INDIVIDUAL DIFFERENCES IN SECOND-LANGUAGE LEARNING

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Second Language Acquisition

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To Jill

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Theoretical foundations

In the past fifteen to twenty years, the field of second language acquisition has grown enormously, with the quantity of published research increasing annually. As a result, the accumulation of data is expanding our understanding of the complexity and range of the task of the second language learner, and so providing a sounder basis for theory construction. It is striking, however, that the main thrust of this research has been towards establishing how learners are *similar*, and what processes of learning are *universal*. Studies of universal grammar or of acquisitional sequences, or of error types, are good examples of this. Such studies are not misguided – in fact, it is research activity in areas such as those just mentioned which has brought about the increased impact of SLA research. There are, however, alternative research traditions, and it is one of these, the study of the *differences* between learners, that will be the major focus for this book.

Although the contrast between the study of common processes and the study of individual differences (IDs) is well established in other disciplines, such as psychology, this is not the case in second language learning, where a robust ID tradition is somewhat lacking. It is the aim of this book to review such ID research as exists, and to demonstrate its relevance to other aspects of SLA, so that its influence may be all the greater in the future. Chapters will try to set out the major areas in which language learners differ, covering areas such as language aptitude, motivation and cognitive style, and of individual control over learning (strategic influences). These chapters represent the main part of the book, since there is relevant (and growing) research in each area. In addition, there is coverage of the small but important area of interaction-effects, of studies which *assume* individual differences but which then go on to examine whether particular types of individual do well when matched with particular instructional conditions. Before we approach these substantive areas though, we need, at the outset, to con-

sider what sort of theoretical framework is appropriate for the study of
Individual Differences.

Models of SLA

Model-making has been a growth area in second language learning in
recent years. We shall consider four contemporary models in this
chapter, and evaluate their usefulness for ID research.

The 'Language Two' or 'Monitor' model:
Dulay, Burt and Krashen (1982) propose the following model:
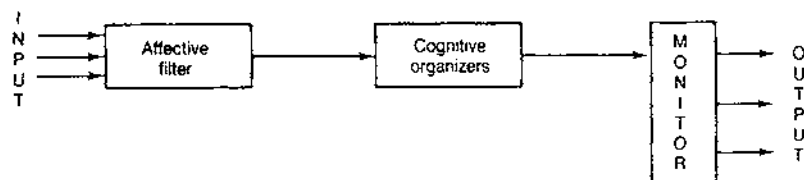
Figure 1.1: The Dulay-Burt-Krashen model

Building on this work, Krashen (1985) links the model to five hypo-
theses for SLA:

1   The Acquisition–Learning Hypothesis
2   The Natural Sequence Hypothesis
3   The Monitor Hypothesis
4   The Affective Filter Hypothesis
5   The Comprehensible Input Hypothesis

The 'Monitor Model' outlined above will not be discussed extensively
here (see McLaughlin 1987 for a very thorough evaluation) but only as
it relates to individual differences. Krashen is really proposing three
general areas where variation is important. First, there is the quantity of
comprehensible input. Progress is seen to be a function of the amount
of such input as is available. This source of variation is outside the
learner, and indeed, environmentally determined. The second source of
variation is the Affective Filter. Krashen suggests that this may be
raised or lowered, i.e. the learner's openness or lack of anxiety may
vary, and that the 'position' of the filter will influence how much input
is 'let through'. This is, potentially, an important ID involving the
learner. Finally, there is variability in Monitor use. Krashen speaks of
Monitor 'over-users' (those whose constant striving for correctness
inhibits output), and 'under-users', (those whose lack of concern with

correctness leads to garrulous but less grammatical performance).

In other words, several components in the model *could* be the source of individual differences. However, the central component, the Cognitive Organizers, is not so affected. Here, where actual 'acquisition' takes place, where Natural Sequences are preordained, where learning is irrelevant, there is only room for universal processes and *lack* of individual differences. The assumption is being made that, given comparable input, all learners will process the data in the same way and at the same speed. How much input gets through to this part of the model may vary, but the processes that operate on the input will be the same.

In fact, even those components of the Monitor Model which *seem* to be the source of IDs are disappointing when one examines them in more detail. The Monitor itself, as we have seen, appears to allow variable performance. However, Skehan (1984a) has criticized the status of the Monitor in relation to the rest of the model, suggesting that while it is concerned with on-the-spot performance, the rest of the model is concerned with the process of learning over extended time. This separation reflects the acquisition–learning distinction (Krashen 1981) in that Monitoring, being the *product* of learning, does not influence acquisition, i.e. the *process* of change. But the separation, and the postulated imperviousness of acquisition to effects of learning, means that the IDs that may exist in amount of Monitor use (i.e. 'over' and 'under' users) do not connect up with other, more central aspects of the model. To allow this to happen learning would be having an indirect effect, and the model would be self-contradictory. Since such an influence is then not permissible, IDs become trivial.

The discussion of differences elsewhere is similarly problematic. As far as both comprehensible input and affective filter variation are concerned McLaughlin (1987) has severely criticized Krashen for vagueness as to what is actually being varied. McLaughlin (1987) points out that Krashen does not explain how comprehensible input can be specified without circularity, and that no convincing account is given of how the Affective Filter changes level and on what basis it can be selective in its operation. Hence the impression we are left with is that labels have been attached to areas where it is known there is variation, but that the explanation of the variation is not advanced at all.

The 'Good Language Learner' model:
By way of contrast, we will next consider a model proposed by Naiman, Frohlich, Todesco, and Stern (1978) as part of the 'Good Language Learner' (GLL) study. The term 'model' is misleading, since what is really being proposed is only a taxonomy or listing. Still, even at this level, what Naiman *et al.* (1978) describe is interesting.

The diagram consists of five boxes, representing classes of variable in language learning. These may be divided into three independent

TEACHING

```
| Materials   |
| Syllabus    |
| Methodology |
| Resources   |
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THE LEARNER   LEARNING   OUTCOME

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| Age            |      | Unconscious     |      | Proficiency   |
| Intelligence   |      | processes       |      | – listening   |
| Aptitude       |      | – generalization|      | – speaking    |
| Motivation     |      | – transfer      |      | – reading     |
| Attitude       |      | – simplification|      | – writing     |
| Personality    |      |                 |      | Errors        |
| Cognitive style|      | Conscious       |      | Interlanguage |
                        | processes       |      | Affective     |
                        | – strategies    |      |   reactions   |
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THE CONTEXT

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| EFL/ESL        |
| Opportunities  |
|   for use      |
| Social milieu  |
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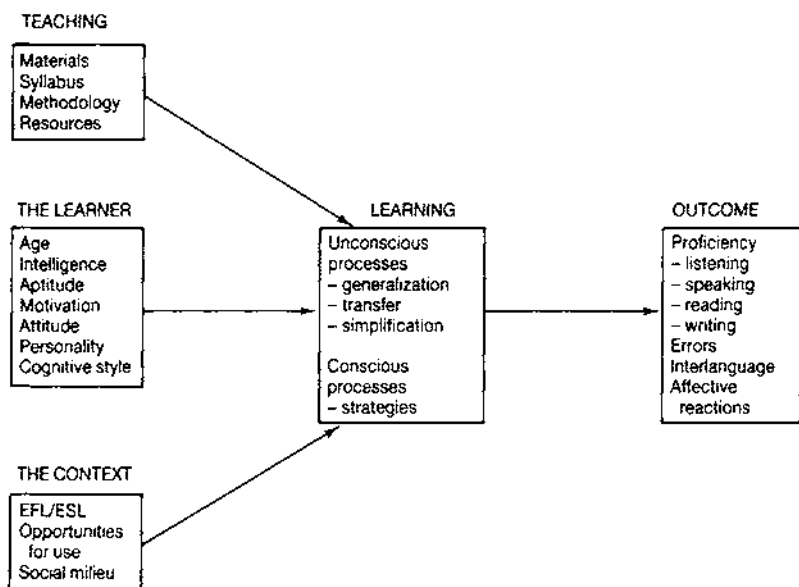
Figure 1.2: The good language-learner model

(causative) variables and two dependent (caused) variables. The independent variables, teaching, the learner, and the context, themselves have to be subdivided further, since they are each composites of many independent influences. Hence the need to specify the quality of the instruction, the quantity of resources, intelligence, personality, opportunities for informal target-language use, etc. The dependent variables also need some further subdivision. Outcome, the ultimate 'caused' variable, is seen to consist not merely of proficiency measures, but also of more qualitative aspects of performance, i.e. errors, as well as affective reactions to learning, the language, the people, and the culture concerned. The Learning box, is, perhaps, the most complex of all. It consists of two rather different things. On the one hand, there is learning, the process of developing one's competence in the target language, with the focus here being on something like Selinker's five strategies for interlanguage (Selinker 1972). On the other, there are learner strategies, which imply some degree of learner control and of distance from the actual process of learning.

The model or taxonomy shown in Figure 1.2 is essentially atheoretical, and explains very little. However it does have three advantages. First, it allows us to see the range of potential influences on language learning success. In this way, it demonstrates what varied influences

there are: how difficult it is to study just one of them in isolation; how they may be classified; and what range of variables needs to be controlled in research studies. A second advantage of such a taxonomy is that, although list-based, it encourages *quantification* of the different influences. It implies that one should be able to establish how strongly aptitude or classroom organization, for example, influence the outcome of language learning: it is not enough to demonstrate 'an effect' – one must also assess how important the effect is. Finally, the GLL model offers some scope for conceptualizing interaction effects. For example, one could ask whether personality and methodology interact, with (say) extrovert learners doing particularly well in communicatively oriented classrooms, introverts doing well in teacher-led classrooms, and each learner group doing poorly when exposed to the inappropriate methodology. Since the model attempts to list the different potential influences on language learning, one has a clearer idea of where to look for interactions.

The two models outlined so far, Krashen's (Figure 1.1) and the Good Language Learner Model, (Figure 1.2) provide an interesting contrast in theory construction. McLaughlin (1987) makes a distinction between hierarchical and concatenated theories. Similarly Long (1985) and Larsen-Freeman and Long (forthcoming) distinguish between a theory-then-research approach compared to research-then-theory. The first alternative, in either case, involves the elaboration of a theory or model which makes predictions and which has explanatory power. It is (or at least should be), falsifiable, in that the predictions which are made must be capable of empirical test. The second approach suggests the identification of an area that looks promising for research and which is relatively circumscribed. The researcher then attempts to collect 'facts' in the chosen area, facts which may form a part of subsequent hierarchical theorizing.

In the present case the Monitor model would certainly be seen as a hierarchical model which operates from premises, makes predictions, and inter-relates the parts of the model in a logical system. In contrast, the Naiman model is very much in the concatenated or research-then-theory approach, providing a rudimentary categorization of relevant variables and then implying a research programme which accumulates quantitative information on the individual variables so categorized. It should enable us to reach a 'take-off' point from which it is feasible to produce more effective hierarchical theories. This is because we will have a better sight of where we are going; are less likely to ignore important data; and will have a better understanding of the scale of the problem. Certainly ID research can be conceived of much more easily within the concatenated, or research-then-theory perspective, and so the GLL model seems more appropriate as a guiding framework. This issue, though, will be returned to in Chapter 8, and pursued in the light

of the intervening chapters, in which the respective strengths and weaknesses of the two approaches to theory-building will be assessed. For the present, though, two more models need to be discussed.

The Carroll model of school learning: an interactional model:
A third model to be considered is that proposed by J.B. Carroll in the early 1960s (Carroll 1965). The model was put forward to account for school learning and as a result focused on a limited set of variables. It is proposed here, however, that the model could be generalized to incorporate other variables and more complex situations. It is important that applied linguistics researchers do this, since it is argued that what are required most urgently in second language learning are models which allow both instructional (i.e. treatment) factors *and* individual difference variables to operate simultaneously.

The model, then, starts by considering two major classes of variable – instructional factors and individual difference factors. These are sub-categorized as follows:

Instructional factors	*Individual differences*
– time	– general intelligence
– instructional excellence	– aptitude
	– motivation

The first instructional factor is time, and it is postulated that progress is a function of amount of time spent learning: the greater the time, the greater the learning. The second instructional factor is excellence of instruction. Clearly, defining instructional excellence is something of a problem, and it is striking what changes have taken place since the publication of Carroll's model in terms of what conventional wisdom now regards as good teaching. The growing field of classroom research is an attempt to at least describe classroom events and processes. For the present we will simply assume that differences in instructional effectiveness do exist, and have a place in the model.

The first of the three individual difference variables is intelligence. Carroll conceived of this as the learner's capacity to understand instruction, and to understand what is required of him in the learning situation. Intelligence, that is, is conceived of as a sort of efficiency factor, a talent for not getting sidetracked or wasting one's efforts. Aptitude, and in this case, foreign language aptitude, is seen as a generalized capacity to learn languages which is separate from intelligence, and which consists of several sub-components – associative memory, inductive language learning ability, grammatical sensitivity, and phonemic coding ability (see Chapter 3). Finally, motivation is seen as the individual's need to study the language in question and his willingness to persevere and overcome obstacles.

In a sense, therefore, Carroll's model is only a subset of the Naiman model, in that it includes some instructional and learner variables, but leaves out others, and it leaves out altogether the context of learning, the process of learning, and learning strategies. Even so, it is of interest because it attempts to be more than a static listing of influences. What Carroll attempts to do is to specify the nature of the interaction between the variables, and to indicate how differences in one variable will constrain the operation of the others. For example, consider the operation of aptitude under conditions of time pressure and moderate instructional quality. Carroll suggests that under these circumstances aptitude will predict fairly well, i.e. it is reasonable to expect an appreciable aptitude–outcome relationship since high-aptitude students will use their abilities to cope with the less-than-perfect instruction and the shortage of time. In contrast, when there is ample time for learning and high-quality instruction, Carroll suggests that aptitude will be a much less potent predictor of language learning success. This is because low-aptitude students can put in more time for learning, and because the quality of instruction, the 'delivery system', will ensure that less-gifted learners are provided with appropriate quantity and quality of instruction. Other combinations of variable conditions can also be examined. Carroll, in fact, provided mathematical functions relating pairs of variables while various assumptions were made about the others. In this way the model attempts to specify the interdependence of different influences on language learning, and goes beyond the taxonomic, 'separate causation' approach shown in Figure 1.2. Although models such as this are very ambitious, they do hold out the hope that ID research and experimental/universalist research can be combined, and the one used to illuminate the other. The Carroll model is discussed here simply because it shows what similar, but more comprehensive and ambitious models could be like. One would like to see more of them developed.

The disjunctive model:
For the sake of completeness, we also need to consider another type of model. This will be termed here the Disjunctive Model, since its main feature is that it accepts that end-states or outcomes can be achieved in different ways. It contrasts with the models which have been described so far. These have all assumed that where there is a correlation between two variables, the relationship between them is linear. In other words, although the strength of the relationship may vary in the different cases, we assume that increases in one variable are matched by increases on the other. When we extend this basic approach to situations where there are several variables, it is assumed that the causal or independent variables can be combined in some sort of simple additive fashion. It is, however, possible that particular outcomes may be achievable by

different routes, and that the different routes may be dependent on different *configurations* of abilities. Focusing on cognitive abilities as an example, it could be that one learner might achieve success via talent for auditory processing of information; another might rely on well-developed visual memory abilities. The end-point they achieve would be similar, but the means they employ to reach that state could be very different.

There are hardly any developed models of this sort in the second language acquisition field. However, there is research, both in first and second language acquisition, which is consistent with such a position (Nelson 1981; Skehan 1986b). It is likely, in fact, that this class of model will become more common in the future, as the diversity of language learners is more fully appreciated, and as interaction effects are properly understood. Spolsky's work (forthcoming) on the use of an expert systems approach to analysing second language learning data is promising in this regard, as are the use of techniques such as cluster analysis (see Chapter 2).

However, these are prospects for the future, not present realities. For present discussion, the chapters that follow will rely primarily on the GLL model to provide an organizing framework, and will consider the potentially more sophisticated interactional and disjunctive models only where these are appropriate. The goal, for the moment, will be the identification of the variables which influence language learning success, and the quantification of these influences. More complex models will be a practical possibility only when these basic relationships have been described adequately.

The plan of the book

Given the preceding discussion on the types of model which may underlie ID research, the rest of this chapter will briefly outline the structure of the book as a whole. Chapter 2 is concerned with methodological issues. It discusses the research techniques which are fundamental for ID research, and also examines some of the less commonly employed alternatives. The following three chapters then take aspects of the model outlined in Figure 1.2, and attempt to survey the relevant research. Chapter 3 focuses on language aptitude. It is proposed that, of all the IDs, foreign language aptitude still generates the most consistent correlations with language learning success. It is argued that aptitude, even though perhaps an unfashionable concept, is not restricted in its operation simply to formal, 'learning' environments, but influences acquisitional processes as well, and can still be the basis for useful theorizing and research. Chapter 4 is concerned with affective influences on language learning. It surveys the research on attitudes and motivation, and the models that have been proposed in this area. It exa-

mines the operation of motivational forces in different learning circumstances, and also considers the methodological issues in trying to assess such a complex area. Chapter 5 is concerned with the role of learner strategies. Since the 1970s, research into consciously controllable learner strategies has grown considerably, offering as it does the prospect that we can teach learners how to learn. However, this area has been characterized by conflicting results and also conflicting research techniques. The chapter will examine these different approaches, and assess both the robustness and significance of the findings as well as the effectiveness of the methodologies employed.

Chapters 3, 4, and 5 will, then, examine findings and techniques in three clearly defined areas of ID research. Chapter 6, in contrast, will look at a range of ID variables which are diverse, both in terms of the major areas already mentioned, and in terms of one another. Some cognitive influences on language learning such as intelligence and cognitive style will be covered, and then research into miscellaneous personality variables such as extroversion, sociability, risk-taking, etc. will be discussed.

Chapter 7, in an ideal world, would draw upon a considerable quantity of completed research in examining the nature of the interactions between individual difference variables and the circumstances of learning. It would allow us to bring together the comprehensiveness of a model such as that shown in Figure 1.2 with the dynamic and explanatory power of Carroll's Model of School Learning to account for optimal learning by different individuals in different contexts. It would also provide a framework for the more disjunctive possibilities covered in the fourth model discussed. Unfortunately, aptitude-treatment research of this sort is not extensive. We will be forced to consider a fairly incomplete picture and cover such research as is available while pointing out areas urgently in need of further investigation. There are numerous possibilities here, but little indication that many of them are being exploited currently.

The final chapter examines the role of ID research in second langauge acquisition as a whole. It will be argued that the findings that do exist in ID research have been neglected in mainstream SLA research for too long, and that they should be brought back into greater prominence. They certainly come within the concatenated, or research-then-theory tradition, but it will be argued that the findings that exist need to be an important element for future hierarchical, or theory-then-research approaches. Above all, they will enable us to glimpse the scale of the problem that future hierarchical theories will need to address. Consequently, the concluding discussion is of the strengths and weaknesses of the different approaches to model building in second language learning research.