible input is necessary, but not sufficient, however (White, 1987). Both children and adults can and do learn from positive evidence alone, as evidenced by successful untutored development in the absence of negative input, such as overt error correction (Bley-Vroman, 1986), but a focus on form (which overt error correction can sometimes induce in the learner), along with any other behaviors or tasks that make certain L2 features salient, improves rate and ultimate SL attainment (Long, 1988). Attention to form is necessary for mastery of certain types of L1/L2 contrasts, e.g. where the way the L2 encodes a grammatical relationship is more marked than the equivalent L1 structure.
(Eckman, 1981; Schachter, 1989) and where the L1 allows two options, only one of which is grammatical in the L2, but both of which are communicatively successful, thereby preempting negative input on the ungrammatical item via repair sequences (White, 1989b). Noticing, brought about by feedback, task structure or other means, is necessary for input to become intake, and negative evidence must be recognised as such for it to be effective (Schmidt, to appear). Much of a language is not learned unconsciously.

Interlanguages

Interlanguages, the psycholinguistic SL equivalent of idiolects, exhibit systematicity and variability at any time in their development (Selinker, 1969; Huebner, 1985). The systematicity manifests itself in many ways, including the regular suppliance and non-suppliance of both target-like and non-target-like features in certain linguistic contexts and in the persistence of the same errors for often quite lengthy periods (Schmidt, 1981; Sato, 1990). Interlanguages, that is, are, or at least appear to be, rule-governed. Much of the variability they also reveal turns out to be systematically related to such factors as task, interlocutor and linguistic context (Tarone, 1988; Kasper, 1988), although some of it does appear to be random, or free, as when a learner produces no put and don’t put or I born and I was born within moments of one another under seemingly identical conditions (Ellis, 1985). Change over time also follows predictable paths. With some minor differences for first language background (L1 transfer being constrained by such factors as L1/L2 markedness relationships and perceived transferability), learners of different ages, with and without instruction, in foreign and second language settings, follow similar developmental sequences for such items as English negation (Schumann, 1979), English and Swedish relative clauses (Pavesi, 1986; Hyltenstam, 1984), German word order (Meisel, Clahsen and Pienemann, 1981) and a variety of other morphological and syntactic constructions (Johnston, 1985). Progress is not linear; backsliding is common, giving rise to so-called U-shaped behavior observed in first and second language acquisition (Huebner, 1983; Kellerman, 1985). Development is for the most part gradual and incremental, but some sudden changes in performance suggest occasional fundamental restructuring of the underlying grammar (McLaughlin, 1988).
Sample implications for current SLA theories

If the above can be considered a sample of "accepted findings" in the sense indicated earlier, and so some of the facts in need of explanation and/or constituting part of that explanation, a number of implications follow for any theories which purport to be comprehensive accounts of SLA. The following eight are offered by way of illustration.

1. Common patterns in development in different kinds of learners under different conditions of exposure means that a theory which says nothing about universals in language and cognition is incomplete or, if considered complete, inadequate.

2. Systematic differences in the problems posed learners of different L1 backgrounds by certain kinds of L1/L2 configurations and by other qualitative features of the input, such as the salience of certain linguistic features or lack thereof, means that a theory which says nothing about environmental factors is incomplete or, if considered complete, inadequate.

3. Differences in rate of acquisition and the level of proficiency achievable by children and adults under comparable conditions of exposure requires that viable theories specify either different mechanisms driving development in learners of different starting ages or differential access to the same mechanisms.

4. The subordination of affective factors to linguistic and cognitive factors means that a theory which purports to explain development solely in terms of affective factors can at most be an account of facilitating conditions, not an explanatory theory of acquisition itself.

5. The need for awareness of and/or attention to language form for the learning of some aspects of a SL means that a theory which holds all language learning to be unconscious is inadequate.

6. The impossibility of learning some L2 items from positive evidence alone means that a theory which holds that native-like mastery of a SL can result simply from exposure to comprehensible samples of that language is inadequate.

7. Interlanguage systematicity, including adherence to regular developmental sequences and systematic production of non-target-like forms never modelled
in the input indicates a strong cognitive contribution on the learner’s part and means that environmentalist theories of SLA are inadequate.

8. The gradualist, often U-shaped course of much interlanguage development means that a theory which assumes sudden, categorical acquisition of grammatical knowledge triggered by recognition of linguistic features of the input is inadequate, and so also is a theory which assumes that change is a product of the steady accumulation of generalizations based upon the learner’s perception of the frequencies of forms in the input.

Conclusion

It is perfectly reasonable for particular theories to discount or ignore certain supposed empirical findings in the field because they lie outside the theorist’s domain of interest or because assumptions he or she makes preclude their being correct and/or from holding explanatory relevance. Nevertheless, a theory must account for at least some of the major accepted findings within its scope if it is to be useful. The same descriptions of findings to which a theory is accountable may often simultaneously serve as the beginning of an explanation for them, but an adequate SLA theory also needs to specify one or mechanisms to explain interlanguage change. Given some of the major accepted findings to date, an explanatory theory of SLA which hopes to be viable will have to be interactionist, despite the undesirable increase in power involved, in the sense that it will need to deal with both learner and environmental variables and to specify how they interact.

Acknowledgment
I thank Graham Crookes for helpful comments on an earlier version of this paper.

Received 10 April 1990

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