

ADULT LEARNER STRATEGIES
IN FOREIGN LANGUAGE
GRAMMAR LEARNING

*A task-based study of approaches to the learning of
grammatical structure in a micro-language,
with a discussion of their implications
for language teaching and materials.*

by

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Ph.D. - University of Edinburgh - 1986



Acknowledgements

My indebtedness to many people for many different things is very great. So let me first say a general 'thank you' to all the friends and colleagues in Edinburgh and Arhus who have given me their support and encouragement.

There are, however, some special acknowledgements I would like to make.

First of all, I am indebted to Henry Widdowson and Patrick Allen for their interest and help when I was first trying to formulate my ideas; to John Laver for introducing me to the seminal work of Pask; and to Gordon Pask for his time, encouragement and the run of his laboratory.

Next, I owe thanks to the Hornby Educational Trust, in the person of Peter Collier, and Oxford University Press, then represented by Peter Donovan, who found my work of sufficient practical interest to provide me with generous scholarships in my first post-graduate years.

Special thanks, however, are due to Tony Howatt, for his guidance, for the perspicacity of his criticisms and suggestions, and for his understanding and endless patience with a rather elusive supervisee.

In addition, I would like to thank Amal, Bernard, Michiko and Roger, friends and fellow sufferers in the Ph.D. wasteland, for the discussion, argument and commiseration, and Kate for the unfailing friendship and support.

I also want to express my thanks to my parents, for their unflagging interest, understanding and faith.

And finally, to Hans, for relentless encouragement and support, for criticising, listening and arguing, questioning, reading, and putting up with me, heartfelt thanks.

Althea Ryan
Arhus, 1986

ABSTRACT

This study sets out to explore adult learner strategies in foreign language learning.

It takes its point of departure in theories about cognitive styles and learning strategies, even though such theories have been developed mainly on the basis of studies of learner performance in tasks whose contents are less skill-oriented than FLL. A particular both theoretical and methodological inspiration has been found in the approach of Pask and his associates.

It is a major hypothesis that a learner's choice of strategy in an FLL task will depend not only on the nature of the task but also on individual learner preferences.

The empirical basis of the study is a record of the activities of 33 adult subjects performing the task of learning a micro-language in an environment that allows them choice of approach. The number of subjects and the size of the task do not permit conclusions of statistical significance, but the task does lead to the establishment of differences in learning strategy, which the author calls Rules-based and Examples-based learning. The further exploration of these is bound to contribute to an elucidation of the FLL process.

The author sees the most important perspectives of the study in the development of teaching materials and in lesson design. The findings support suggestions as to far-reaching changes in the design of grammar presentation material and pedagogic grammars, and in the use of text examples in teaching. They also support a revision of present practice with regard to principles for content syllabus organization, and to the selection of materials for certain types of language learning activity, especially reinforcement activity.

The suggestions are made on the assumption that in so far as learners can be seen to vary in preferred learning strategy, their learning cannot but be furthered by teaching designs that allow them to indulge their preference.

I declare that this thesis was composed by myself, and is entirely my own work

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CHAPTER 1: INTRODUCTION

It has long been a source of puzzlement that although language learning theory and language teaching methodology are in a constant state of development, or one might say flux, the application of a new learning theory, the invention of a new method, the composition of new types of teaching material, never seem to produce the expected improvement in the average rate or quality of foreign language learning in the classroom. The invariable rule seems to be that some learners do well and others do not.

A particular group of interest to myself is adult learners in higher education. Such learners have proven intellectual ability, yet very often they have failed to learn foreign languages successfully, as shown by the number of foreign students in British universities who are in need of 'remedial' English courses. Why is it that so many learners fail to learn languages successfully, and when it comes to 'remedial' courses, how can the materials and teaching methodology be designed to eliminate the possibility of a repetition of this failure?

Controversy over teaching methods led in the 1960's to ambitious experimental classroom studies attempting to assess the efficacy of different teaching methodologies (e.g. The Pennsylvania Project, see Smith, 1970). Apparently warned off by the disappointingly inconclusive results of such studies, researchers have since focussed on other aspects of foreign language teaching, primarily syllabus design (especially the Council of Europe research, e.g. Wilkins, 1972, 1976), and on the learner, particularly in interlanguage research.

At the time, no attempt was made to investigate the reasons for the failure of the methodology studies. More recent advances in the study of learners as individuals suggest an explanation. These large-scale projects failed

to take the individual into account. If, as now seems indisputable, it is not only motivational and attitudinal factors which influence the quality of an individual's learning, but also cognitive and affective factors, then it is unavoidable that any one teaching method applied to a group of learners will prove suitable for some and not for others. Naiman et al. show that in second language learning, a positive attitude, while being necessary, is "not the only factor in success, and in fact can in no way be construed as a sufficient condition." (1978:67) Motivation is needed for any learning achievement, but Naiman et al. emphasize cognitive and personality factors as well.

Despite increased knowledge of some influences on individual success, especially motivational and attitudinal factors, it remains difficult to assess the effect of teaching methodology on learners, and there is still a wide gap between our knowledge of learning processes and our ability to relate them to teaching materials.

Some recent approaches to foreign language teaching appear to focus on the individual and his needs. Syllabus research and the development of English for Specific Purposes (ESP) (and offspring such as English for Academic Purposes (EAP)), are the standard bearers of this apparent individual focus. The aim is to formulate syllabuses in terms of discourse-oriented skills and linguistic elements, and to narrow the area of learning to just those skills and items needed by particular learners. Of course this is a concession to the individual in terms of his needs. But these are terminal needs. The idea is to find out what the learner wishes to use the language for and reduce his learning task by selecting for instruction only those items and skills he will need. Munby (1978) claims that this can be done very precisely, but the application is limited to those learners who have a specific purpose, many learners do not. Moreover, the learner as individual is only considered in that the

content of learning is limited to the strictly relevant.

What of the learning needs, the cognitive, affective and other needs of the learner during the learning process? Learning needs are increasingly being taken into consideration in the development of new methods and materials, but this change is restricted to two areas.

Firstly, although the classroom situation appears inimical to the fulfilment of individual requirements in regard to teaching materials and methodologies, in certain areas at least the problem has been acknowledged and an attempt is made, if not to adapt to the individual, at least to adapt the individual to the environment. I am thinking of the areas of motivation and attitude, where integrative motivation and a positive attitude to the foreign language culture have been shown to be generally advantageous to learning. The need for motivating learners is recognized, and activities and textual content are chosen with the aim of creating motivation and interest, and engendering a positive attitude.

Secondly, with regard to the use of language, increased knowledge of discourse, of the dynamics of communication of meaning, and of the role of error in learning, i.e. interlanguage research and especially the focus on communication strategies, have led to an adaptation of methods and content in order to improve discourse skills and enable the learner to overcome some of the problems inherent in using an interlanguage (see e.g. Brumfit & Johnson, 1979). While this kind of adaptation does reflect learning needs, it does not necessarily take individual personal differences into account.

There is evidence, from extensive research into cognitive styles so-called, that individuals differ in the way they approach learning. These differences are difficult to classify as clearly affective or cognitive in nature, but appear to encompass elements of both types of

functioning, and have been termed personological. Some types of style difference seem to be intrinsic to certain types of personality, others to be a matter of preference with regard to cognitive functioning. What is certain is that differences between individuals exist.

Little of the research in this area appears directly relevant or applicable to the situation with which I am concerned, i.e. foreign language teaching. There is, however, a small body of research into learning strategies and styles which reflects the experimental anarchy of the classroom situation, and is not in the controlled laboratory experimental tradition. The results of this research show that learners differ considerably in the way they learn, and that incompatibility of teaching method or materials with learner style significantly hinders learning. The tasks investigated have not been language learning tasks, hence it remains to be seen whether style differences of this kind also appear with foreign language learning tasks.

It seems to me that if individual style and strategy differences are valid also in language learning, this concept of individual differences and preferences in cognitive functioning could provide another explanation of the failure of some learners. Despite sufficient motivation and a positive attitude, learners subjected to an incongenial methodology would probably have great difficulty in learning. This would lead to a loss of motivation, and hence further failure, and so on. Alternatively, learners taught by congenial methods would gain in motivation as a result of ease of learning and subsequent success. This is a hypothetical argument, but if the premiss is valid, it suggests that individual learning style may be of central importance to success. One consequence would be that if all learners are to be afforded equal opportunity of success, language teaching materials and methods would have to be designed to allow for individual style preferences.

The first step in testing this argument is to discover whether learners do exhibit individual learning style differences when learning a foreign language, and how any such differences are manifested. A learner's activity when using language teaching materials appears to be taken for granted. That learners learn, check, practise and so on, is accepted at face value, and the sequencing and amount of these activities tends to be dictated by the teacher, or the text book. I believe that individual differences may be revealed by observation of what learners actually do, when given a learning aim and free rein to use linguistic material as they wish.

Such an independent learning task could perhaps give some indication of whether significantly different learning approaches are chosen by learners despite comparable educational backgrounds, and what these might be. Secondly, such a task could also provide a preliminary description of learner activities, whether and how they vary for learners using different approaches, and possibly what types, sequences and quantities of activities appear to lead to successful learning for learners with different approaches.

Any attempt to answer these questions requires a very detailed analysis of individual learning activities. This is the task I have set myself in the following. I shall describe and analyse in great detail a foreign language learning task undertaken by 33 adults. The scope of this research is not such as to warrant firm conclusions or to produce statistical significance. Nor is that my aim. My aim is, by a method so far (to my knowledge) untried in the area of foreign language learning research, to seek to discover individual strategies in the use of linguistic material for learning.

Such an in-depth analysis will provide indications of possible tendencies rather than indisputable certainties. It will, however, also provide a basis for more informed hypotheses in further research into learner differences.

CHAPTER 2: BACKGROUND - CONCEPTS AND RESEARCH TECHNIQUES

2.1 Cognitive Styles

2.1.1 Definition

The field of research referred to as cognitive or learning styles and strategies, suffers from terminological and definitional problems. There appears however to be a consensus as to the definition of cognitive style as

"individual variation in modes of perceiving, remembering and thinking, or as distinctive ways of apprehending, storing, transferring and utilizing information." (Kogan, 1971:244)

Styles are distinguished sharply from abilities (Kogan, 1971:244; Messick, 1976:7) as they relate not to the level of skill, or the content of cognition, but to the manner of operation, where the focus is on process rather than result.

Thus, cognitive styles refer to consistent individual preferences or habits in the way of organizing and processing information, and further,

"They are characteristic modes of operation which, although not necessarily completely independent of content, tend to function across a variety of content areas." (Messick, 1970:190)

Other terms which are variously used in this very general manner are learning styles, cognitive control principles, cognitive strategies, and modes of information processing. I shall however continue to follow Kogan's definition and use the term cognitive style, which he explains further in a footnote:

"The use of this term is quite general and encompasses all individual variation in cognitive functioning that does not fit the conventional categories of abilities." (Kogan, 1971:243, footnote)

Styles are generally described as dimensions with two poles, and researchers by no means agree as to the number

and qualities of styles so far identified. Messick (1976) surveys 19 style dimensions, but Kogan suggests (1971:245,290) that some distinctions may be a result of varying experimental designs. Other researchers agree that there may be more labels than actual categories (McDonough, 1981:130; Boekaerts, 1979:158).

2.1.2 Cognitive Styles and Language Learning

The style variation most extensively researched so far is the dimension of field dependence(FD) vs. field independence(FI), initially proposed by Witkin in 1954. The experimental measures used to distinguish these require the subject to dissociate an item from an embedding context, e.g. the time taken to locate a simple figure within a larger complex one (Embedded Figures Test). Subjects able to do this with ease are labelled field independent, and those who have difficulty in separating an item from the general perceptual field are labelled field dependent. Witkin showed later (1965, 1967) that the analytic nature of field independent perception, and the less focussed approach of field dependent individuals was applicable over a wider range of intelligent activity. A new dimension was posited with the status of a personality characteristic, global (or diffuse) perceivers and analytic (or articulated) perceivers.

It has been shown that FD/FI perception co-varies with the personality dimension of empathy, field dependent subjects being more sensitive to the feelings of others and more influenced by the group, while FI subjects are more individualistic and less aware of others (Messick, 1976).

The FD/FI dimension might be expected to be especially significant in the present context. In particular, the tendency of FI persons to analyze an inherently organized perceptual field and to impose structure on one that lacks organization, would seem highly relevant to foreign language learning, especially perhaps in informal or

immersion settings.

However, experimental results are far from consistent, let alone conclusive. Naiman et al.(1978:67) in a study of eighth, tenth and twelfth grade students learning French as a second language in Toronto high schools, found that field independence was the only one among several cognitive style factors tested which was significantly correlated with success, and then only in the highest grade. Genesee and Hamayan (1980), in a study of six and seven-year-olds learning French by immersion, found that FI was a predictor of success in some aspects of learning. Brown claims that in pilot studies of FD/FI carried out for the Michigan Good Language Learner study, "field dependence correlated quite highly with a test of language proficiency in the case of adult English learners in the United States."(1980:92) These were learners acquiring the language in an informal setting. Also, Guiora et al.(1972) claim that high empathy (which relates to FD) is related to some aspects of successful language learning.

To reconcile these findings, Brown suggests that in informal settings empathy is important, and therefore one would expect an FD style to be a predictor of success, whereas in a formal learning situation analytical skill would be more necessary, thus FI would be a more useful style. This does not however explain all the findings. What does become clear from the findings is that cognitive style research in foreign language learning is both difficult and complex; and that many factors in the learning situation need to be taken into account before any firm claims can be made.

In the Canadian study, Naiman et al. used standard style measures to assess their subjects along three dimensions of cognitive style: 1) Field dependence - field independence 2) Broad - Narrow Categorizing 3) Interference Proneness. Also Brown (1973) suggests that broad - narrow categorizing (or category width), which is

the tendency to be inclusive or exclusive when evaluating items and developing classes, could be relevant to foreign language learning. One might expect a broad categorizer to have a tendency to overgeneralization, whereas a narrow categorizer might fail to see analogies. However, in the Canadian study no correlation was found between performance on Pettigrew's Category Width Scale and either achievement or error types. Other dimensions suggested by Brown as intuitively relevant to foreign language learning are reflectivity - impulsivity, levelling - sharpening, and belief congruence - contradiction.

Reflectivity - impulsivity is tested by the use of Kagan's Matching Familiar Figures test (Kagan et al. 1964), and shows a difference whereby some individuals respond with a quick guess at an answer to a problem (impulsive), whereas others consider many possibilities before making a more calculated decision (reflective).

Kagan (1965) showed that reflective children make fewer errors in reading, whereas impulsive ones may be faster readers. Almost no research has been done on this style in foreign language learning, however, though Doron (1973) did show that reflective adult foreign language students were also slower, more accurate readers than their impulsive counterparts. As McDonough suggests, one could imagine that reflective learners, who are liable to be more anxious about the quality of their performance and capable of more sustained attention, might do better in formal environments, and impulsive learners, who are "more willing to sacrifice accuracy for speed of response" (McDonough, 1981:183), might be better equipped to participate in conversation and therefore more suited to informal learning environments.

Levelling - sharpening (Bartlett 1932, Brown 1973), also called skeletonizing - embroidering, is the only style referring exclusively to recall and storage in memory. With reference, for example, to recall of narrative

(Brown 1972), the leveller cuts out particulars but retains the general facts which subsume the details. The sharpener, on the other hand, extrapolates beyond the stimuli given, adding material in order to retain original details which might otherwise be forgotten, possibly as a kind of mnemonic technique.

As an explanation of the storage phenomenon, McNeill (1965) suggests that it is the memory not the perception which is affected. The perceptual representation consists of a linguistic label and a visual image which provides detail ('corrects' the label). In time the correction tends either to get lost -> levelling, or is magnified to produce exaggeration -> sharpening. Again there is no specific foreign language learning research with regard to this style, though it would seem relevant in fact to any kind of formal learning, particularly where memory for text is concerned (e.g. comprehension tasks and tests).

Brown's fourth suggested dimension, belief congruence - contradiction, which reflects the strength of the individual's need for internal consistency within his belief system, has not, again, been investigated in regard to foreign language learning. However, two other dimensions, i.e. (in)tolerance of ambiguity, and authoritarianism vs. dogmatism, normally categorized as personality traits, appear to reflect similar distinctions. Naiman et al. suggest that;

"those students who have a high intolerance of ambiguity may have great difficulty in coping with the amount of ambiguity present in the second language classroom, and therefore may drop the subject as soon as possible." (1978:67)

This represents an attempt to explain their findings that tolerance of ambiguity was a significant predictor of success in their grade 8 students, and also that grade 10 and 12 students were significantly more tolerant of ambiguity than grade 8 students.

Apart from field independence and tolerance of ambiguity, the Naiman group found no other personality and cognitive style factors (among those tested) which were significant for language learning success. They do however express misgivings about the construct validity of some of the measures used, particularly for measuring personality (Naiman et al., 1978:65/6).

2.1.3 Perspectives

This brief review of the cognitive style research directly related to foreign language learning reveals little. The method used is generally to apply a standard style measure to a group of learners, and to correlate this with results on one or more language tests. Apart from the fact that the quantity of research done so far in relation to foreign language learning is minimal, experimental measures and language tests vary so much as to be hardly comparable, and construct validity (at least outside FD/FI research) is, as Naiman et al. point out, often open to question.

However, as far as I am concerned, a larger problem with this kind of research is that it focusses on cognitive style correlation with language proficiency achievement, without investigating learning activities. It does not consider learner preferences as to type, quantity and sequencing of learning/teaching materials and activities. Thus it can at most hint at potential differences in the learning process. For example, it is possible that impulsive individuals may prefer to scan a lot of input material, reflective individuals being happier with a limited amount of input. Similarly, individuals highly tolerant of ambiguity may be more suited to a task where they themselves select and order the materials to use; and field dependent individuals might require more socio-cultural information, or require a step-by-step input of grammatical rules. None of these speculations have been or can be tested by the type of research reviewed above.

Another feature revealed by this review, is that while the label 'cognitive style' is generally accepted, it may be a misnomer, in that cognitive style and personality are not distinct and separable. Many of the so-called cognitive style dimensions represent not only cognitive (intellectual) functioning, but also affective characteristics (e.g. belief congruence/contradiction). Messick writes (1976:5)

"They (cognitive styles) are conceptualized as stable attitudes, preferences, or habitual strategies..." (my parentheses and underlining),

and Brown (1980:90) warns that

"It is difficult to argue that cognitive style is strictly a cognitive matter. It really mediates between emotion and cognition.....A person's cognitive style is determined by the way he internalizes his total environment, and since that internalization process is not strictly cognitive, we find that physical, affective, and cognitive domains merge in cognitive style."

It would seem, then, that cognitive style can be considered as one aspect of personality, such that cognition and affect could be placed at opposite poles of a continuum representing personality. It is then the decision of the individual researcher as to where on the continuum he places the boundary between what he refers to as cognitive style, and that area of investigation into affect traditionally referred to as personality.

2.2 Experimental Design and Learning Strategies

2.2.1 Experimental Design

We have seen that research in the field of cognitive style omits investigation of the activities of the learner during the learning process. Neatly structured experiments, with independent variables such as person-ological or situational features correlated with the dependent variable of performance, are used to investigate the relation between style and achievement. If, however, an investigation of activities during the learning process is intended, the neatness of this design is disturbed. We cannot assume that these activities are determined exclusively by cognitive/learning style; hence the strategy adopted by the learner for the completion of the task is a variable in itself. In other words learning strategy intervenes between the independent variables and the dependent variable of performance.

Biggs (1984) presents a research model for academic learning performance, in which he suggests a class of intervening variables: performance factors which are neither outcomes (dependent variables) nor person-ological/situational features which can be controlled in the experimental design (independent variables). Learner strategies, together with the learner's perception of his task, constitute these intervening variables. To Biggs, strategy is "a key concept in explicating relationships between person, situation, and performance." (Biggs, 1984:112) It is precisely this relationship which is relevant to my investigation of how learners go about the process of foreign language learning.

The poverty of the usual experimental design for investigating learning/teaching, was recognised by Cronbach, who instigated the so-called aptitude-treatment interaction (ATI) research. The object of ATI research is to investigate the interaction between two classes of independent variables and their combined effect on performance, to discover whether different instructional

treatments produce differential success for learners with different levels of ability or previous knowledge (see e.g. Messick, 1976:part 7; Cronbach, 1975). Thus, ATI techniques provide a means of measuring some of the complex relationships between independent variables. Cronbach and Snow (1977) suggest that such research also provides a means of assigning pupils to suitable instructional methods.

While representing an acknowledgement of the complex interactions at work in a learning/teaching situation, ATI research still fails to recognize the effects of individual learner strategies on outcomes. Thus, while the assignment of pupils to instructional treatments is possible on the basis of this type of research, it is not necessarily sufficient. It is almost certain that the choice of instructional treatment would be better informed, if based on knowledge of individual strategy preferences.

There is, however, a body of research into learning strategies (also called cognitive strategies), Biggs' 'intervening' variables, and it would seem to be a potentially rewarding area for me to explore, especially in terms of research designs and techniques.

2.2.2 Learning Strategy Types

The definition of strategy presents a problem, in that the term is used to refer to activities at several levels of generality. It is used for both high and low level heuristics, ranging from a level of generality approximating to a style or habit, with implications of a possibly unalterable personality trait, down to micro-strategies which are totally dependent on context and content of learning. Messick defines them thus:

"..decision-making regularities in information processing. Cognitive strategies are selected, organized, and controlled in part as a function of larger-scale, more general cognitive styles and ability patterns, but they are also determined in part as a function of task

requirements, problem content, and situational constraints; hence in comparison to styles, they are likely to be more amenable to change through training under varied conditions of learning." (1976:6)

To clarify the term 'strategy', Biggs sets up a useful distinction by measuring types of strategy in terms of their 'distance' from the task, their 'generality', and their 'teachability' (the most distant and general strategies being the least teachable). In this way he arrives at three strategy types:

1) Macrostrategies: which refer to the general way in which a student orders and relates data when faced with a particular task, and which also determine the selection of more specific task related strategies.

It would seem that macrostrategies in this definition refer to something akin to cognitive style, but with the research emphasis on the process of learning, similar perhaps to Pask's definition of comprehension and operation learners (see below, 2.3.1, p.24).

2) Mesostrategies: which are less general and refer to study strategies, cf. Marton and Säljö's "surface-level" and "deep-level" processing strategies in academic reading (1976a, 1976b - see below, 2.2.3).

Biggs himself distinguishes three mesostrategies: reproducing, meaning, and organizing. Reproducing and meaning correspond generally to Marton and Säljö's surface and deep-level strategies. These strategies appear often to be selected by students in accordance with the construction they put upon their role in the learning situation, e.g. reproductive learning may be adopted by the student if his aim is only to pass in a course which holds little intrinsic interest for him.

3) Microstrategies: which are closely tied to the nature of the task and are only directly transferable across tasks of the same kind.

Biggs' distinction of levels of generality is designed for the description of academic performance and cannot necessarily be applied outside this area. We can see, for example, that Bruner's focussing and scanning strategies in problem-solving (Bruner et al., 1956) would seem to fit either the definition of task-specific micro-strategies, or the more general macrostrategies, depending on one's definition of task. In my own analysis, which focusses on an educational context, I have found it useful to apply Biggs' strategy typification. And the definition of task he implies when, by way of exemplification, he mentions essay-writing on historical topics (i.e. a definition in terms of content), would seem to be compatible with the type of task set in my investigation.

Further, my concern is with strategies at the 'visible' end of the spectrum, i.e. empirically verifiable strategies with regard to the general organization and selection of input material, and the general uses of the selected material; rather than with such detailed strategies of acquisition, retention and retrieval as can only be revealed (and then only tentatively) by carefully designed psychological tests.

2.2.3 Strategy Studies of Relevance to Foreign Language Learning

Bearing in mind my concern with 'visible' strategies, there are several studies which are relevant to my interest, even though none of them is strictly focussed on foreign language learning.

Marton and Säljö, mentioned above, in a series of experiments in Gothenburg with Swedish students, studied strategies for processing information in academic reading, using prose passages taken from academic text-books. They found qualitative differences in the learning process which they label deep and surface-level processing. In their description, surface-level processing implies a focus of attention on the text itself,

forcing the reader into a rote-learning strategy; deep-level processing implies a focus on the communicative content of the text, whereby the reader has of necessity to comprehend what the author wants to say. These studies rely both on student responses to questions related to the content of what they have read, and on introspective reports on their approach to learning and remembering.

These studies showed that qualitative differences in outcome were related to qualitative differences in the 'mesostrategies' (Biggs' terminology) adopted by the individual. Also that students adopted a learning approach in accordance with their expectations of what would be required of them. However, students who used surface-level processing were not able to adopt a real deep-level strategy even where manipulation of expectations should have led them to do so, while spontaneous users of deep-level processing did change strategy when manipulated to expect questions based on surface-level processing. In later studies at Gothenburg (Fransson, 1977) and Lancaster (Entwistle et al., 1979), a sub-division of the two categories was found necessary, into active and passive surface and deep-level processing, depending on the student's "degree of activity, attention, and involvement" (Entwistle, 1981:77).

In addition, Svensson (1977) compared the results of the experimental studies and the same students' overall approach to studying and found a link between the experimental results and deep and surface approaches to studying in general. This would suggest that selection of these mesostrategies is dependent on a more general macrostrategy or style.

It may be noted that the deep-level/surface-level distinction seems to owe much to Ausubel's distinction between meaningful and rote-learning. Ausubel does not regard his distinction as representing a style

difference, but as available alternative learning strategies with differential qualitative outcomes. Meaningful learning he defines as new ideas being related "in a nonarbitrary and substantive (nonverbatim) fashion to what the learner already knows" (Ausubel, 1968:38), and he stresses that the conditions for meaningful learning are that the task is potentially meaningful (i.e. not, for example, paired-associate learning), that the learner has relevant prior knowledge, and that he adopts a meaningful learning set, because

"...if the learner's intention is to memorize it arbitrarily and verbatim (as a series of arbitrarily related words), both the learning process and the learning outcome must be rote or meaningless." (Ausubel, 1968:38)

The Gothenburg results would seem to bear out Ausubel's distinction, and at least partly support his claim as to the relation between processing strategy and learning set. They may also support his attacks on educational tradition for encouraging rote-learning. However, their data are ambiguous between the interpretation that learners have been conditioned towards surface-level processing, and that strategy choice depends on inherent individual preference.

The focus of the Gothenburg research is on the content and context of learning, not on individual characteristics of the learner, and it is concerned with qualitative relationships between processes and outcomes. The method combines a systematic experimental design with intuitive analysis of, student introspections in interviews; and the aim in the initial experiments was to allow explanatory concepts to emerge from the data, whereas in the later ones it was to test the validity of these concepts.

Although open to criticisms of subjectivity and impressionism, the open-ended method seems valuable in the initial stages of an investigation of as yet unknown strategies and differences.

Further research into factors affecting approach to studying has been carried out both in Gothenburg and Lancaster (see Entwistle 1981). In Lancaster, questionnaire surveys instead of interviews were used on larger samples of students from various study areas. The results support Marton's findings as to relation between level of understanding and approach to learning, but factor analysis led to a refinement of the concept of deep-level processing into three rather than the two (active & passive) types: One which relied on facts and previous knowledge, a second which was concerned with personal meaning, and a third and most successful type, which was a combination of the two. At a later stage in the Lancaster research an inventory was developed to describe different forms of motivation and study strategy, incorporating in addition to refinements of Marton's work, aspects of both Biggs' and Pask's work (see below, 2.3) in the areas of learning strategies and styles.

The Lancaster project has been focussed more on general orientations to studying and on motivation, than on more detailed aspects of strategies and processes, though cognitive style factors have been included. It seems, therefore, that the relevance of these studies to the present study is restricted to the interest of the methods used by the Marton group, and the distinction between deep and surface-level processing strategies in academic learning.

As far as foreign language learning (FLL) is concerned, none of these studies has investigated strategies in this specific area of academic performance. One of the problems with regard to FLL is in the status of language as a tool. The fact that language is skill, rather than 'knowledge' in the academic sense, presents a stumbling-block when it comes to transferring the insights of the studies reviewed above. However 'academic' or intellectual the context of FLL, it is arguable that it

is different in kind from the type of learning envisaged in these studies. Hence, concepts such as deep and surface-level processing, while useful as a guide, are too general for the purpose of investigating strategies in FLL.

The major difficulty is the well-known one: you may be able to set out the morphological system, to explain the syntactic niceties, and to expound on the semantic and lexical complexities of a language - and yet be unable to communicate effectively in it. In FLL some aspects of learning (such as lexis or morphology) would seem to be better served by some degree of rote memorization or subconscious acquisition through exposure, than by deep-level processing. The studies reviewed focus on the relationship between intellectual processing and outcome, and ignore skill-related activities of the type essential to FLL. There is in FLL no proven link between 'deep-level' understanding (usually a desired outcome of learning) and communicative success.

Hence, I have to conclude - without denying the possible beneficial effects of these insights - that it is necessary to investigate strategies in FLL specifically, before it is possible to determine whether the type of approach and strategy distinction discussed above is relevant to this rather different type of learning.

2.3 Pask's Research

There is one body of research which I have found particularly useful in my search for a technique for investigating strategies in FLL. This is the research into learning styles and strategies undertaken by Gordon Pask and his associates. There are several features of his studies which are of relevance. Firstly, his findings have important implications for the design of learning/teaching materials; secondly, the tasks involved are in a realistic educational setting using adult learners; thirdly, the experiments are closely controlled, despite the educational setting; and finally, the focus is on the activity of the subjects while learning, and on 'exteriorizing' mental activity so that it is observable. Hence, the research fulfils many of the conditions I regard as important for my own investigation. I shall discuss parts of this research in some detail, as I have adopted central ideas from it in the design of my learning task.

In a series of experiments using controlled techniques as well as free-learning, Pask shows distinct differences in learning strategies between individuals, he finds two major types of learner, whom he labels holists and serialists. He also shows that learners using teaching materials matched to their learning strategies are very much more successful than mismatched learners.

Pask uses computer-controlled machines extensively in his later research, but in his first series of educational experiments these are not so important. It is with the earlier experiments and their findings that I shall be concerned below.

2.3.1 Pask's Findings

The strategic difference mentioned above was first found in a relation learning task (relations between sets of keys and sets of lights) (Pask and Scott, 1971), but was found in the experiment described below (2.3.2) and in

later investigations to be equally relevant to intellectual tasks. The findings described below, the learner strategies and the results of matching/mismatching learner type and learning material, resulted from a taxonomy learning task. Similar results were obtained in later experiments using the learning of systems as the subject matter.

The two major strategies are described as follows:

"Serialists learn, remember and recapitulate a body of information in terms of string-like cognitive structures where items are related by simple data links: formally, by 'low order relations'. Since serialists habitually assimilate lengthy sequences of data, they are intolerant of irrelevant information unless, as individuals, they are equipped with an unusually large memory capacity. Holists, on the other hand, learn, remember and recapitulate as a whole: formally, in terms of 'high order relations'." (Pask & Scott, 1972:218 - my underlining)

Two sub-types of holist are also described, irredundant and redundant holists. The irredundant holist's image of a system of information contains only relevant and essential elements, while the redundant holist incorporates logically irrelevant or overspecific material. This material is important however, as redundant holists use it to access and manipulate what they have learned.

Based on the strategy categorization, programmed learning materials were produced for each type of learner. Matching or mismatching of learning material and learner type produced startling results on a test of learning achievement, as shown below (next page):

Gandlemuller task(biological taxonomy learning)

Subject no.	Task II test (max.score 30)	Student type	Programme type
3	29	S	S
8	28	S	S
10	30	S	S
16	29	S	S

1	9	S	H
4	7	S	H
6	9	S	H
12	9	S	H

5	30	H	H
7	30	H	H
9	30	H	H
13	30	H	H

2	21	H	S
11	19	H	S
14	16	H	S
15	20	H	S

(Adapted from Pask and Scott, 1972:238)

Although the number of subjects is very small, the clear differences in learning outcome in the two conditions strongly implicate learning strategy as an important factor to be considered in the design of teaching materials. The results also show that the type of material suitable for learners with different strategies is predictable.

From these data, we can also see a difference in the ability of holists and serialists to cope with teaching material designed for the other type of learner. It seems that serialists find it almost impossible to use holist material, whereas holists can to some extent adapt themselves to the use of serialist material. Altogether the findings emphasise the importance of matching learner and material correctly.

Of course this research provides no evidence that the same strategies would be used in foreign language learning. However, on the basis of extensive further studies using various types of task and content in realistic educational settings, Pask argues that the

serialist/holist strategies are manifestations of underlying differences in the way people think and learn. He admits that the strategies revealed in the early experiments are artificially exaggerated as a result of the stringency of the techniques used. In a more 'relaxed' environment learners are predisposed to act 'like holists', which he calls comprehension learning, or 'like serialists', called operation learning, with some learners, whom he calls versatile, being able to switch strategy according to subject matter. These tendencies, he suggests, are more appropriately called learning styles. If this is the case then they may be general enough to apply to language learning.

It is worth noting that unlike most previously mentioned classifications ('rote' vs. 'meaningful' learning, 'surface-level' vs. 'deep-level' processing), Pask's terms imply no negative value judgement on either type of learner. This is particularly important for language learning, where many specialists are convinced that some degree of 'rote' learning is unavoidable.

He describes the two types of learners thus:

"..comprehension learners readily pick up an overall picture of the subject matter, for example redundancies in a taxonomic scheme or relations between distinguished classes, and recognise clearly where information can be obtained.....

Left to their own devices, operation learners pick up rules, methods and details, but are often unaware of how or why they fit together." (Pask, 1976b:133 - my underlining)

Comprehension learners, then, have effective description building operations, while operation learners have effective procedure building operations, both of which are in fact necessary for the understanding of a topic.

Pask emphasizes that this style distinction refers to a degree of preference; and students who show a bias consistent enough to be considered as comprehension or operation learners will also have typical problems in

their learning, or pathologies as Pask calls them. These two types of problems he dubs globetrotting and improvidence.

Globetrotting is a comprehension learner pathology, where the learner tends to make vacuous analogies or misunderstand valid ones, jumping to conclusions without bothering with the details. Operation learners on the other hand display improvidence by failure to use valid analogies and common principles; they are caught up in the details and cannot see the wood for the trees.

While it is not possible to generalize Pask's suggested styles and strategies to FLL without investigation, the results obtained from matching/mismatching learner and learning material strikingly underline the necessity of discovering whether foreign language learners do show strategy differences and preferences. The possibility that comprehension/operation learning styles (and the concomitant use of holist/serialist macrostrategies) are generally applicable, also means that in any investigation of foreign language learning strategies this type of difference between learners may arise and must be borne in mind.

2.3.2 Pask's Experimental Techniques

Pask's aim is to produce "evidence about how students learn realistic bodies of subject matter over appreciable intervals." (Pask, 1976a:13) This feature of realism is one aspect of these experiments which distinguishes them from much of the research into learning strategies and styles, and makes them interesting and relevant to my investigation.

The experimental techniques used are based on Pask's conversational theory, whose starting point is that

"..the fundamental unit for investigating complex human learning is a conversation involving communication between two participants in the learning process, who commonly occupy the roles of learner and teacher." (Pask, 1976a:12)

Conversational theory applies a systems approach to complex learning which involves formalization of the description of the body of material to be learned, and of the behaviour of the participants in the 'conversation' (note that one of these participants may be a machine or a set of teaching material as the 'teacher').

One of the features of the technique is very precise definition of such concepts as for example understanding. As understanding is Pask's criterion for learning (having learned), it is necessary to explain this concept further. Essentially, this special notion means that the learner must be able to (re)produce a 'map' (which Pask calls an entailment structure) of the area of knowledge he has learned, where relations between all items of information are clearly shown, (such as derivations, inclusive concepts, etc.), and he must demonstrate that he can use his knowledge.

To ensure understanding, Pask developed a 'teachback' technique, using either a human interviewer or a machine, in which the learner reconstructs his knowledge for his conversational partner. The theory predicts that retention of complex material over a period of time depends on this cognitive reconstruction process, and this is supported by the findings, which show that an 'effective' teachback condition leads to better long-term retention than an 'ineffective' condition.

DESIGN: In the earliest experiment with intellectual learning, the experimental design involved 1) a free-learning task by means of which learners could be assigned a strategy type. This was followed by 2) a programmed-learning task of the same kind, where the same learners were assigned to matched and mismatched teaching conditions.

CONDITIONS FOR SUBJECT MATTER CHOICE: Pask made his choice of learning matter dependent on several requirements: firstly, that learning should occupy a

period of time sufficient to be experimentally tractable, to be realistic, and to let the student "externalize a sensible stretch of mental activity" (Pask and Scott, 1972:227). The learning took between a half and one hour for each task. Secondly, the task should be such that different kinds of strategy could be equally well employed, and that there should be no bias in the material towards a particular strategy. And thirdly, the material to be learned should be equally unfamiliar to all students.

These criteria provide a means of controlling independent variables of background knowledge and content type which might otherwise bias results, and they ensure that the task has face validity as a 'real' learning task. Investigation showed that taxonomy learning or system learning fulfilled the lack of bias condition, and for the first experiments two imaginary taxonomies of Martian animals, Clobbits and Gandlemullers, were created to ensure control of background knowledge.

THE TASKS: 1) The free-learning (Clobbit) task was based on a universe of information written on five sets of cards laid out in columns on a table. Each set contained different types of pictorial and textual information, clearly labelled so that subjects would know what kind of data was to be found on the reverse of each card. Before the task, the subject was told what he was to learn. He was then free, within the time limit, to "interrogate" any number of cards by turning them over. All turnings were noted by the experimenter. For each 'question' or series of questions asked of the cards, the student was required to give a reason for asking the question concerned, and the reasons were taped. For this task half an hour was allowed, not including the time taken for giving reasons. The task was followed by a simple factual test, and a teachback session.

Thus the data collected consisted of a list of card turnings and associated reasons, plus the test result and

the recording of the teachback session. Close analysis of these data showed the strategy differences predicted by the relation learning task (see above 2.3.1, p.21).

In the data from this experiment, differences were found in the types of information (cards) preferred and the manner of using sets of cards; in the reasons given; and in the organization and content of teachback. For example, holists could be discriminated from serialists by their use of multiple predicate hypotheses both in their reasons and in teachback data. The scores on the test showed no bias towards more successful outcomes for one or other type of learner.

2) The second task used the same subjects learning the Gandlemuller taxonomy. After a period of ten days the subjects were given a retention test for the Clobbit taxonomy (to measure the effectiveness of the two teachback conditions), then they were assigned under matched or mismatched conditions to programmed learning of the Gandlemuller taxonomy.

It is the test results from this second part of the experiment that showed the importance of matching materials to learners.

This experiment was followed by similar tasks using systems learning instead of taxonomy learning which produced similar results. This shows that at least for these two types of content, students use the same types of strategies.

2.3.3 Conclusion

I have given only a very general idea of the design and results of these experiments, and of the theory behind them. I have also restricted my account to those aspects of them which I consider relevant to my own investigation. It seems to me that a major contribution of this research is in showing that in realistic complex learning tasks, individuals do use different learning

strategies, and that teaching materials, if they are to be effective, need to be designed to accommodate these strategies. The implication is, of course, that any search for 'ideal' learning materials or methods is meaningless until some attempt is made to combine it with an answer to the question 'ideal for whom?'

2.4 Techniques in Foreign Language Learning Strategy Research

Apart from Pask's distinctive task design, most learning strategy research has relied on psychometric methods, with correlation of results on different measures, often using factor analysis. The major alternative has been the use of questionnaires or interviews, sometimes accompanied by self-reports by learners as they proceed through a task (e.g. Hosenfeld, 1976).

In the small body of FLL strategy and style research, the test correlation method, including teachers' ratings of pupils, (e.g. Genesee & Hamayan, 1980), and the use of interviews have been preferred (e.g. Hosenfeld, 1976), sometimes in conjunction (e.g. Naiman et al, 1978). In the Toronto project, classroom observation was also tried but proved unfruitful as far as learning strategies are concerned (Naiman et al., 1978:99).

In general, interview techniques appear to have provided the most information, though retrospective reports by students as to strategies and preferences are of course indirect. Simultaneous introspection, as advocated by Hosenfeld, gives greater insight into the learning process and the microstrategies employed by individuals when engaged in particular activities or exercise types. But it cannot provide information about macro or mesostrategies, about the way a learner organizes data and learning activities. At the present stage, however, where research is still exploratory, interview techniques, albeit producing subjective and possibly impressionistic results, can be useful in the formulation of hypotheses as to strategies, or in extending/reducing and modifying already suggested lists of strategies.

In part one of their research project, the Adult Interview Study, Naiman et al. use interviews with a group of 34 experienced adult language learners, with the aim of confirming or disproving the successful language

learning strategies suggested by Stern and Rubin. (Stern, 1975; Rubin, 1975). Stern and Rubin compiled their inventories on the basis of the informal observations and suggestions made over the years by teachers, anthropologists, missionaries and linguists, in addition to their own observation and also theoretical considerations. The authors both regard their inventories as speculative, and as attempts to systematize with a view to research in the area of foreign language learning strategies.

Naiman et al. employ Stern's speculative list of 10 strategies, which are distinguished into two types,

"strategies, i.e., general, more or less deliberate approaches, and more specific techniques, i.e. observable forms of language learning behaviour" (Naiman et al., 1978:2).

This list, which is influenced by Rubin's list of 7 strategies (see Appendix 2A, Vol.2, p.1, for Rubin's and Stern's strategy lists), includes strategies not only at different levels of generality, but also some items which refer to personality traits (strategy 3, App. 2A), and, apparently, cognitive style (strategy 1, App.2A).

Naiman et al.'s overall purposes are to study:

"1) the strategies and techniques the learner consciously develops and employs"

and

"2) certain learner characteristics, in particular personality and cognitive style factors, which are likely to influence the use of strategies and techniques and thereby, indirectly, learning outcome." (1978:4)

The first part of their study (the Adult Interview Study) focusses on the first purpose, with the additional purpose of testing the suitability of interviews as a method in strategy research. Their verdict on their interview method, which included reporting in retrospect in combination with predicting on the basis of a hypothetical language learning situation, is guardedly

positive: the methodology was

"productive to a certain extent. But it left the investigators conscious of the fact that many aspects of the learning process were probably missed by this particular approach." (Naiman et al., 1978:99)

They claim nevertheless to have generally confirmed the "kinds of strategies" suggested by Rubin and Stern for successful learning, though these were reorganized and concentrated into five major strategies; and they were also able to distinguish a large number of techniques (53) used by good language learners. Although the five major strategies were common to all, of the techniques only 8 were employed by 10 or more of the 34 learners, and the investigators emphasize the complexity and individuality of each learning situation.

The five major strategies are:

1. Active task approach (e.g. seeking out learning opportunities, practising)
2. Realization of language as a system (e.g. use of L1 system, analyzing L2 system)
3. Realization of language as a means of communication (e.g. initially emphasizing fluency over accuracy)
4. Management of affective demands (e.g. forcing themselves to be outgoing)
5. Monitoring of L2 performance (e.g. explicit testing of L2 hypotheses, asking for correction)

These strategies can be characterized as elements in a composite 'good learner' learning approach, which includes attitudinal, affective and cognitive features. The question remains as to how this approach is realised in a concrete task. Within the approach it is possible that even good language learners make use of different macrostrategies (with regard to selection and organization of data), and that different macrostrategies lead to different use of meso and microstrategies. It would also be of interest to determine what it is that less successful learners do in contrast to the activities of

successful learners.

Naiman, et al.'s own recognition of the limitations of the interview method echoes my own feeling that some means of observation of strategies in operation is also needed. If evidence as to actual individual preferences in selection, organization and use of language material is to be obtained, interviews eliciting retrospective or hypothetical learning strategy information are not sufficient.

2.5 The Use of Pask's Technique in FLL Strategy Research

The subject matter in Pask's tasks is mostly taxonomy and system learning, which is very different from language learning. Therefore, whether the particular strategies and styles found by Pask are relevant to foreign language learning is still an open question. The techniques he uses for investigating strategies, however, are most certainly of interest in the context of FLL strategy research.

Nevertheless, it must be admitted that it would be extremely difficult to follow closely the techniques of conversational theory in FLL research. Firstly, the requirement that the domain of knowledge should be describable in terms of an entailment structure (i.e. a 'map' showing all concepts involved and their inter-relationships - see p.26) is probably impossible to fulfil, given the condition that the learning task should be of a realistic 'lesson' size. Grammar is of course systematic, but a reasonably comprehensible and motivating chunk of language for one lesson would almost certainly include structures from different parts of the grammatical system. Vocabulary would also present a problem, in that not only is the form arbitrary, but it is unlikely that all the vocabulary could be connected in a non-arbitrary way into a systematic description of the area.

A second reservation is with regard to the 'understanding' criterion (see p.26). As mentioned before, the skill aspect of language learning does not necessarily rely on conscious knowledge of the language. In order to show understanding by means of teachback, as defined by Pask, the student must be able to reconstruct his knowledge. With language, would that involve having a conversation in the language or about the language? And would proof of the ability to do either or both of these things constitute proof of 'understanding'?

Despite these reservations about conversational techniques, I feel that the design of the free-learning (Clobbit) experiment offers possibilities in studying learning strategies in FLL. It offers the prospect of a learning task which is realistic in compass, with the potential for providing the student with a variety of types of information to select from and use as he wishes (macro/mesostrategies). And the requirement that the learner interrogate cards and give reasons for his questions and choices, allows for a certain 'exteriorizing' of the mental processes without provoking too much disturbance of the learning process.

With an FLL task it will not, of course, be possible to duplicate Pask's method in all respects. In particular the condition (see 2.3.2, p.26f) that the task content should be unbiased as to strategy, is clearly irrelevant: since part of the aim is to find out whether FLL is biased towards specific strategies. On the other hand the task should obviously be designed so as to allow different learning strategies, in order to enable us to distinguish both learner strategy preferences and possibly their differential successfulness.

Another problematic condition is that of 'equal background knowledge'. If a natural language were used, it would need to be equally exotic for all participants. This raises the problem of how, within a reasonable

'lesson' period, sufficient vocabulary and sufficiently complex structure can be learned, to allow learners the possibility of using meaningful learning. A task conducive to pure rote-learning at a very simple level would not provide a good testing-ground for different types of macrostrategy. The use of an exotic language would probably present too great a memorization burden to be a realistic test of anything but just what it was, a beginners' lesson in an exotic language.

The alternative is to invent, as Pask does. The invention of languages for research purposes is not a new idea, as the studies referred to by the collective title of Miniature Artificial Language (MAL) research testify.

MAL techniques have generally been used to study L1 acquisition of rules, but McLaughlin (1980) argues their usefulness in studying L2 learning, especially inductive learning, whether in natural or formal settings. MAL research uses what can best be called codes: symbols ordered in strings according to 'grammatical' rules, with the available symbol set not usually exceeding 10 items. The technique usually consists of presentation of grammatical and non-grammatical strings to subjects, for discrimination, memorization or analysis. For example, subjects may be asked to discover the underlying rules, or they may be merely exposed to examples and subsequently tested on their ability to recognize grammatical strings. Test results are then subjected to statistical analysis.

Such methods have proved useful particularly in the investigation of inductive learning, where alternatives to ~~the~~ 'hypothesis testing' have been put forward, for example 'implicit learning' (Reber, 1967, 1976; Reber & Lewis, 1977), and 'analogic learning' (Brooks, 1974; Reber & Allen, 1978). There has also been some evidence of different styles in inductive learning, where some learners use implicit or analogic learning, while others persist in analyzing the material (hypothesis making and

testing) (Brooks, 1978).

There are nevertheless great differences between the type of investigation that I propose, and MAL research, in terms of both aims and task type.

The use of completely context free, and semantically and functionally meaningless artificial languages is acceptable in investigation of the internal and unconscious workings of the mind of a language learner. It is seldom that realistic tasks can reveal anything of the workings of the 'black box'.

If, however, one is interested in the educational situation, and in the relationship between learner activity and teaching material, the use of highly controlled laboratory learning tasks which have no face validity, is inappropriate. MAL research aims at controlling all distracting variables in order to discover exactly how a rule system is apprehended. My aim is to find out learner heuristics for coping with learning under circumstances where the content retains the rich texture, variety and complexity intrinsic to natural language.

Moreover, while MAL research tends to concentrate on inductive learning of a non-analytic kind, I am interested in the learners' strategies in dealing with material which is known to be rule-governed, and where deductive learning is equally possible.

Though the arguments above lead me to reject the use of a conventional MAL type language and MAL methods in my investigation, the use, in a free-learning task like Pask's, of a miniature artificial language which is natural-language-like, would make it possible both to ensure equal background knowledge, and to avoid the simplicity and memorization problems inherent in the use of an exotic natural language.

In summary, I believe that, if the teachback session is omitted and the strict requirements of conversational theory dispensed with, a free-learning task similar to Pask's, with an invented language as the subject matter, provides a useful means of investigating the actual behaviour of learners in the process of learning a foreign language.

2.6 Conclusion

In the field of foreign language research, attention has in recent years been focussed increasingly on the learner. Various strands of research have exerted their influence on this development.

The introduction of concepts such as 'interlanguage' (Selinker, 1972), 'idiosyncratic dialect' (Corder, 1972), and 'approximative system' (Nemser, 1971), and the linked development of the concept of communication strategies (Varadi, 1973), now a major research area, put the ball squarely into the learner's court.

The move from a focus on sentence structure to concern with discourse, influenced by language philosophy, anthropology and the ethnomethodologists, led to increased interest in the communication process, and hence in the participants in the communication.

Despite this heightened interest in the learner and the fervent activity in all areas of applied linguistics, research into strategies of learning and individual differences has been limited, hindered no doubt by the familiar difficulty of observing cognitive rather than behavioural processes. Individual differences in attitude and motivation have been extensively studied, (first by Gardner and Lambert (1959)), and the theoretical model of cognitive functioning created by Krashen (1978) to explain acquisition and performance in formal and informal learning contexts, has been the subject of much argument.

Research into intellectual strategies used by learners in the learning situation is however still in its infancy, with little systematic observation and investigation to its credit.

Such research as there is can be roughly divided into two groups. The research designed to discover the strategic secrets of the good language learner (e.g. Naiman et al., 1978), and the research whose aim is to identify individual cognitive and personality differences of consequence to FLL, where one could also suggest that the good language learner is the target (e.g. Brown, 1973, 1980; Tucker, Hamayan, & Genesee, 1976; Genesee & Hamayan, 1980).

Variations and hybrids do occur, for example Rosenfeld's investigation of children's strategies in using classroom exercises (1976), and Hatch's observation of different approaches by children acquiring a foreign language, whom she called "data gatherers" or "rule formers" (Hatch, 1974).

What is still lacking is an attempt at systematic observation of strategies in action, with the aim of discovering whether consistent individual differences in macro and microstrategies emerge.

Such an attempt requires a suitably controlled method to enable learners to be compared. Simultaneous introspection methods, such as Rosenfeld's interview method, are useful for exteriorizing the mental activity involved at microstrategy level. They do not, however, allow for a reasonable period of undisturbed learning, which would be necessary in order to identify individual macrostrategy differences. Naiman et al.'s interview methods provide retrospective and hypothetical information, but no actual observation of activity. Correlation of test data provides a basis for hypothesizing about individual differences in strategy, but again no evidence of what strategies actually occur.

Moving outside the area of foreign language learning and teaching, we find that both Marton and Säljö (1976), and Pask and Scott (1972) have devised alternatives to interviews, questionnaires and standard tests, though Marton and Säljö do also make use of interviews. Both use students as their subjects, and their techniques are aimed at letting strategies emerge from the data rather than presupposing certain types of strategy. The techniques also control the subject matter to be learned so that learners are comparable. Of particular importance in these studies is that the tasks devised are educationally realistic in terms of length and content, in contrast to many of the psychological experiments designed to investigate learning strategies.

Marton and Säljö's tasks provide more information about outcomes, while it is the interviews which provide the detail of strategies. Pask's free-learning task, on the other hand, enables the investigator to compare the subjective comments of the learner during the learning process (his reasons for turning cards), with an 'objective' list of choices which the learner has made (the sequence of information cards he has turned). This allows closer monitoring of the learning process, and, up to a point, provides a means of exteriorizing the strategies used.

My adoption and adaptation of Pask's free-learning task (the Clobbit task) results from the desire to observe, as far as at all possible, strategies in action. Other considerations of educational face validity also support the use of a task with this type of content and scope, if the findings are to have any practical application. The investigation described in the following chapters is the result of my attempt to apply Pask's task design to foreign language learning, in the hope of finding it a useful method for investigating individual differences in foreign language learning strategies.

CHAPTER 3: THE TASK - DEFINITION, DESIGN AND DESCRIPTION

3.0 Definition and Overall Design

The aim I set myself was to devise a task which was, on the one hand, compatible with the main trends in learning strategy research as outlined above; and which would, on the other, contribute to answering the question whether foreign language learners use distinctive individual learning strategies, and also whether success in FLL correlates in any way with learner strategy. For reasons which will have emerged in Ch.2., I chose to model my task design on Pask's free-learning (Clobbit) task.

Obviously, such a method can only investigate limited aspects of language learning. Firstly, we are dealing with written material and a written task, which excludes the productive and receptive oral aspects of foreign language learning. Secondly, the attempt to ensure that all subjects are in the same position with regard to direct background knowledge entails the use of material at beginners' level, namely the level of basic vocabulary and grammar learning.

My original interest in FLL strategies was aroused by the difficulties of 'remedial' students with the grammatical system, though problems of vocabulary selection, especially in fields of semantically related lexical items (e.g. idea, opinion, thought, etc.), were also prominent. Both types of problem centre around the apprehension and use of systems and rules, grammatical and lexical.

What is of most interest cognitively speaking, is the learner's construction and use of systematic internal representations of the language. Pask's task design provides the possibility of observing learners' approaches to tackling this problem. The strategies used by learners for internalizing vocabulary at beginners' level are possibly specific to vocabulary learning, and may be 'biased' towards rote-learning. Whereas, even at

beginners' level, in a grammatical task of sufficient complexity, the strategies adopted are more likely to be representative of more general approaches to system learning, and therefore more generalizable to higher levels of both grammar and vocabulary learning.

For this reason, the task is designed to focus on grammar. The design I have chosen exempts the learner from much of the cognitive burden of vocabulary learning, and instead requires him to learn a more complex grammatical system.

I have followed Pask's use of invented subject matter, in this case an invented language, in order to control background knowledge. The concrete form of his task as an array of cards has been adopted, together with the general procedure of learners interrogating cards and giving their reasons for interrogations.

My task differs from Pask's, however, in that although there is a post-test, there is no teachback session, for as argued above (p.34), this procedure is of dubious relevance to foreign language learning. In other words the outcome measured in my task is not Pask's stringently defined intellectual achievement of 'understanding', but the acquisition of skill. Also, as the subject matter is not controlled for potential strategic bias (see p.34), and as my aim is both to discover individual strategic differences and whether some strategies are more successful than others (the factor of strategic bias), the post-test, unlike Pask's post-test, does serve the purpose of ranking the learners.

In the following I describe and discuss: 3.1 The language used; 3.2 The card array and the types of information presented; 3.3 The test. The actual conduct of the task is reserved for later presentation.

Appendices and Tables referred to in this chapter are prefaced by the chapter number (3), and can be found in Volume 2, pages 2 to 39.

3.1 The Language Used

As argued in Chapter 2, there are cogent reasons for using neither an exotic natural language nor a Miniature Artificial Language (MAL as usually defined) for this learning task. But in order to control, as far as possible, the background knowledge of the learners, the language needs to be exotic for them. And, in order to allow for the possibility of meaningful learning and varying macrostrategies, it needs to be fairly complex.

To reconcile these requirements, I have followed Pask's lead and used an invented language. This could be called a miniature artificial language, but it differs considerably from the usual MAL. The language used is called Novish, and is my adaptation and extension of a creation by Julian Dakin and Anthony Howatt at the Department of Linguistics, Edinburgh University. The language was created for the purpose of demonstrating programmed learning to Applied Linguistics students, and was presumably used instead of a natural language for reasons similar to mine (see Dakin, 1973 for description of program).

Novish differs from other MAL's in that it is natural-language-like. It has a vocabulary of meaningful words, a grammar with word classes, sentence structures, and discourse-determined structural selection. It is also contextualized in and related to a cultural background. Secondly, compared to other MAL's it is large, with a vocabulary of 29 items.

Several features of the language should be noted. Firstly, the 'exotic' nature of it lies in its grammar. This contains natural-language-like features which are not to be found in European languages, and some which are not to my knowledge found in any language.

Secondly, in order to minimize the vocabulary learning effort, extensive 'loans' from English (16) and French (3)

make up the class of substantives, and the verbs and grammatical words are mostly formally reminiscent of English words so as to allow mnemotechnic transfer.

Thirdly, information is available to the learners about the 'historical' and 'cultural' origins of both the English and French influence on the language and the basic exotic syntactic distinction in the language. Thus the language is placed in a realistic if imaginary context. That it is realistic, is attested to by one learner's comment after looking at a 'map' of 'Nova Island' - "(It) still doesn't tell me where it is."

Description of Novish

LEXIS:

- 19 nouns classified as gru or stil
- 3 verbs, all copula (= to be), but differing in collocation:
 - gru (+ living)
 - stil (- living)
 - mane (+/- living)
- 1 deictic demonstrative subject particle: - sade
- 1 question particle: - ki
- 2 number particles:
 - ta (dual)
 - ma (plural)
- 2 response particles:
 - ue (yes)
 - nu (no)
- the latter functions also as negative particle (= not)
- 1 phonetic suffix: na, to be added to any word except nu preceding a word beginning with k- or g- (velar stops). This is the only morphological rule.

SENTENCE STRUCTURES:

- I Basic (affirmative)
 - Subject + copula + noun (+ number particle)
- II Interrogative
 - Q-particle + basic structure
- III Negative
 - Subject + copula + neg.particle + noun (+ number particle)
- IV Elliptic 1 (responsive)
 - Copula (+ number particle)
- V Elliptic 2 (responsive)
 - Copula + neg.particle + noun (+ number particle)

SELECTIONAL/DISTRIBUTIONAL RULES:

The following slots in sentence structure have only one possible exponent:

Subject: sade, which functions semantically as a (demonstrative) deictic, meaning "that/those which you see"

Question particle: ki, which simply converts the affirmative (basic) structure into an interrogative one.

Negation: nu, which corresponds to English not

The other slots have from three to nineteen exponents:

Copula: mane/gru/stil (the rules for their use are mainly discourse rules, see below)

Number particle: zero(singular)/ta(dual)/ma(plural)
The choice is determined by the reference of the preceding noun.

Noun: any of the 19 nouns given in the picture and translation dictionaries.

DISCOURSE RULES:

Exemplification and testing contain three types of utterances:

- 1 Assertive
- 2 Elicitative
- 3 Responsive

Exponents of assertive utterances can be either the basic (affirmative) or the negative sentence structure.

Exponents of elicitative utterances can be only interrogative sentence structures.

Responsive utterances are the most complicated. They vary in two dimensions:

- positive - negative - qualified (compound)
- long - short (elliptic)

Exponents of long positive responses are basic sentence structures, preceded by ye.

Exponents of long negative responses are negative sentence structures, preceded by nu.

Exponents of long qualified responses are compound sentences, consisting of ye + an affirmative sentence structure + a negative sentence structure.

Exponents of short positive responses are elliptic sentences type 1, preceded by ye.

Exponents of short negative responses are elliptic sentences type 1, preceded by nu.

Exponents of short qualified responses are compound sentences, consisting of ye + an elliptic sentence type 1 + an elliptic sentence type 2.

The final discourse rule concerns the use of verbs:

mane is used in assertive and elicitive utterances, and in the second sentence of qualified (compound) responses (whether long or short).

gru (+ living) & stil (- living) are used in any response sentence, except the second sentence of a qualified response. 'Livingness' is determined by the noun class of the referent of the (understood) preceding subject and the following noun.

(Choice of long/short response: no rule, it is optional.)

Comment

It was assumed, and proved to be the case, that the main difficulties were in the number system (singular, dual, plural), the choice of copula in responses (working out the selectional rules related to the choice of gru or stil), and most of all in the discourse rules related to the choice of negative or qualified responses, and the form of these responses (long/short).

For English speakers the concept of more than one verb equating to to be can be difficult to grasp. The same would be true for all the non-native speaker (NNS) subjects except the Spanish speaker to whom the concept would be familiar. (ser/estar = to be in Spanish). The selectional restriction on gru and stil (reference to +living/ growing and -living/growing objects) would not be familiar to any of the subjects. With regard to the number system, the division into singular/dual/plural is unlikely to be a familiar grammatical concept to all but the most linguistically sophisticated English speakers, the same would apply to the NNS subjects, except the Hebrew speaker. One further point is that the use of grammatical particles rather than morphological changes would not be familiar to any of the subjects from their native languages.

For those subjects who had learned or been exposed to exotic languages (e.g. Malay), some of these concepts may have been familiar as such. Moreover, the general awareness of language obtained through exposure to a variety of languages of different types may have aided them, even though the particular concept or structural feature in question was unfamiliar. In the circumstances it was not possible for me to control this aspect of general background knowledge.

Nevertheless, from the subjects' commentaries, their card turning choices, and their errors on the test, it would seem that learning these exotic features, especially the discourse-related selectional rules, did cause them most difficulty, and entailed considerable effort as expected.

3.2 The Card Array

The subject's task is to learn Novish (or, as far as he is concerned, that part of the Novish language which is presented in the material he is given).

Using Pask's card array presentation, I have presented the learner with six main types of material. Six sets of cards seemed sufficient to provide variety without confusing the learner, and also allowed me to give the learner the most common types of written data he would usually have (or want) at his disposal in learning a language.

The task is a visual one, both in presentation and in the test, although one minor rule is phonetic (somewhat analogous to the English a/an difference). I felt that although oral data would usually be desired by learners, in a grammar learning task a multi-media environment would be unnecessary. Though, admittedly, several learners did express speculations about pronunciation.

The six types of data in the card array are: picture and translation dictionaries; a grammar, with rules expressed in the traditional manner of pedagogical grammar: structure description plus rules for use, followed by examples; a notional grammar (semantico-grammatical rules for the expression of certain meanings, called 'Semantic Information'); examples of Novish in two presentation forms: as examples of a named structure, and as simple exercises for practice; and background information about 'Novan' society and culture (called 'General Contextual Information').

Below is a general description of the card sets, with examples. A list of all the cards can be seen in Appendix 3A, (Vol.2, p.2f), and copies of the cards themselves are in Appendix 3B (Vol.2, p4-33). (All copies of the cards are half-size reproductions.) In the analysis chapters, the analysis of use of each card set is prefaced by a more detailed description and discussion of the set if needed.

Description of the Card Sets

The task consists of an array of eighty-seven, 4 inch by 6 inch white cards, on which the information necessary for learning the language is printed/drawn. These cards are grouped into 6 sets (A to F) labelled as follows:

- A PICTURE DICTIONARY 19 cards
- B TRANSLATION DICTIONARY 29 cards
- C GENERAL CONTEXTUAL INFORMATION 7 cards
- D GRAMMAR 11 cards
- E SEMANTIC INFORMATION 5 cards
- F EXAMPLES OF NOVISH 16 cards in all, 8 examples cards and 8 exercise (practice) cards

On the front of each card is a pictorial or written indication of the kind of informaton to be found on the reverse.

The front is labelled top left according to set, e.g. Picture Dictionary, Grammar, etc., and top right with the letter of the set to which it belongs, e.g. A, F, etc..

On the reverse there is pictorial and textual information as indicated on the front, and on the top right is the number of the card, e.g. F10, D2, etc., giving set and card number. Therefore the subject does not know the number of the card until he looks at the reverse.

Example

SEMANTIC INFORMATIONE :

THE gru / stil CLASSIFICATION OF NOUNS

E 2

All nouns in Novish are classified as either gru - 'growing' or stil - 'not growing'.

Therefore all animals, birds, fish, and plants are gru, and all other nouns are stil.

There are some exceptions, nouns which are assigned membership of the 'wrong' class, and some nouns which change class according to their context of use, e.g. foodstuffs.

Below, each type of card is described and an example is given.

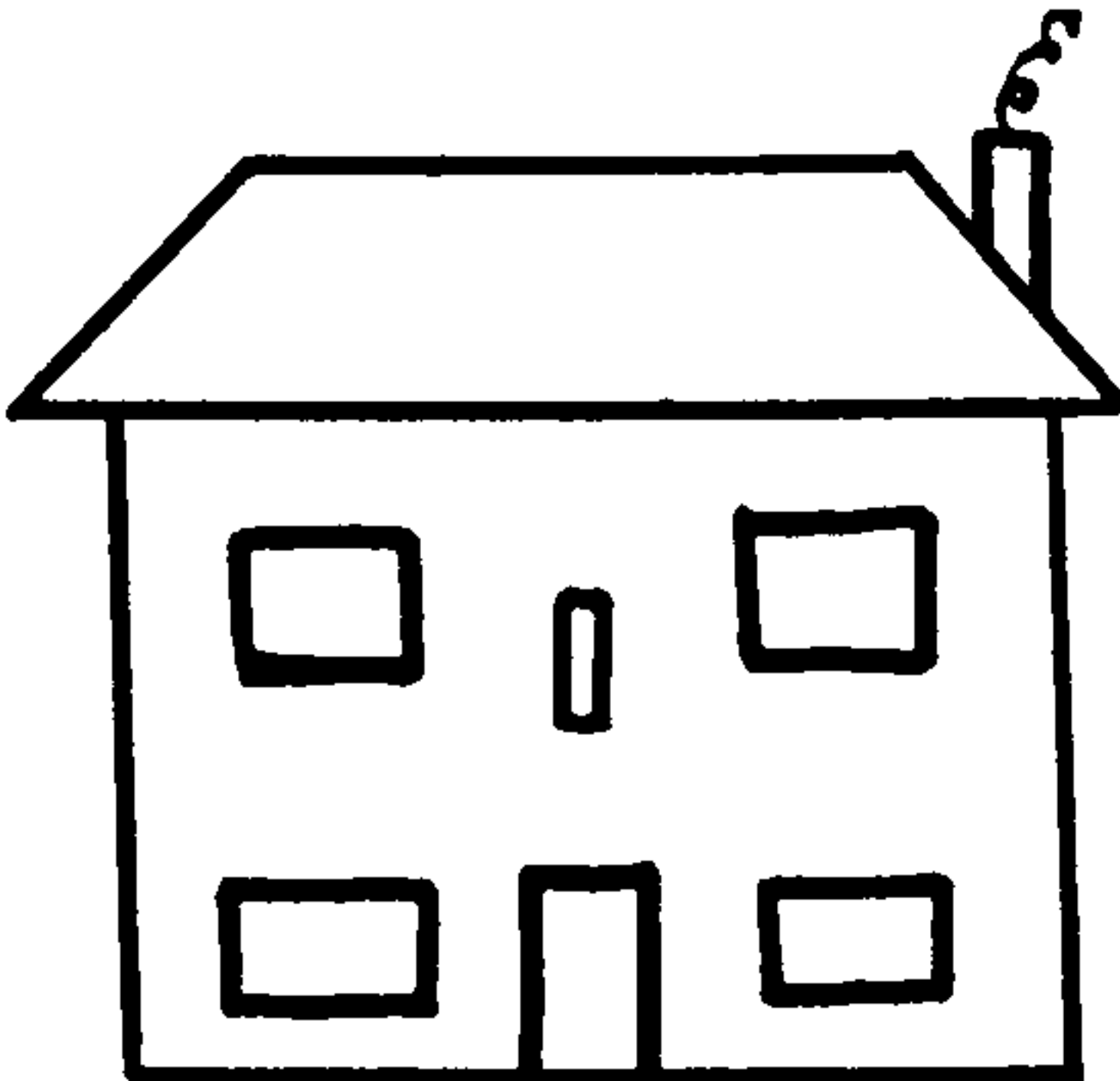
SET A: PICTURE DICTIONARY: 19 CARDS (Vol.2 pp.4-8)

This set contains all nouns needed for the task.

Front a drawn figure

Reverse word in Novish

Example

PICTURE DICTIONARYA :

A 6

hus

SET B: TRANSLATION DICTIONARY: 29 CARDS (Vol.2,pp.9-14)

This set contains all words and particles needed for the task.

Front word in Novish

Reverse meaning in English + grammatical description

Example

TRANSLATION DICTIONARYB

hus

B 7

house
noun : stil

SET C: GENERAL CONTEXTUAL INFORMATION: 7 CARDS

This set presents geographical, historical, social and cultural background information relevant to Novish and Nova Island. (Vol.2, pp.15-17)

Front description of information to be found on reverse, e.g. Map of Nova Island

Reverse information in textual form, or map

Example

GENERAL CONTEXTUAL INFORMATION

(Social, historical, sociolinguistic, e

SOCIAL ORGANIZATION

C 5
The original tribal system has been breaking down since the development of communications throughout the island, and the introduction of compulsory primary education has speeded up this process. There can now be said to be a single social system with very little difference between language groups. There is no class system, and status is based on age rather than economic level. Despite the British influence it remains a matriarchal society, organized in large extended family units, though the cohesiveness of these units has been diminishing in the Northern trading communities.

The wife and mother is the organizer and decision taker in the family group, the oldest woman of the household having the most respected voice. It is the woman who chooses her husband, who is then accepted into her household. While polyandry is still acceptable it is unusual, especially in the Northern area among Novish speakers, this is no doubt another result of the Christian influence and the contact with Britain.

SET D: GRAMMAR 11 CARDS (Vol.2, pp.18-22)

These cards present the grammatical rules of Novish in non-technical English.

Front designation of grammatical rule

Reverse a heading giving the name of the rule, as on the front, followed by description and explanation of the rule + examples with English translation

Example

GRAMMAR

D:

RULES FOR WORD ORDER

Questions

QUESTIONS

D 3

In questions the Basic word order remains unchanged, but the Question Word (ki) is added at the beginning of the sentence.

Order

Question Word + Demonstrative Pronoun + Verb + Noun + (Dual/plural) Marker

e.g. Ki sade mane hus? 'Is that a house?'

Ki sade mane hus ma? 'Are those houses?'

SET E: SEMANTIC INFORMATION: 5 CARDS (Vol.2, pp.23-25)

This set gives general semantico-grammatical information on important areas of meaning, e.g. number, negation, etc..

Front designation of the semantic area

Reverse information as to the meaning and expression of these concepts in Novish, in the form of text with some examples.

Example

SEMANTIC INFORMATION THE CONCEPT OF NUMBER	E : E 5 The concept of number in Novish provides a three way division into, one (singular), two (dual) and more than two (plural). Number is realised in the noun by the addition of a marker after the noun for dual (<u>ta</u>) and plural (<u>ma</u>). Where the noun is deleted the marker is placed after the verb, otherwise there is no change in the verb to indicate number. There is minimal redundancy in this area of meaning, as number is only indicated once, e.g. there is no agreement for number between noun and verb, and if actual numerals are used then the dual/plural marker is also omitted.

SET F: EXAMPLES OF NOVISH: 16 CARDS (Vol.2, pp.26-33)

This set consists of two types of cards: 8 cards which present examples, and 8 cards paired with the first eight which give exercises in the same structures. All examples and questions have a related picture (labelled where relevant), and it is possible to learn all the vocabulary necessary for the task, both concrete nouns and grammatical words, from this set of cards. In Appendix 3B, the cards are presented in these examples/exercise (practice) pairs.

Examples cards (Feg cards) Numbers F1-F8

Front designation of the type of structure exemplified
e.g. Question and Negative Answer

Reverse several examples of the named structure with pictures to help

SET F: Examples cards (Feg cards) Numbers F1-F8
Example

EXAMPLES OF NOVISH

QUESTION AND
SHORT ANSWER

Positive response

F 6



Ki sade mane pooni?
Ye, gru.



Ki sade mane pokit?
Ye, stil.



Ki sade manena gal?
Ye, gru.



Ki sade mane ekk ta?
Ye, stil ta.

SET F: Practice Cards (Fp cards) Numbers F9-F16

Front a heading to indicate the type of structure required (e.g. negative, interrogative, short/long answer), followed by several items. Either a picture and associated gap filling exercise, or a picture with an associated question.

Reverse the required answers

Example

EXAMPLES OF NOVISH

F :

QUESTION → SHORT ANSWER



1 Ki sade manena kuh ma?



2 Ki sade mane pa?



3 Ki sade mane bukh ta?



4 Ki sade mane min?

1 Ye, gru ma.

2 Ye, stil.

3 Ye, stil ta.

4 Ye, gru.

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F 14

Layout

The task required arrangement of the cards in such a fashion as to enable the subjects to work comfortably with them. Like Pask, I laid out the cards in columns on a table, so that subjects could see and use them easily. There is one difference, in that my dictionary sets are considerably larger than any of Pask's sets. For the picture dictionary (19 cards - concrete nouns), it was necessary to lay out all the cards so that the pictures could be seen. Though the actual sequence in the columns was irrelevant, they are in fact arranged in alphabetical order of the Novish words on the reverse. In contrast, the translation dictionary (29 cards) was presented in a heap, with the cards in alphabetical order of the Novish words, the beginning of the alphabet uppermost.

The pattern of the layout (the whole card array), and the sequence of cards in each column is shown in Appendix 3C (Vol.2, p.34). The reasons for the sequential ordering of cards in the different columns are discussed in the analysis of the relevant card set data.

Comments

One obvious omission from this list of types of information is texts. As it was beyond me to invent a sufficiently large and complex language to provide the learner with texts in which structures to be learned were embedded, and as a text composed entirely of the present Novish structure and vocabulary would have been only marginally different from the examples given, I decided to dispense with this type of material. Examples given in the Examples card set are contextualized by a picture, and where relevant by a discourse stimulus-response pair. Although in prospect one might have supposed that learners preferring some type of discovery learning would wish to use texts for this purpose, discovery learning is apparent in the data, and it seems that the Examples set served this purpose adequately.

Another departure from usually available learning material is that the dictionaries contain only the words to be learned (all the words of Novish). So although they

can be used for reference, both dictionaries can also be used in a manner akin to the use of word lists as often supplied with individual lessons in a text book. Moreover, the picture dictionary is hardly traditional adult learning material, but was necessary in order to enable the learners to work intensively with the Examples cards. The language uses deictic reference, and pictures are an integral part of the examples and exercises on these cards.

The data is designed so that learners do not need to use all card sets. For example the Examples set plus the translation dictionary cover all lexis and structures, as does the picture dictionary in conjunction with the grammar set. The subjects were informed of this.

With regard to the Contextual Information set, it may seem rather eccentric to include information of this kind when we are dealing with an artificial language. Especially considering that, while some of the information is of direct relevance to the language, none is necessary to the completion of the task. My reason for including this type of data is that many learners wish to apprehend a language in its cultural context. This would normally be part of a language learning experience, though information would often be presented in the target language, an impossibility in this case.

Moreover, Pask shows that the strategy used by redundant holists involves the use of often irrelevant contextual information as a means of integrating and remembering new ideas. While in no way presupposing the emergence of serialist/holist type strategy differences in foreign language learning, I considered this an additional reason for making such contextual information available.

The fact that these cards were used, although the learners had been informed that they were not essential, as one subject puts it: it is information he would be interested in if it were a real language, again justifies this decision after the fact.

3.3 The Test

The test is made up of six sections, each printed on a separate page in a booklet. Subjects answered the questions in one section before turning the page to the next, and were not allowed to go back to previous sections to correct their answers. The reason for this arrangement was that the prompts in later sections could possibly be used for completing items in earlier sections.

Subjects were allowed whatever time they needed to complete the test. I did not wish to arouse anxiety by setting a time limit, and I felt that the page by page format, and the restriction on looking back would mean that the time taken would be limited by the nature of the test. Subjects were told that the test would not take them very long. The time taken varied from 11 to 23 minutes, with the longest and shortest times taken by subjects whose score ranks them among the best third. There was no significant difference between learners in the three rank groups in the mean or median time taken.

The form of the items in the first four sections is similar to the form in the exercises on the Examples cards: gap-filling/sentence writing based on a picture prompt, or question + picture where the testee writes a response. Section 5 presents pictures with accompanying sentences which contain one deliberate error, the testee is to find the error and correct it. Section 6 is in multiple choice format, the testee checks the structurally correct item.

The test contains 25 items in all as follows:

(summary on next pages)

(The complete test is shown in Appendix 3D, Vol.2, pp.35-38))

Summary of Test Items

Section 1

4 items. Gap filling/sentence writing based on a picture prompt. Basic (affirmative) sentence structure.

e.g. a)



Sade

Section 2

4 items. Picture + question prompt. Long responses: one positive, two negative, one qualified (compound).

e.g. b)



Ki sade mane pooni ta?

.....

Section 3

4 items. Picture + question prompt. Short responses. One positive, one negative, two qualified (compound).

e.g. a)



Ki sade mane pokit?

.....

Section 4

3 items. Gap filling based on picture and partial sentence prompt. Questions and short/long responses.

e.g. a)



.... sade gal? , ...

Section 5

5 items. Picture and sentence with one deliberate error as prompt. Testee to correct. Two verb choice errors, one number particle error, one omission of phonetic suffix, one response particle error in qualified response.

e.g. a)



Sade gru tre.

Section 6

5 items. Multiple choice, testee to find the structurally correct alternative. 3 distractors for each item. Distractors with incorrect word order, incorrect verb choice, incorrect ellipsis. Structures: question, basic(affirmative), long positive and qualified responses, short negative response.

e.g. e) Ye, sade mane keik. ()
 Ye, mane sadena keik. ()
 Ye, stilna keik. ()
 Ye, sade stilna keik. ()

Scoring the test

Minor spelling and vocabulary errors with nouns were ignored in the scoring. There were in fact few errors of this kind, and where several appeared with the same testee, it was always a subject who also made a large number of errors on the grammar.

As an initial scoring with one point per item (half points were allowed) did not discriminate sufficiently between the subjects, a rather complex scoring system was used, in which plus or minus points were given for all grammatical features in responses to items in sections 1 to 4. This resulted in a maximum score of 53 on the 25 items. The ranking produced by the initial scoring was generally in agreement with the final ranking of subjects based on the detailed scoring system. (The scoring scheme is shown in detail in Appendix 3E, Vol.2, p.39).

In sections 1 to 4 the system used was as follows: Points were awarded for correct use of the phonetic suffix and number particles, for correct verb choice in responses, for correct form of elliptic sentence type 1, for correct use of response and negative particles in qualified responses. Points were subtracted if the subject made errors on subject+verb in the basic structure, in the use of the question particle, or with response particles in

positive and negative responses.

In sections 5 and 6 one point was awarded per item and a point was subtracted if two responses were given.

The reasoning behind this type of scoring was that certain structural features were so basic to the system and so frequent, that to score them positively would increase both the possibility of errors in scoring and the work involved. Yet as I wished to test all features of the grammar, all grammatical features would have to be registered as correct or incorrect. This led to the use of a combination of negative and positive points. Initial analysis of the types of error produced was used in the formulation of the list of structures and grammatical features to be scored.

3.4 Recapitulation

In this chapter I have described and discussed the task as OBJECT. The aim of the task and the restrictions on it, the language used, the design of the card sets and their presentation to the subjects (layout), and the final post-test have been described, and my reasons for the choices made have been given. In the next chapter, I shall move on to the task PROCESS, where the actual conduct of the task and the types of data produced will be explained.

CHAPTER 4: THE TASK - PROCESS AND PRODUCTS

4.0 Introduction

In preparation for embarking on the analysis, it is necessary to describe how the data was obtained and what it consists of. The following topics are covered in this chapter:

- in 4.1 the subjects are described
- in 4.2 the task procedure is described and discussed
- in 4.3 a description is given of the types of data obtained.

Appendices and tables related to Chapter 4 (prefaced by the chapter number) are to be found in Vol.2, pp.40-50.

4.1 The Subjects

This task is not experimental but exploratory. I therefore did not consider it necessary to control the 'sample' of subjects. Hence, the subjects do not in any way constitute a representative sample of any particular social or educational group.

The original 35 subjects were all students of Edinburgh University, who volunteered in response to advertisements on noticeboards. These included volunteers from among fellow post-graduate students in the Linguistics Department.

The notices asked for volunteers to take part in a learning experiment which would take about two hours (unpaid), and interested parties were asked to contact me at the Linguistics Department. This meant that the volunteers probably guessed that the learning had something to do with language, and also, presumably, that the subjects could all be regarded as motivated and interested learners.

In view of some of the literature on cognitive styles (particularly Hudson, 1966), I had hoped to be able to recruit similar numbers of subjects from the four groups: Arts post-graduates, Science post-graduates, Arts and Science undergraduates, in order to see whether Arts/Science learning differences might emerge. However, the difficulty of recruiting any post-graduate students at all, resulted in a very small Science post-grad. group (4 students), and an Arts group extremely biased in terms of educational background, as all were recruited from my own department, Linguistics. Therefore, any observations regarding such differences, especially between the post-graduate groups, are therefore extremely speculative.

Of the original 35 subjects who did the task, two were excluded from the analysis of the data for not following instructions. The total number of Ss in the data analysis is therefore 33, distributed in the following manner:

		<u>Arts</u>	<u>Science</u>	<u>Total</u>
<u>Table (i)</u>	PG	9	4	13
	UG	11	9	20
	<u>Total</u>	20	13	33

Throughout the analysis the subjects are identified by numbers in the following way:

S1 - 11	Arts Undergraduate
S12 - 21	Science Undergraduate (S19 omitted)
S22 - 31	Arts Post-graduate (S23 omitted)
S32 - 35	Science Post-graduate

This numbering facilitates identification of individuals, and allows the possibility of incidental observations regarding students with different subject preferences and at different academic levels, when reading tables and analysing data.

The profile of the subjects given below is based on the information obtained from a brief interview with each subject (see 4.2(i) below). This information is summarized in Table 4.1 (Vol.2, p.40), and given in detail in

All figures given in the following exclude the two subjects who were excluded from the data analysis. The total number of subjects is therefore 33.

Sex

As sex was not a factor of interest in this study, no attempt at all was made to control for this. The number of males and females in each of the student groups was as follows:

<u>Table(ii)</u>			M	F				M	F				M	F
<u>Science</u>	PG		3	1	<u>Arts</u>	PG		6	3	<u>All</u>	PG		9	4
	UG		4	5		UG		1	10		UG		5	15
Tot.Sci.			7	6	Tot.Art.			7	13	Tot.			14	19

These proportions of M to F cannot be said to represent the proportions of M to F found in the relevant populations. For example the 4:5 ratio of M to F in the Science UG group and the 6:3 ratio in the Arts PG group run counter to the normal ratios in these populations.

Age

The age ranges across the two UG and the two PG groups are similar; the average ages for UG Science and Arts being 20.1 and 20.3 years respectively, for PG Science and Arts being 28.25 and 28.5 years respectively. Age was of no interest in itself, and it is coincidental that both the age ranges and average ages in PG and UG groups are so similar. Age is only of relevance in that it relates to educational and other experience, this will be discussed at the end of this section.

Mother Tongue

Five of the Ss are not native speakers (NNS) of English. As Novish is based on English and all explanations are in English, it was necessary that those NNSs who took part were fluent in English. Only one seemed to have a little difficulty with the vocabulary of Novish, S35, which could indicate that his 'everyday' English was not fluent

enough (e.g. transformations of vocabulary such as pooni -> bunny -> rabbit may not have been available to him).

In Table 4.1, we can see that of the five NNSs, two were in the lowest third of the rankings on post-test scores, and three in the middle third. Being non-native speakers may have influenced their performance, possibly by slowing them down, as all explanations and descriptions on the cards are in English. Especially suggestive is the fact that S22 and S28 (both of whom had learned French so this was not a confounding factor), are Linguistics PG's, and have the lowest scores in this sub-group of Ss. S33 and S35, both in the lowest rank group, are Science PG's, and neither had learned French or any other Romance language, which may have made some words difficult to remember (e.g. legoom = vegetables).

Language Learning Experience

As foreign language (FL) learning experience is an important factor influencing success (Naiman et al.1978), subjects were also asked to indicate which languages they had learned. Although they were on the whole unwilling (or unable) to be very precise about their present knowledge of and ability to use foreign languages, an indication of foreign language learning background was obtained. (See Appendix 4A for summary.) Undergraduates on the whole referred to their school experience of FL learning, and their examination results ('O'/'A' levels or Highers). The older the students, the more likely they were to give an evaluation of the present (bad) state of their language skills.

A brief look at the relationship between present course of study and past language learning experience shows for Arts undergraduates doing a language course, that year of study and variety of language learning experience seem to be important indicators of success in this task, as the

Following table shows: (table(iii))

	<u>Yr. of study</u>	<u>S no.</u>	<u>Rank</u>	<u>Foreign Languages</u>
	1	2	4	2xFL
	1	1	12	3xFL
<u>Table(iii)</u>	2	6	23	2xFL
	2	10	23	4xFL
	2	7	28	4xFL

(Lowest rank = lowest score)

For Arts undergraduates not studying a foreign language at present, there was no such relationship (all linguistics students except S5 - psychology):

	<u>Yr. of study</u>	<u>S no.</u>	<u>Rank</u>	<u>Foreign Languages</u>
	1	3	18.5	1xFL
	1	4	20	2xFL
<u>Table(iv)</u>	1	5	7	2xFL
	2	8	9.5	2xFL
	2	9	12	4xFL
	3	11	18.5	1xFL

No relationship could be found between year of study, previous foreign language learning experience, and rank, for Science undergraduates. In general, though, Science undergraduates were less successful than Arts undergraduates (Table 4.1), and also had less experience of foreign language learning (Appendix 4A).

For undergraduates in general, present language study does not seem to be sufficient to guarantee success, nor does a good performance in school FL learning. However a wide experience of FL learning does seem to contribute to success (e.g. S7: 4 foreign languages - rank 28, S10: 4 languages, rank 23. S9 the only other undergraduate with 4 foreign languages is a non-native speaker, rank 12).

No reasonable comparison of Arts and Science post-graduates can be made, due to the small number of Science post-grads and the fact that two of the four are NNSs. The post-graduates are on the whole very varied as to educational background, and quantity, type and variety of

language learning experience. Moreover, most of the linguistics post-graduates have experience in teaching English as a foreign language. The Table shows that the Arts post-graduates are the more successful group, and also have greater experience in foreign language learning. It would seem that for experienced learners, a present interest in language learning (TEFL), and wide experience of foreign language learning, whether formal or informal, are both relevant to success in this task.

Comments

As the primary focus of this study is to investigate patterns of individual activity in a free language learning task, rather than the relationship between learner characteristics and learning outcomes, only few personal details were obtained. Worthwhile investigation of personal characteristics and experience in relation to individual activity would have entailed a much larger sample controlled along the dimensions to be investigated. Such control was not possible given the scope of the study. The only information obtained which could give rise to interesting observations is the knowledge of previous foreign language learning experience. Any observations made in this area are in the nature of informal comments.

The general ranking of the subjects supports a common-sense expectation that Arts students and students concerned with language in their studies are more successful than Science students and those not concerned with language, though there are clear individual departures from these expectations.

Moreover, it would seem that both academic learning experience, and language learning experience are important predictors of success in this task, particularly, a wide experience of language learning in both formal and informal situations. This raises a question as to how important informal language learning experience may be as input to independent learning tasks

of a more formal kind, as formal (school) learning success is not a reliable predictor of success on this task. Moreover, experience of independent learning of the kind gained in the course of university study, may be an equally necessary type of experience in enabling a learner to adopt a suitable and congenial strategy for a free learning task.

On the basis of these observations, one could suggest a hierarchy of importance in the types of experience relevant to learning tasks: That experience relevant to task type is more important than that relevant to content, and that a combination of both provides the most favourable learning condition. Or, to put it in other terms, that the ability to adopt a suitable macrostrategy may be a necessary condition for successful learning, whereas suitable content specific microstrategies may be helpful but not essential.

4.2 The Procedure

A task session consisted of the following:

- i) interview
- ii) instructions
- iii) task
- iv) test
- v) 'wind-down'

and usually took 2 to 2.5 hours per subject to complete.

As I am describing an individual procedure, I shall refer to the subject in the singular in the following description. (Also, although the subjects were both male and female, when referring generally I shall use he.) The same procedure was followed for all subjects, and I was the other party in all situations. The description is divided into five sections as shown above.

i) Interview

First the subject was set at ease with regard to the nature of the task, with the explanation that the aim was to investigate the way people learn and not to test linguistic ability. An outline of the content of the task was given: learning a small invented language with a following test; and an indication of the time needed: about one hour for the task, and 15-20 minutes for the test.

After this initial introduction the subject was then asked to give some personal information. No one objected to this. The subject filled in a form asking for name, age, sex, nationality, first language, year and type of study (post-graduate/undergraduate), department and subject of study. He then answered some questions put to him by the interviewer, who noted the answers on the second part of the form. The main questions asked were as follows:

A Which subjects were you best at at school?

B Do you think you are studying the right subject now?

- C (if B is 'no') What would you prefer to study?
- D Which languages other than English do you know?
- E (if postgrad.) What was the subject of your first degree?
- F Have you heard of Pask's theories, and have you read about Novish anywhere?

The aim of questions A to E was to obtain general information about the subject's language learning experience and success, and his study preferences. The interviewer extended question D as applicable, to find out which languages the subject had learned formally and informally, which skills were involved, and what level of proficiency had been reached. Only those languages where intermediate or near intermediate proficiency had been reached, and where written as well as oral skills had been learned, were noted. The information obtained from the interview is discussed in the section above, 4.1: The Subjects.

Question F was asked in order to provide a check on background knowledge. Several of the post-graduates had heard of Pask, but did not recognize the form of the task, and several of the linguistics post-graduates remembered reading about Novish in Dakin (1973). After the task only one, S30:H, said he had remembered anything of Novish. As this was the rule for suffix -na, I did not consider this sufficient to exclude his data from the analysis.

ii) Instructions

After the interview, the subject was taken into a room where the task cards were laid out on a large table. He was given the instruction sheet to read and told he could look at the card layout while reading, but without touching the cards. He was also told at this point that he could use either pen and paper or tape-recorder for the task. He could decide this after he was quite clear about how to go about the task. Throughout the instruction phase the subject was allowed to ask

questions and to take as much time as he wanted. (For copy of instruction sheet see Appendix 4B, Vol. 2, pp. 42-3.)

After reading through the instructions, the subject was taken through them again by the instructor. He was shown both sides of each type of card and the type of information on both front and reverse of each type was explained and demonstrated in order to ensure understanding. The relationship between the pairs of F cards was made clear, and the position of the card numbers on the reverse was demonstrated. The subject was also given the additional information that all the words needed were present in the Translation Dictionary, and in the Examples card set, that not all card sets need be used, and that a combination of, for example, Set A + Set F, or Set D + Set B would cover the whole language.

It was stressed that the subject could work as he liked, turning as few/many cards as he wished, in any order and any number of times, but that the reason for choice and the card number were to be given each time a card was turned. The procedure of choosing a card, giving a reason before turning it, and giving the card number after turning it, was repeated, and the fact that only one card could be turned at a time, and must be turned back before the next card was chosen, was emphasized. The following examples of types of reasons for choosing cards were suggested: general search, looking for particular information, checking a hypothesis (if so, the subject was to give the hypothesis), a particular activity. The subject was also told that notes could be taken and should be accompanied by the number of the card being looked at, but that they could not be used in the test.

Finally, the subject was told that the task would be followed by a short written language test of Novish.

The subject then selected pen & paper, or tape recorder. If pen & paper was selected, two pads were provided labelled Sheet Y (for listing reasons and card numbers,

with Reason and Number as headings at the top), and Sheet 2 (for notes, with a written reminder to put the card number). If tape recorder was selected, the apparatus (a small cassette recorder) was demonstrated and only the Notes pad (Sheet 2) was provided.

After a last reminder about the card turning procedure, if the subject was satisfied that he had understood the instructions, he was given Sheet X (the specification of what to learn) to read at his own pace. He could ask questions if there was something he did not understand. (See Appendix 4C, Vol.2, p.44 for Sheet X.)

When the subject indicated that he was finished with the Instruction sheet and Sheet X, both were removed. The subject was told that 5 minutes before the allotted hour was up, he would be warned and could then ask for more time if he wished. He was then left to his own devices.

iii) Task

The subject worked undisturbed for 55 minutes, when he was told that 5 minutes remained. At this point some subjects indicated that they wished for a little more time. These were allowed to stop the learning process when they felt they were ready. The longest time taken was 70 minutes. The majority used 60 minutes. 2 subjects indicated that they were finished at the 5 minute warning, and one after only 50 minutes.

iv) Test

When he had finished learning, the subject was settled in another room with the test booklet. (See Ch.3.3, p.54 for description, and Appendix 3D, Vol.2, pp.35-38 for test booklet.) He was told to answer the questions page by page, and that having turned a page, he was not to turn back to check or correct previous pages, even though he realized he had made a mistake. This instruction was given twice. He was told he could have as much time as he liked, and should hand the booklet to the invigilator when he had finished. The time taken varied from 11 to 23 minutes.

v) 'Wind-down'

At the end of the session, I had a short conversation with the subject to find out how he felt about the task. All of the subjects responded favourably when asked if they had enjoyed doing it, one or two thought it difficult but the majority expressed feelings of interest, enjoyment and a sense of challenge. They all also felt that the time had passed quickly, and had not been bored. During this conversation I also checked that subjects had followed the correct card turning procedure, and whether those subjects who had had previous contact with Novish/Pask had found any features of the task familiar.

Comments

There is evidence that optimal performance in learning is often obtained under conditions of some stress, i.e. with some anxiety on the part of the learner; but that very high or very low anxiety tends to lower the performance (Ausubel, 1968:405). It is also probable that this particular task, as a "novel problem-solving situation", would tend to be anxiety provoking (Ausubel, 1968:406). My aim was therefore to induce a fairly relaxed atmosphere to counteract the possibly threatening nature of the task, while at the same time not completely removing all anxiety provoking features.

My reasoning was that a too relaxed learner might not concentrate, and a too anxious one might not follow his own instincts with regard to the learning process. A balance was sought by making the interview and instruction phases relaxed and friendly, subjects being encouraged to talk, to voice queries about the task, etc.. At the same time pressure was put on the subject to finish the task within an hour, despite the leeway given with regard to time, which was to alleviate anxiety for anxious subjects. Secondly, the follow-up test was designed to put pressure on the subjects to be correct, but no time limit was given, though 15-20 minutes was suggested.

This mixture of relaxation and pressure seems to have been successful, in that subjects did not seem unduly nervous and expressed enjoyment of the whole process, and yet seem to have concentrated on the task. This may of course have little to do with the attempt to balance the level of stress, it may purely be a reflection of the fact that the subjects were volunteers.

The procedure followed by the subjects is the same as that used by Pask in his task, with the difference that the learner records his own card turnings in my task. This avoids the necessity of an observer, who I felt might disturb the subjects. But it of course opens up the possibility of subjects not following instructions as to card turning procedure. This was checked by asking the subjects after the task whether they had deviated from the procedure. Deviation can also be seen in the protocols. Two subjects were excluded for gross deviations from the procedure (i.e. leaving all turned cards with the reverse visible). Several other subjects compared two cards, this I have regarded as a very minor infringement and not of any consequence to the general listing of card turning order.

The requirement that a card once used should be restored to front-up position was necessary, if the order of looking at cards was to be fairly stringently recorded. Even so, it was not possible to keep a close check on subjects' use of the fronts of the Examples (practice) cards (F9-16), or on their use of the pictures in the Picture Dictionary (Set A), from which they could gain a certain amount of information.

4.3 The Data Produced

There are three types of data which have been used in the analysis:

- i) the learner protocols (list of card turnings and commentaries)
- ii) the learners' notes
- iii) test results

The personal information obtained about each subject is also available, but for the reasons given above (section 4.1), this is only used where it is of interest in discussing the strategies of a particular learner, or to make incidental and speculative observations of a more general nature.

i) The Learner Protocols

The data for each subject are in the form of a list of card numbers each accompanied by the reason for turning that card. I refer to the listing in general as a learner protocol, and each reason as a commentary. (For examples of learner protocols, see Appendix 4D, Vol.2, pp.45-50.)

The actual sequence of cards used by each learner has been extrapolated from the protocols and is given in the Table of Card Turnings (in pocket on inside back cover of this volume). This table presents the card turning sequences in manageable form, and provides the foundation of much of the analysis. It is referred to throughout the analysis chapters. (For table introduction see Ch.5, p.82.)

These data are approached in two ways in the analysis. Firstly, patterns in the card turning sequence are investigated and analysed, both alone and in conjunction with the associated commentaries. And secondly, the commentaries themselves are used to investigate typical activities and the activities of particular learners. The analysis of the task is therefore based on a mesh of relationships between the sequences and choices shown in the Table of Card Turnings and in the learners'

commentaries.

The majority of the subjects chose to list their card turnings using pen & paper, only 8 of the 35 choosing the tape recorder. Where the tape recorder was used, a pseudo-transcript was made, which reports what the learner gives as his reasons, plus the card numbers, thus the taped protocols are given the same format as the pen & paper ones. The following subjects used the tape recorder:

<u>Arts UG</u>	<u>Science UG</u>	<u>Arts PG</u>
1, 10	14	(23), 24, 25, 29, 30

The subjects switched the recorder on when they had something to say and off again. This avoided the necessity of turning the tape over after 45 minutes.

The reason for giving subjects a choice between written and oral recording of their card turnings was to give them greater freedom with regard to their work method. Several subjects expressed dislike of using a tape recorder, others said they preferred to write things down, thereby keeping an easily accessible record of what they had done so far. Obviously, the oral method gives more data in terms of detailed reasons, thoughts about the task, and comments, as writing is more time consuming. This probably also accounts for the brevity of many of the reasons given in the written protocols.

One possibility for future tasks of this kind would be that the tape recorder be used by all subjects, with, if necessary, a familiarization task before the main task. This would yield fuller data as to reasons for choosing cards/hypotheses/comments about the learning matter. Also, if the tape could be left running continuously, it could yield a measure of the time taken over each card. Subjects could be instructed to say precisely when they turn a card over and when they turn it back, and also what they are doing when they are not looking at the reverse of a card. I am however not sure how this would

affect subjects who would not themselves choose to tape their commentaries. It might add a disturbing anxiety factor even with a familiarization period.

An alternative, if timing of card use was desired, would be a stop-watch wielding observer. But again, I feel that this would make the task a less natural approximation of 'normal' learning, my original reason for allowing the learner to do the task unobserved.

Implementation of these suggestions would provide greater control of the process and help to eliminate errors of the kind that occur in my data (especially, forgetting to note down the number of a card turned). Some errors of this kind were discovered by comparison of the protocol and the learner's notes, but as not all the subjects took notes there may have been more undiscovered errors. In the Table of Card Turnings (in pocket on inside of back cover, this volume), cards which are shown as turned, either by the notes or by comments in the protocol, but whose number is not listed in the protocol, have been written in parentheses, e.g. S25:H F5 F16 (E5) F7... From my inspection of the relationship between sequential cards, together with the commentaries and card numbers, I would say, however, that very few errors remained undiscovered.

With this task, I was not at first interested in the time taken over particular cards, but the data show that time may be a factor of importance with regard to learners' preferences, e.g. a quick look at a lot of cards vs. a long time spent on few cards. There may also be differences in the proportion of time spent on different activities, and this is not necessarily reflected in the number of cards used. The suggestions above would facilitate the investigation of these features.

ii) Learners' Notes

In addition to the protocol for each learner, there are the notes which most learners made during the task. These

were made on a separate pad of paper, and the subjects were instructed to write beside each note the number of the card which had instigated the note. The following 6 subjects took no notes:

	<u>Arts UG</u>	<u>Science UG</u>	<u>Arts PG</u>
Subject	1(tape rec.)	12	30(tape rec.)
number	5, 11		31

The quantity of notes taken varied considerably, from a few words to several pages, as did their type and format.

A separate analysis of note taking behaviour has not been made, although the variation shows that this is yet another aspect of learner behaviour which probably reflects differences in both preference and experience, and which could be related to differential success.

In this analysis, the notes have been used for the following general purposes: 1) for checking the accuracy of the card lists in the protocols, and 2) to disambiguate and amplify the commentaries in the protocols, particularly with regard to the use of dictionary sets, and examples cards.

The quantity of notes made from different types of cards, especially from grammar and semantics cards, and examples cards, also proved to be of interest, in distinguishing between different approaches to learning.

The use of notes as supportive evidence is described and discussed in Ch.8: Use of Examples, section 2, p.157ff.

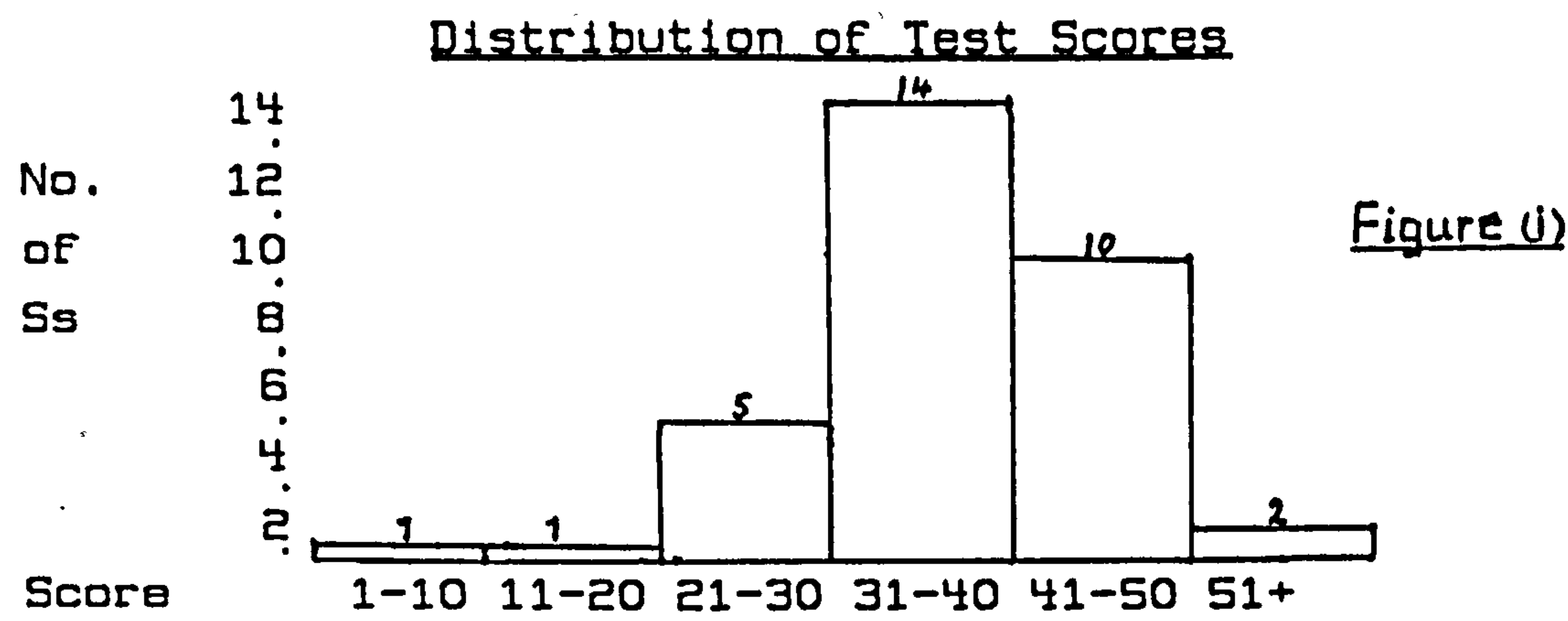
iii) The Test Results

The maximum score on the post-test was 53 points. (For description of test and scoring scheme see Ch.3.3, p.54ff.) The learners received a score out of 53 and were ranked by score, the lowest score giving the lowest rank. Tied scores were given the same rank.

(Fig.(i))

As the bar graph shows/, the majority of scores are at the

high end of the scale with a slightly skewed distribution.



Despite this, the test discriminated quite well between the subjects (see list of scores below),^(Table v) and fulfilled my limited purposes, one of which was to provide the subjects with a goal, and the other to produce a very general grouping of the subjects according to success in learning.

TEST SCORES									Table(v)	
Low			Middle			High				
S no.	Score	Rank	S no.	Score	Rank	S no.	Score	Rank		
15	5	1	1	35	12	6	41	23		
16	17	2	9	35	12	10	41	23		
17	24	3	14	35	12	20	41	23		
2	26	4	28	36	14.5	24	42	26		
12	27	5	32	36	14.5	27	42	26		
33	29	6	18	37	16.5	30	42	26		
5	30	7	22	37	16.5	7	43	28		
35	32	8	3	38	18.5	25	44	29		
8	34	9.5	11	38	18.5	29	45	30		
21	34	9.5	4	39	20	26	48	31		
			31	40	21	34	51	32		
						13	52	33		

As my primary aim was to investigate individual learning strategy differences per se, rather than qualitative differences, or the relationship between strategy and outcome, no analysis of the test results was undertaken.

They were used, however, to divide the subjects into three rank groups: Low(L), Middle(M), and High(H), with eleven ranks in each group (total of 33 subjects). Tied scores resulted in groups containing different numbers of subjects. As statistical analysis is not of interest in this in-depth study of individual differences, the size discrepancy between the groups was not regarded as a disadvantage.

This arbitrary division into three groups must be regarded first and foremost as a housekeeping measure. The task of comparing all the card turnings of each individual with those of 32 other individuals was impracticable. But by grouping the subjects, the task of searching for patterns in the data was made easier. Given the uncontrolled nature of the sample, random assignment of individuals into groups was the only reasonable alternative to division into groups based on the test results. As grouping by rank offered the possibility of investigating the relationship between strategy and outcome in addition to individual strategies, this latter method of grouping was chosen.

The rank grouping has been used throughout the protocol data analysis, and in some cases group membership does coincide generally with strategic tendencies, which suggests that different strategies do produce different rates of success in this task. There are however exceptions and variations in all cases, which emphasizes the necessity of analyzing in depth the apparently very complex relationship between individual strategy, learning task, and outcome.

4.4 Recapitulation

In this chapter, I have described the subjects who did the task, and the procedure used. I have also sought to give an impression of the types of data which resulted from carrying out the task, and their contributions to

and roles in the analysis. My reasons for concentrating on certain parts of the data and relegating others to a merely supportive role have, I hope, been made clear.

Having introduced the data and described how it was obtained, it is now possible to pursue my intention of investigating learners' strategies, by moving on to the analysis of the data.

CHAPTER 5: INTRODUCTION TO THE ANALYSIS

Owing to the complexity of the data and the resultant complexity of the analysis, it is necessary both to introduce the way in which the analysis is approached, and also, for the sake of comprehensibility, to anticipate the description of some of the findings.

As we have seen in Chapter 4, the data consist of lists of card turnings and learner commentaries, both taken from the learner protocols, plus learners' notes, and test results. Certain choices had to be made in approaching the analysis of these data, and it is these choices and my reasons for them that are described below.

At the most general level, I had to decide whether quantitative analysis would be valuable, or whether to concentrate exclusively on qualitative analysis. As the investigation is primarily concerned with close scrutiny of individual behaviour, the obvious approach is a qualitative one. However, given that there are features of the data which can be quantified, e.g. numbers of card turnings, uses of different card sets, it seemed advisable to at least attempt some quantifications.

An initial simple statistical analysis was made of the number of cards used from different sets compared across the three rank groups produced by the test results (low, middle, high). This showed differences only in the use of Examples cards (Set F), where the number of cards correlated with rank order (i.e. the more F cards used, the more successful the learner). The possibility of using computer analysis of card turning patterns (permutations of card combinations) was also investigated, but the complexity of the programming needed was disproportionate to the possible outcomes, as statistical analysis - given the enormous number of potential permutations and the small number of subjects - would have been unreliable. This channel of investigation was therefore abandoned.

These experiences convinced me that a general quantitative analysis was not likely to produce usable results. Consequently, I decided to concentrate on qualitative analysis, drawing in quantitative differences, especially between the three rank groups, wherever these were apparent.

The attempt at quantitative analysis did, however, show the complexity, and apparent chaos, of interrelationships in the use of cards, both within sets, between sets, by one learner and across learners. In order to approach a systematization of the chaos, I selected an obvious criterion for ordering the analysis: the Card Sets.

The choice of Sets as the organizing principle for the analysis allowed me to make comparisons across learners, which analyzing each individual in turn, for example, would have made very difficult. It also enabled me to focus on an area of especial interest, namely, how learners use particular types of learning/teaching material. It does mean, however, that strategy profiles (case studies) of individuals have not been made. Instead, the analysis seeks to determine:

- 1) how learners use various types of material, and whether different types of use can be seen
- 2) whether any general or 'typical' learning procedures (macrostrategies) can be seen
- 3) whether findings from 1) and 2) show correlations between certain strategies and learning success.

Given the lack of similar investigations into foreign language learning on which to base hypotheses, and given the essentially exploratory nature of this research, I cannot set up detailed hypotheses for falsification. I can however suggest one very general null hypotheses: In foreign language grammar learning, learners will not exhibit systematic differences in learning strategy. Happily, I can say that this hypothesis is conclusively disproved by the data.

I shall now anticipate the description of the analysis by outlining some of the general findings. I do this because, although the analysis is organized by set, the complex interaction between uses of cards from different sets necessitates references across sets, especially in the analysis of the Examples (F) and Grammar (D & E) cards. In fact, some overview of card use generally is necessary in order to analyze the individual sets. In other words, findings and concepts which emerge from the analysis of one set are relevant for a complete understanding of the analysis of the other sets. It is these generally relevant findings that I shall sketch below.

One general finding is that the learners use what I have called phases of activity. This emerges primarily from the analysis of the Examples and Grammar cards and is described in more detail in the introduction to the Examples card analysis (Ch.8.0, p.144ff).

This division of the task into periods of activity (phases), which could be called a macrostrategy, results, at the most general level, in an activity structure consisting of orientation-> learning-> reinforcement, where the orientation period is optional. In greater detail the sequence of phases can be described as : orientation-> learning-> exposure to examples-> practice-> (checking)-> revision-> testing-> (checking). This organization seems commonsensical, and reminiscent of traditional teaching practice, of which it may, of course, be a product. Also, within the learning phase, microstrategies can sometimes be seen, with repeated cycles of, for example, learn rule-> practice, or hypothesize-> test hypothesis. Reference to this use of phases of activity will be made at various points.

A second general finding, also based on the analysis of the D/E and F cards, is that within the general phase structure there are two major learning approaches. These I have called Examples-based and Rules-based. The learners who use the first approach, appear to prefer a discovery (inductive) learning method in general, while

those using the second prefer reception (deductive) learning, though there is not a one-to-one relation between these sets of categories. There is no implied evaluation in the use of these terms. As Ausubel argues (1968), cogently if rather acrimoniously, the use of a discovery method no more ensures meaningful learning, than the use of an expository method (reception learning) ensures lack of it (as advocates of discovery learning would claim). References are made to the discovery/reception (deductive/inductive) learning distinction throughout the analysis, though my own Examples-based/Rules-based distinction is only used after its introduction in Chapter 8.1, p.147ff).

One final point I wish to make in this introduction is that, despite the interrelationship between the uses of the card sets, the differences in the types of learning materials available mean that use patterns differ considerably from type to type. Hence, in order to explain the way in which a particular material type contributes to the overall learning pattern, it is necessary to focus on different aspects of the use of each card set. For example, with grammatical cards the numerical sequence of the cards is very important, whereas it is less important with other sets; with dictionary cards, whether a whole set is used or just single cards is a distinctive feature, etc..

These differences in focus led me to set up a separate analytic framework for each type of material, based on the way in which the material is used. The same framework is used for similar material, thus, the two dictionary sets (A & B) are analyzed together, as are the two grammatical sets (D & E). The framework and all terms employed are described and explained at the beginning of each analysis chapter.

Two unfortunate results of this decision are, firstly, that the analyses of the different types of material are not directly comparable, and, secondly, that the analysis as a whole is made longer by the need for multiple

framework descriptions. The alternative, which I considered unacceptable, was to use one framework. The clear differences in the use of different types of material would, in these circumstances, have either entailed an excessively complex and probably unmanageable analytic framework, or a simpler framework which would not have done justice to the data.

The result of my decision, despite the drawbacks mentioned, is an analysis where the findings of the part analyses are added together rather than compared. This provides, in my view, a satisfactory means of arriving at an overall picture of learner behaviour.

The analysis is arranged as follows:

Chapter 6 Use of the Dictionaries (Sets A and B)

Chapter 7 Use of the Context Cards (Set C)

Chapter 8 Use of the Examples (Set F)

Chapter 9 Use of the Grammar (Sets D and E)

The Examples and Grammar analyses are left till last as they are the most complex, and of most relevance to general learning strategies. The Grammar follows the Examples, as some features of the Examples analysis can be useful in understanding the use of the Grammar.

The Table of Card Turnings is the major data table, and is included as a loose sheet in the pocket on the inside back cover of this volume. This Table, which lists all uses of cards by all learners, is needed for reference throughout the analysis. The colour coding in the Table makes it possible to see general patterns of card turning behaviour, which provides a useful supplement to the set specific information in other tables. The Table lists the subjects in rank order by test score, and divided into the three rank groups L (Low), M (Middle), H (High). Each subject's test score is shown, as is his categorization as Examples-based or Uncategorized (Rules-based learners are left uncoded). In the list of card turnings, uses of whole sets of dictionary cards are indicated as one item.

CHAPTER 6: USE OF THE DICTIONARIES (SETS A AND B)

6.0 Introduction

This chapter presents the analysis of the Dictionary cards:

Set A - The Picture Dictionary
and Set B - The Translation Dictionary.

In this initial Introduction, the two card sets are described briefly and compared, and the reasons for analysing them together are given.

Section 1 then presents the common framework for the analysis of both card sets.

The analysis of the sets is divided into two parts:

Section 2 gives the analysis of the use of individual cards.

Sections 3 and 4 present the analysis of the cards by set use (i.e. the learner uses a complete set).

Section 3: analysis of set use for the purposes of
orientation and learning

Section 4: analysis of set use for the purpose of
reinforcement

The Card Sets

Set A, the picture dictionary, consists of 19 cards. On the front of each card (the surface visible to the subject) is a simple sketch of an object and on the reverse (the surface the subject sees when he turns the card) the name of the object is written in Novish. There is no other information on the cards. These 19 concrete nouns are the only nouns in Novish which the learner needs to know in order to do the task. The pictures on the front of these cards are stylised sketches, and the same sketches in a less detailed form are used in examples on some of the Grammar cards (Set D), and on the Examples cards (Set F).

(See Appendix 3A, Vol.2, pp.2, for list of cards, and Appendix 3B, Vol.2, pp.4-8, for copies of all cards).

Set B, the translation dictionary, consists of 29 cards. The Novish word is written on the front of the card, and a translation into English and the grammatical designation of the word are on the reverse. These cards contain all the words and suffixes necessary for the learner to succeed in the task. There is only one suffix, -na (B16), there are the 19 nouns given in the A dictionary also, and there are 9 structural lexical items. These are as follows:

copula verbs: gru (B6), mane (B14), stil (B24);

particles: question = ki (B9), plural = ma (B13), dual = ta (B25), negative response = nu (B17), positive response = ye (B29);

demonstrative pronoun = sade (B23).

(See Appendix 3A, Vol.2, p.2, for list of cards, and Appendix 3B, Vol.2, pp.9-14, for copies of all cards.)

Both dictionaries are numbered in alphabetical order by the Novish words. The B set was placed on the far left of the card array in a single pack in numerical (alphabetical) order with card number 1 on the top. The A cards were laid out in three columns to the right of the B set. They were in numerical order starting with card 1 at the top left and moving down each column in turn. The numbers of the cards are not immediately available to the learner as they are on the reverse. (Appendix 3C, Vol.2, p.34, for Card Layout.)

Due to the differences in format of the cards in these two dictionaries, they can be used in somewhat different ways and for different purposes. For example a learner who is trying to answer a question on one of the Examples cards may know what meaning he wishes to express, but not the word for it. As there is no English-Novish dictionary available, only if the word sought is a noun will the learner be able to find a translation, by using the picture dictionary (Set A). In this type of context the B set will not be useful. This comes into its own in the normal use of an FL-L1 translation dictionary, for finding or checking the meanings of foreign language

words one does not understand. These differences in use will be mentioned again later in the analysis.

Differences notwithstanding, both these sets are dictionaries and they have general modes of use in common. The major uses for both dictionaries are for reference (normal dictionary use), where specifically chosen individual cards are turned, or for learning/revision/testing/checking where a whole series of cards (usually a complete set) is used (but not necessarily turned). The latter cannot be said to be a 'normal' use of a dictionary, it is more reminiscent perhaps of the uses to which a word list related to a specific text can be put. It is however a use common to both these card sets.

It is the similarities, both in the structure of the card sets, and especially in the uses to which they are put, which leads me to analyse these cards using one framework, and to regard their use as one element in the analysis of the data.

6.1 The Framework for the Analysis

The subjects' use of the dictionaries can be described according to several criteria:

A MODE - whether an individual card or a whole set is used.

B POSITION - whether a card or set is used in initial position (i position) that is in the initial stage of the task. This includes cards/sets used first in the series of card turnings, used within the first few cards, or before the subject indicates a strategy other than orientation;

final position (f position) that is at or near the end of the task. Cards or sets are used at the end of the series of card turnings, or followed by not more than a few cards, or where the subject indicates a finishing strategy;

medial position (m position). Cards or sets are used in the middle of the task (i.e. not i or f position).

C PURPOSE - whether the card or set is used for Orientation, for Learning, or for Reinforcement.

These three criteria, mode, position and purpose, interact, giving a fairly complex profile of dictionary use. In order to assign an instance of use of a particular card or set to the sub-categories in 1, 2 and 3 above, it was necessary to make some subjective judgements. It is particularly within the purpose category that these judgements have to be made. The subjects' reasons for use stated in the learner protocols are sometimes misleading due to loose definition of terms, and sometimes insufficient. But the additional information to be gained from learners' notes, from the pattern of card turnings (preceding and following card types and numbers), and from comparable card turning patterns shown by other learners enables judgements to be based on well-informed probabilities.

A Mode

This criterion was used as it became obvious from the learner protocols that the dictionaries were being used in two distinct ways in terms of card turning behaviour: the Individual Card mode, in which individual cards are turned for reference, or orientation purposes; and the Set mode, in which all the cards in a set are used for a particular purpose, though some or all may be left untuned. There is evidence from the protocols that some Ss just looked at the pictures in the picture dictionary with no particular task-related aim, this use has been discounted, i.e. no cards have been registered in the Table of Card Turnings.

I have chosen this mode distinction as the organizing principle for the analysis. There are three reasons for this choice. Firstly, it gives the least subjective categorization of dictionary card use, secondly it is a more important and interesting distinction than position,

and thirdly the purposes for which the dictionaries are used differ according to mode.

B Position

The categorization into i (initial), m (medial) and f (final) position is not of interest in itself, and will not be discussed in a separate section. There is, however, a relationship between position, purpose and mode which is of interest, and therefore the discussion of position will be integrated into the sections where it is relevant.

C Purpose

For the sake of generalization, I have chosen to discuss purpose under three headings, as Orientation, Learning, and Reinforcement. These terms are used with a general meaning which extends beyond dictionary use and will be used throughout the analysis.

Briefly, Orientation covers those uses where a learner wishes to obtain some general information about the language and its background, without having a specific intention like testing a hypothesis about vocabulary or seeking a specific structure, etc. A further restriction on this category is that more than one card must be used, in other words for the learner it must represent a conscious phase of the task. It must not be just an entry point for the task, like for example the use of an Examples (F) card to start the learning process (e.g. S9:M, S4:M, S7:H), or the use of C6 to check the similarity of Novish to English (e.g. S27:H, S13:H).

Reinforcement is a generalized term covering various uses; revision, checking and testing. (More precise definitions of these can be found below, 6.4.1, p.111ff). I have not included the purpose of testing/checking a hypothesis in this category, as this tends to occur throughout the task, and must be seen as an integral part of the learning process, at least for some learners. Thus, reinforcement is used only to refer to uses where

the learner consciously tests his own ability, revises for the sake of enhancing memory, or double-checks for the sake of enhancing memory or finding out what he has forgotten or omitted, and this must occur over a period of time using several cards.

Learning is used very generally indeed. The Ss use a variety of approaches in seeking to learn the language. Among these are both discovery learning and reception learning, and mixtures of these. They may include microstrategies of memorization, hypothesis-making and testing, self-testing, double-checking, practice, and revision. But none of these provide extended periods or phases of activity (except for practice in a few cases), and they are regarded by the learner as part of the attempt to gain knowledge of the language and skill in using it. Hence the learning phase of the task is that period when the learner considers that he has begun learning and while he considers that he is still assimilating new concepts.

With regard to the dictionaries, what these three terms refer to tends to differ between the modes, and within each mode there are variations in the way Ss have used cards and in their intentions, therefore further sub-categorization becomes necessary.

As mentioned above, the following analysis of dictionary card use is organized by mode. Section 6.2 presents the analysis of use of individual cards, and sections 6.3 and 6.4 present the analysis of use of card sets.

Tables related to the analysis of the Dictionary sets, are to be found in Volume 2, pages 51-53. They are presented in the order in which they are first referred to in the text, and all prefaced with the chapter number (6). The Table of Card Turnings may also be useful for reference (in pocket on inside back cover, this volume).

6.2 Dictionary Use: Individual Card Mode

First I shall make some comments about the position and number of individual cards used. This is followed by a description of the orientation, learning and reinforcement uses of the dictionary cards in individual card mode.

6.2.1 Number & Position of Cards Used

Before looking at the learners' reasons for using individual dictionary cards, we shall take a brief look at which cards are used. The table below⁽ⁱ⁾ shows the use of A and B cards in initial(i), medial(m), and final(f) position. (See Appendix 3A, Vol.2,p.2 for list of words.)

<u>Use of Cards from Set A - Picture Dictionary</u>																			
	<i>bukh</i>							<i>kit</i>		<i>legom</i>			<i>poi</i>		<i>pooi</i>		<i>weimin</i>		
Crd.no.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
i	5	1	2	2	1	1	1	3	2	3	1		5		1	3	3	1	3
m	1	2		2	1	1		2	2	3	2	1	1	2	2	4		1	3
f																		1	
Tot.	6	3	2	4	2	2	1	5	4	6	3	1	6	2	3	7	3	3	6

Use of Cards from Set B - Translation Dictionary															
Crd.no.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
i	4	3	5	1		7	1	2	5				4	6	
m	2	1	1		3	4		1					1	5	1
f	(none in f position)														
Tot.	6	4	6	1	3	<u>11</u>	1	3	5				5	<u>11</u>	1

Crd.no	16	17	18	19	20	21	22	23	24	25	26	27	28	29
i	1	1	1		1		1	9	3	2	1		1	1
m	5		4	1	1	5	4	5	5	2	1			
f	(none in f position)													
Tot.	6	1	5	1	2	5	5	<u>14</u>	<u>8</u>	4	2		1	1

First, in terms of position, the main feature of individual card turnings is that they tend to occur early in the task, most often in initial position, and in fact the majority within the first half of the cards turned

(discounting dictionary set uses). As the learner's experience of the language and exposure to examples increases, he has a diminishing need of the dictionaries for translation, and increased experience of the language reduces the uncertainty which results in checking meanings. This is a predictable effect. (See Table of Card Turnings for general view of dictionary use.)

It is also the case that learners using an inductive approach to learning (e.g. S9:M, S31:M, who base their learning on the Examples cards - Set F) use the dictionaries in this mode far more than the deductive learners (e.g. S12:L, S26:H who tend to concentrate on rule learning using Grammar cards, the D and E sets - translations are given of many of the examples on the D cards). This feature ties in with the use of dictionary cards early in the task.

The other reason for the early use of these cards is that if Ss have an orientation phase, this is of course in 1 position, and dictionary cards are often used for this purpose.

The second observation is that the cards with the highest frequency of turnings are all in Set B (Translation Dictionary) and are grammatical words:

<u>Turnings</u>	<u>Cards</u>
11	B 6 - <u>gru</u> (copula verb: +growing)
11	B14 - <u>mane</u> (copula verb: general)
14	B23 - <u>sade</u> (generalized demonstrative pronoun)
8	B24 - <u>stil</u> (copula verb: -growing)

The other grammatical words are also among the most used cards: B9, 13, 16 and 25 are the words ki, ma, -na and ta, and are used between 4 and 6 times.

Several nouns are also turned between 4 and 6 times. These are the top three cards in the pile (often used for orientation or at least initially), plus B18 - pa (bread), where possibly the drawing confused some learners, and also it is a French 'loan', also B21 - pom

(apple) another French 'loan', and B22 - pooni (rabbit) derived from the word 'bunny'. This pattern confirms that vocabulary learning would have entailed a lot more effort if the majority of the words had not been made as transparent English loans.

The most often turned cards in the A set are the first card bukh (book) for orientation uses, A10 - legoom (vegetables) another French 'loan', A7 - pooni (rabbit) again, A15 poi (boy), where the drawing may possibly have been confusing due to its similarity to the drawing for man (min), and A19 - weimin (woman), where either spelling or similarity to the the drawing for girl (gal) were causes.

Considering the number of subjects, the number of individual turnings of dictionary cards for reference is rather modest. This suggests that the learners quickly realized the relationship between Novish vocabulary and English, and decided to use their time in concentrating on the grammar, relying on guesses where vocabulary was concerned.

The higher rate of use of grammatical words in the B dictionary, particularly the verbs and the demonstrative pronoun, reflects both this concentration on grammar, and that the mane/gru/stil distinction is the most pervasive exotic feature of the grammar. The high use of sade was unexpected, and is presumably the result of the fact that this is a generalized demonstrative, which is used with both singular, dual and plural reference, also an un-English structural feature. It is also the subject in all non-elliptic sentences and is similar to mane in form, which may have led to confusion between the two.

To summarize, it seems that learners use the Translation Dictionary mostly for grammar learning, by looking up grammatical words, as they quickly realize that as far as nouns are concerned, guessing is more efficient than reference to this dictionary. The Picture Dictionary is

apparently most often used where there is uncertainty about the reference of the picture.

Introduction to Table 6.1: Orientation and Dictionary Reference

Table 6.1 (Vol.2, p.51) shows the use of individual dictionary cards, and of all cards for orientation, and will be referred to throughout the rest of the individual mode analysis.

In the Table, we see all individual cards turned by each subject with their environment, i.e. relevant preceding and following card(s). Each card is also coded according to use (translation/checking). Uses of whole dictionary sets have also been included for completeness. Dots show that other types of cards were turned, this gives an approximation of the position of dictionary card use. The total of individual cards turned by each learner, excluding orientation use, is on the right, and orientation use is shown in a separate section to the left. The subjects are listed by rank order on the test scores, and divided into the three groups: L (low), M (middle), and H (high).

6.2.2 Orientation Uses of Cards in Individual Card Mode

Initially one or more cards of either dictionary (but predominantly A) may be turned, where the learner has the intention of providing himself with a general orientation or background to the task. This orientation may be focussed on vocabulary, or it may involve using other card types. The reasons given for turning the cards vary considerably. Let us look at some examples:

S21:L "To get a look at each type of card", turns one card from each set;

S33:L "Observing structure of dictionary", turns two B cards, then one A card to check a similarity to English hypothesis.

These Ss wish to see what the cards look like and the type of information given (although they have already seen them during the instruction period before the task).

Other subjects may wish to get an idea of what the vocabulary is like:

S35:L "Look at some words", turns three B cards then one A card to check;

S1:M "Looking at vocab first", turns three A cards.

Some subjects say they are 'learning', but continue in a way that suggests an orientation activity:

S3:M "Learning vocab", turns A1-7. However she continues by looking through the B set "Checking" and then reads all the C (Contextual) cards for "Gen. interest", before she starts "Learning" with D11;

S6:H does something similar. She says "Learn basic nouns" and turns B1-4, she then looks at C1 out of "Curiosity", starting on grammar by investigating the gru/stil distinction;

S11:M "Find out the name of an object", turns six A cards plus one B, the last three to check a similarity to English hypothesis;

S28:M "To associate forms with referents", turns six A cards.

The orientation use cannot be called a 'normal' Reference use of a dictionary, as there is no specific reason for selecting the particular card chosen, other than its physical position on the table, or possibly being attracted or intrigued by a picture. S1:M (mentioned above) constitutes an exception in that she looks for pictures of people, but this would still not be a normal reference use.

6.2.3 Learning Uses of Cards in Individual Card Mode

Within the learning part of the task (see 6.1 C for definition of learning), the dictionaries are used in individual card mode in a way which approximates to normal reference use of dictionaries. Reference is here defined as the use of a specifically selected card in order to aid the learner in accomplishing a task other than the learning of the vocabulary as such. For example, looking up an unknown word in order to be able to answer a question on one of the Examples cards (Set F). Most of

these uses occur during the early part of the learning measured in terms of sequence of card turnings, they are therefore in initial (i) or medial(m) position.

The reasons given for reference use of cards can be divided into two groups, translation and checking. Due to the form and constitution of the A and B dictionaries, these two reasons cover a variety of activities.

For SET A: Translation means finding a word for a picture which has usually been encountered on an Examples card. The picture is understood, so the activity in this case is translation from English to Novish (or L1 to Novish). If a picture is not understood, the process will be different, involving two translation processes. First translation from picture to Novish word using the A dictionary, followed perhaps (if the word cannot be guessed) by translation from Novish to English using the B dictionary.

: Checking is either checking that a particular picture is the one that relates to a word already understood, thus checking the picture, or using the picture to check that one's understanding of a word is correct. The latter process is equivalent to looking up an English word in an English - FL dictionary to see whether the expected translation is found. Another possibility is a spelling check, the picture dictionary would be easier for this if just one noun is sought.

For SET B: Translation means simply looking up a Novish word, again usually encountered on an Examples card, in order to find the meaning in English.

: Checking covers several ways of using these cards. To check a hypothesis as to the meaning of a word; to check the grammatical designation of a word; or to double-check ('make sure'), even though the word is thought to be known.

Finally, and this applies to both A and B cards, there are one or two instances of 'checking out' a card type by

looking at one card to see if it does have the expected information on the reverse, or to see what it looks like. These are more similar to orientation uses (non-selective), but they can occur later in the task with a learner who has not used a card type before and presumably wants to see how useful they are, or is just curious.

Some typical commentaries for the reference use of dictionary cards are:

S16:L "Look up 'x'"; S21:L "Meanings of words on card D1", "For picture on card F9"; S32:M "To translate"; S31:M "Search for 'x' in translation". These are all translation uses.

As examples of checking, there are commentaries such as:

S2:L "Check",; S9:M "Is keik in fact cake?"; S6:H "To check the meaning of sade".

There are also commentaries like S20:H "Learning vocabulary", which are opaque. However, by examining the context (preceding and following cards and their associated commentaries), it is usually possible to assign the use to either translation or checking.

Unfortunately this method is not infallible, and in a few cases the learner commentary appears to be at odds with the information available on the preceding card. For example an indication that the subject is translating, i.e. wants the meaning, following a card where, with a little thought, the meaning should be clear. My decision in these cases was to rely on the commentary rather than my own judgement, e.g. S4:M writes "Meaning of nu" having just looked at D11, where nu is clearly translated.

6.2.4 Reinforcement Uses of Cards in Individual Card Mode

This use is not relevant in individual card mode. Very occasionally individual testing instances do occur, usually in conjunction with a reinforcement use of a card set. For example S4:M turns four cards again after using the whole A set; S22:M turns A9 to test after using the whole B set.

6.2.5 Discussion

From Table 6.1 three features emerge which warrant discussion.

A The context of individual card turnings for L group tends to be different from M and H groups.

B The number of individual cards used is highest for the M group and lowest for H group.

C The L, and especially, M groups are more likely to have an orientation phase than H group.

A Context: with regard to the pattern of card turning, what one might expect is that following Examples cards (Set F), dictionaries would be used mainly for translation, as no translations are given on these cards, and that following Grammar cards (Set D), where translations are provided, dictionaries would be used mainly for checking. One might also expect that using a dictionary at all after a D card would be unnecessary, as the necessary information is available on the card itself.

(6.1)

Looking at the table/ we see that D (Grammar) cards followed by A/B cards occur most frequently in L group:

Group	Tot Ss	Used by	D→A/B	T'lation	Checking
L	10	5=50%*	9 15	6	9
M	11	2=18%	3 6	4	2 (i)
H	12	2=17%	2 3	1	2

* I am not very much in favour of using percentages with such small numbers of subjects, but I shall include percentages in the following tables/ ^(ii & iii) for the sake of comparison between the groups.

The implication that can be drawn from this is that some L learners are either not using the D cards efficiently or are finding them incomprehensible, which results in the following up of the D card with translation use of A/B (incidentally four of the five L learners who have the D+A/B combination are science students). Alternatively, it is possible that they are lacking in confidence and tend to check their understanding, which

gives the combination: D plus checking use of A/B.

If we take the F (Examples) card + A/B combination, we find most occurrences in M group:

Group	Tot.Ss	Used by	F→A/B		Translation	Checking
L	10	4=40%	4	9	9	0
M	11	8=73%	25	63	57	6 (ii)
H	12	5=42%	13	22	16	6

As expected most of the uses are for translation. The disproportion of F+A/B combinations in group M is a result of the fact that there are several learners in this group who approach the task inductively. They start from the examples on the F cards, translate using mostly B cards, and from the examples and the grammatical information (word class) on the B cards they are able to formulate the rules of the language.

(ii)
The table above / obscures considerable individual differences, nevertheless I feel that this kind of grouping can be worthwhile as it can reveal interesting trends in the data.

The D+A/B pattern shown in Group L can perhaps be of use in the attempt to discover why certain learners have been less successful in the task. The suggestion here is that this pattern may show lack of confidence in approaching the task or inappropriate use of the cards.

The F+B/(A) pattern predominant with M learners raises a different kind of question. It seems that learners favouring an inductive approach (discovery learning) are not so successful as learners who use a deductive approach (reception learning of rules). Whether this is attributable to the form of the task (i.e. the design of the cards, the way they were laid out, the type of information offered), to the nature of the task (i.e. the learning of structures), or the length of time allowed, or to other factors is impossible to say. However, the time argument may be relevant, in that discovery learning is known to take longer than reception learning, and

although Ss were offered more time, they may have felt a pressure to stop before they were finished to their own satisfaction. Thus one or more features of the task may have favoured the deductive learner. S9:M and S31:M give very clear examples of the inductive approach.

B Number: The list of totals on the right hand side of Table 6.1 shows differences between the rank groups in the number of dictionary references made. Subjects in L and particularly H groups use very few individual dictionary cards on average, while some M learners use a large number.

The high totals for M learners are a concomitant of the use of Examples rather than Grammar cards for grammar learning. Deductive learners, on the other hand, especially ones who make optimal use of the D and E cards, would not need to use A/B cards, except occasionally in conjunction with Examples cards in the later stages of their learning. And use of a dictionary set at some point in the learning would probably render even this minimal use unnecessary. The pattern of use shown by group H, the majority of whom rely on Grammar cards for their grammar learning, does suggest that they are using the various card types effectively, and do not waste time looking up words in the dictionaries. They are perhaps also more inclined to guess meanings, a risk-taking strategy, than the L learners whose somewhat greater use of the A/B cards may imply a cautious approach.

As an extension of the argument above, I wish to suggest that the 'middling' use of A/B cards shown by L group could be evidence of an inefficient deductive approach, made inefficient by ineffective use of the D cards leading to unnecessary use of the dictionaries. Secondly, it seems that more confident learners who are willing to take risks, are more likely to be successful.

(6.1)

C Orientation: The third tendency seen in the table/is the infrequency of an orientation phase in H group.

<u>Orientation</u>	L	5 out of 10 Ss (50%)	
	M	6 out of 11 (55%)	(iii)
	H	2 out of 12 (17%)	

A closer perusal reveals further differences. All six M learners use A (picture dictionary) cards for orientation before B (translation dictionary) or C (Contextual Information) cards. This is not the case with the other learners. It is possible that the choice of A, B or C cards reflects a difference in approach to learning, as B and C cards are more immediately informative and require less mental effort on the part of the learner.

With Set A the learner must first make the picture -> English word connection, before looking for the Novish translation. With the translation dictionary, Set B, as with A once the translation equivalence is established, hypotheses can be made about the vocabulary of Novish. By looking at C cards, the learner can hope to be given information, making hypothesis formation irrelevant. Thus a difference between learners who use A cards for orientation and those who prefer other cards, could be a preference for making their own hypotheses, working things out for themselves. It could also relate to a sense of economy of learning: the use of A cards for orientation (greatest in M group) being the least economical in terms of effort, the use of C being the most economical.

The lack of orientation in the H group would again support the suggestion that these learners are goal-oriented and efficient. S27:H and S13:H both look at C6 (Language Contact - Influences on Novish) first to check a hypotheses as to Novish/English similarity, this is just one card and a specific reason for turning is given, so I have not categorized these uses as orientation. Orientation users tend to look at several cards before a hypothesis is formulated.

As a general comment about orientation, it seems to me

that the lack of it could be taken as support for the suggestion that H learners have confidence in their ability to do the task, and in their learning strategy. The fact that the four lowest ranked learners have no orientation either, could confuse the issue, but I would argue that an orientation phase is evidence of a kind of strategic awareness not shown by these learners.

6.2.6 Summary

Several tendencies in the data can be seen from this analysis of the use of dictionaries in Individual Card mode. Taking the least speculative features first, we can see that:

Less successful learners appear to use dictionaries unnecessarily with Grammar cards. This suggests inefficient or inappropriate use of cards, and possibly lack of confidence and avoidance of risk-taking;

We also have clear supportive evidence for a division of learners into those who base their learning on rules (deductive - reception learning) and those who use examples (inductive - discovery learning), this is shown by differences in the pattern of dictionary card use. The latter (of whom many are in M group) make extensive use of Dictionary cards (especially the Translation Dictionary) together with Examples cards early in the task. The former use few dictionary cards;

The most successful learners make least use of the dictionaries, this indicates i) efficient use of Grammar cards, and possibly a guessing strategy as far as vocabulary is concerned, ii) that the most successful learners are less likely to pursue an examples-based learning strategy, where learners tend to make extensive use of the B dictionary.

On a more speculative note, the pattern of use of orientation phases, i.e. not used by the four least successful learners, nor by the most successful group of learners, could be interpreted as follows: orientation shows awareness of learning strategy (and one might expect the least successful learners to lack strategic

competence), but it also shows a need for a general introduction to the area, which could indicate lack of confidence or lack of experience in this type of learning (language learning/independent learning). Secondly the use of different types of cards in the orientation phase could indicate differences in awareness of, or attention to, learning efficiency, the use of Picture Dictionary cards seeming to be the least efficient method of orientation.

6.3 Dictionary Use - Card Set Mode: Orientation and Learning

Table 6.2: Dictionary Set Use (Vol.2, p.52) will be needed for reference throughout this analysis. This table shows all uses of card sets by position (i - initial, m - medial, f - final), and purpose (O - orientation, L - learning, R - reinforcement). The subjects are listed in rank order by test score and divided into the three groups (Low, Middle, High).

With this mode also, position is of little interest unless taken in conjunction with purpose. It will be seen in what follows that the interplay between position and purpose reveals differences between learners with regard to the overall strategy they adopt. What a brief look at position alone does reveal, however, is that there are differences between the rank groups.

Instances of Use of Card Sets A and B

<u>Position</u>	<u>i</u>	<u>m</u>	<u>f</u>	<u>Tot</u>	<u>No.of Ss</u>	
Group L	4	2	4	10	(10Ss)	<u>(iv)</u>
M	4	4	2	10	(11Ss)	
H	2	14	0	16	(12Ss)	

When the figures are adjusted for comparison based on 10 subjects in each group the following result is obtained:

<u>Position</u>	<u>i</u>	<u>m</u>	<u>f</u>	<u>Tot</u>	
Group L	4	2	4	10	<u>(v)</u>
M	3.6	3.6	1.8	9	
H	1.6	11.6	0	13.2	

(Note that i, m, and f positions cannot be taken as coextensive with orientation, learning and reinforcement uses. All orientation uses are by definition in initial position, and all final position uses will be for reinforcement, but learning occurs in both i (initial) and m (medial) position, and reinforcement occurs in both m and f (final) position.)

For the three groups, these figures show very different

position profiles for use of dictionary sets, and they suggest that the best use of sets can be made in medial position. H learners use more sets than the other groups. Also most of these set uses are in m position, whereas the L learners use more sets in i and f than in m, and their medial use is the lowest of the three groups. The position profiles of M and L groups are more similar to each other than to that of H group.

In itself this comparison may be interesting, but it is not particularly informative. It does show, however, that there is a difference between the groups as to the location and amount of a certain type of activity, dictionary set use, and this difference has implications for the usefulness of that activity for particular purposes in the middle of the task.

6.3.1 Orientation Uses in Card Set Mode

In Table 6.2 five subjects are shown as using dictionary sets for orientation, two in the middle group and three in the low group. In all these cases it is the commentaries in combination with position and the context of card turnings which have caused me to designate these as orientation uses.

S12:L, for example, begins the task with the sequence C4->C5->C6->C7 - "Get background", she then turns the A set - "Get some words", before D1 with the commentary - "Seemed as good a place as any to start". Thus it seems that the picture dictionary is used with the intention of orientation rather than learning.

S33:L, after looking at three dictionary cards, checks with E2 (gru/stil classification of nouns) before turning the A cards - "Getting a feel for the vocabulary and checking the similarity to English". He then proceeds by beginning a series of "studying Novish". Again this suggests an orientation phase with the dictionary, rather than learning. Although he does proceed from "looking" in the first three cards to checking a hypothesis with the set, he does not appear to be attempting to memorize the

words.

S21:L does something similar, using Set A to get a "general idea of the language" after initially looking at one card from each set and two maps (C1 & C2) out of curiosity. Again there is no evidence of memorizing.

S14:M also finishes her orientation phase with the A set - "Going through the picture dictionary", and makes various comments about the similarity to French. She starts the orientation with - "I just want to get an idea of what the language looks like".

S3:M uses the Translation dictionary (Set B) after starting off with A1-7. From her notes it looks as if she starts by trying to learn the vocabulary and then changes strategy by deciding to "Check" through the B set instead. She continues with all the C cards (Contextual Information) before starting "Learning" with D11 (grammar card). Because she seems to switch from a plunge into learning with the picture dictionary, to orientation with sets B and C, I have chosen to call the whole phase orientation.

Three of these five learners show a phase strategy, in that they indicate a conscious switch in activity from the orientation phase to learning with the following commentaries: S12:L "Seemed as good a place as any to start"; S21:L "To try to start getting sentences"; S14:M "Go on to grammar". S33:L and S3:M on the other hand, do not give a clear indication but instead move on to a new kind of commentary: S33:L "Studying"; S3:M "Learning".

I have given all instances in detail, as the idea of orientation using so many cards is rather dubious. One could suggest that as in four of the five instances the dictionary set completes the orientation phase, it could in fact represent a vocabulary learning phase in its own right. However there is no evidence that the four Ss have the intention of really memorizing the words. The similarities in the card turning patterns of these five Ss and in their commentaries, is the basis for my

decision to categorize them as I have.

As there are so few instances in the orientation and learning categories, I shall move on to the description of learning using dictionary sets, and then discuss both types of use together.

6.3.2 Learning Uses in Card Set Mode

As can be seen from Table 6.2, there are only four subjects who use dictionary sets very early in the task with the intention of learning the vocabulary, S5:L, S18:M (both sets), S6:H and S13:H.

S5:L uses a whole page of her protocol in listing the A cards one by one and her reasons for turning them. She does not go through them in order, but tries to group them in some way, "words for humans first" and "monosyllabic simpler words first". She writes, "Having learnt one column I go to the next one starting again with basic monosyllabic words", and at the end she revises a word she has forgotten. Clearly she is really attempting to memorize the vocabulary.

S18:M and S13:H also use the A set and write "Work through the dictionary", and "Learn vocabulary". This alone is not enough to show real attempted learning, but in their notes they list out all the words (S13:H with translation and card number in addition), which supports the learning interpretation. S18:M follows this by using all the B cards, because, as she writes, "Don't know anything but nouns". This is obviously a learning use, involving both checking and memorizing (for definition of learning see 6.1.C above, p.87).

S6:H, the fourth subject is more difficult to assess. She has an initial pattern of turnings reminiscent of S21:L (orientation use, see 6.3.1 above). However there is no clear indication of a break between phases after her use of the B set, and she writes "To learn some vocabulary". There are no notes which directly support a supposition of intended memorization, but there is an indication both

from her double-checking between cards (B6-gru and B14-mane) and from the fact that she stops at B24(still) in order to move on to D10: 'Rules for use of verbs - mane' (see Table of Card Turnings for card sequence), that she has been using the cards for some kind of learning or problem-solving process, and is looking at them rather carefully. I have therefore included S6:H as an instance of learning use. Like S18:M, she uses set B, and there may be a similarity in their way of using the cards.

The four subjects mentioned so far all use sets for learning in initial position, three among the first cards turned, and the fourth, S6:H, immediately following her orientation. There are three further learning uses by two learners, all in medial position, after grammar learning (S25:H), and in the middle of grammar learning but after extensive exposure to Grammar cards (S34:H).

S34:H uses both sets for learning, S25:H uses set B, and both subjects follow up with a reinforcement use of the the same sets. If we look at the Table of Card Turnings, we see that these two learners follow a similar general strategy, with S25's strategy as a more 'condensed' version of S34's. However S25 goes carefully through the set card by card then immediately checks or tests his learning using the set again, whereas S34 writes "Flash through A", "Flash through B", then "Matched and rematched A and B". This suggests that S25 is using 'depth' or 'length' of exposure, whereas S34 is relying on frequency of exposure, and possibly a concomitant self-testing procedure, but he also uses the sets again later, for revision.

6.3.3 Discussion of Orientation and Learning Uses of Dictionary Sets

Compared with the category of reinforcement, there are relatively few orientation and learning uses of the dictionary sets: 5 orientation uses (by four subjects) and 8 learning uses (by six subjects), as against 23

reinforcement uses (by 20 subjects). The orientation uses are of course in i position, as are 5 of the learning uses, with the remaining 3 in m position.

To use a whole dictionary set for orientation would seem to be an extravagant strategy, given that it quickly becomes obvious that the Novish vocabulary is very similar to English, and that structure learning is what was emphasized in the instructions. On the other hand, to use the sets for vocabulary learning at the very beginning of the task would seem not merely extravagant but possibly foolhardy, as, despite the similarity to English, memorizing 29 (B set) or even 19 (A set) words would entail considerable effort and mental strain (see discussion of Bruner, Goodnow and Austin, Ch.9, p.226ff). Therefore, any learner who feels more secure if he has a certain familiarity with vocabulary before starting on the structures of the language, would be well advised to opt for an orientation use, looking through the set without deliberately attempting to learn the words.

Of the four learners who do attempt initial learning of the vocabulary, one is the top scorer, S13:H. She is the youngest subject, and a first year chemistry undergraduate, all features which would be more likely to place her in L group. It seems that she is a gifted learner, and probably has a good memory, which would mean that for her, learning the vocabulary at the beginning of the task is a reasonable thing to do. S5:L, who tries to do the same thing, provides the alternative scenario, with a low score and a card turning pattern that suggests that she did not finish her intended activity (Table of Card Turnings). The vocabulary learning presumably took too much time.

Of the other two learners, S18:M is a special case. She has an unusual pattern of card turnings, going through all the cards in all sets in the order in which they are laid out. She appears to be a very fast worker with a very high total of cards turned. S6:H has a more

'typical' approach, but seems able to use the B set initially in a successful way, possibly without memorization.

From the evidence of these subjects I would still maintain that memorizing vocabulary at the initial stage of the task is extravagant and foolhardy, unless it suits the learner's own individual way of learning and his individual abilities, e.g. good memory, fast worker. It is certainly not a strategy which is suitable for many learners, witness its unpopularity and the fact that orientation uses are equally popular with those subjects who do embark early on a dictionary set. Some of these may first have intended to learn and then realized that it was an unsuitable strategy, e.g. S3:M (above 6.3.1).

S25:H and S34:H use the cards for learning in m position, which alters the picture. They use the sets after considerable exposure to the examples and translations on the Grammar cards, so their 'learning' is probably a mixture of revision or checking and learning (there may be a similarity to S28:M, whom I have included as a tentative reinforcement use, 6.4.2 B below, p.119). Because they used the sets twice, it seems reasonable to suggest learning rather than reinforcement as the intention with each first use. In these cases the memory burden is not so great as a result of previous exposure to the vocabulary, thus the strain factor is reduced, and in this position the use of a set for learning becomes more appropriate.

I would suggest that for the dictionary sets, the picture of orientation and learning uses presented by the data reveals a healthy avoidance of large scale memorization with its associated cognitive strain. This is in agreement with Bruner et al's experience of subjects' avoidance of strain in problem solving situations (1956:112).

The comments in section 6.2.5/6 regarding the relation-

ship between orientation and learners' confidence (that orientation may be a sign of strategically aware but inexperienced learners) are of equal relevance to the set use of dictionaries. But in addition there is the question of whether dictionary sets are suitable for orientation purposes. This depends on the learner and his needs. If he lacks background for foreign language learning in general (Ausubel's anchoring ideas and advance organizers, see Ch.9, p.241ff), or always likes a more general introduction to a learning task, an orientation phase would seem appropriate. As there is no obvious overall structural picture available along the lines of Ausubel's organizers, the next best thing would seem to be the B set. If vocabulary is a particular learner's first need, C6: 'Language Contact - Influences on Novish' would provide an organizer, and using a dictionary set would provide general familiarity.

Having looked at the minor uses of the A and B sets, we shall now turn to the major use, reinforcement.

6.4 Dictionary Use - Card Set Mode: Reinforcement

Within reinforcement I have three sub-categories, testing, revision, and checking, which are posited on the basis of different 'methods' (types of activity adopted by the learners) revealed by a close reading of the data. The reinforcement use in general is defined negatively in relation to the learning and orientation uses.

The decision to regard testing, revision and checking as sub-categories, and not as categories on a par with learning and orientation is justified by similarities in a) the position in which these types of Dictionary Set use are found in the data; b) the context of use, i.e. the preceding and following cards/the position in the learner's overall strategy; and c) the methods themselves.

As will be seen in the following description and discussion, there could be an argument for regarding the revision process as more akin to learning than to testing or checking. However considerations of position, context, and the learners' declared intentions have led me to regard revision as distinct from learning, though there are debatable instances, and similarities of position and context led me to include revision under the reinforcement category, together with testing and checking. In all cases the categorization as revision or checking is subjective, and I have used position, context, the number of cards turned, and the commentaries given in the learner protocols to inform the decision.

The interaction between position, context, and 'method' is fairly complex, and the labels employed by the learners for describing their activity are not always the same as my method/category labels. I seek to justify my decisions in the discussion.

For each Dictionary Set, I have classified each reinforcement use as testing, revision or checking, but

as the form which the method takes, the pattern of occurrence of uses, and the context, differ between Sets A and B, I will deal with each set separately.

The analysis is organized as follows:

- Section 6.4.1 definition of the three sub-categories of reinforcement;
- Section 6.4.2 description of the methods and their use for Set A and then Set B;
- Section 6.4.3 discussion and summary of reinforcement use of both sets;
- Section 6.4.4 description of context of use for Set A then Set B;
- Section 6.4.5 conclusion

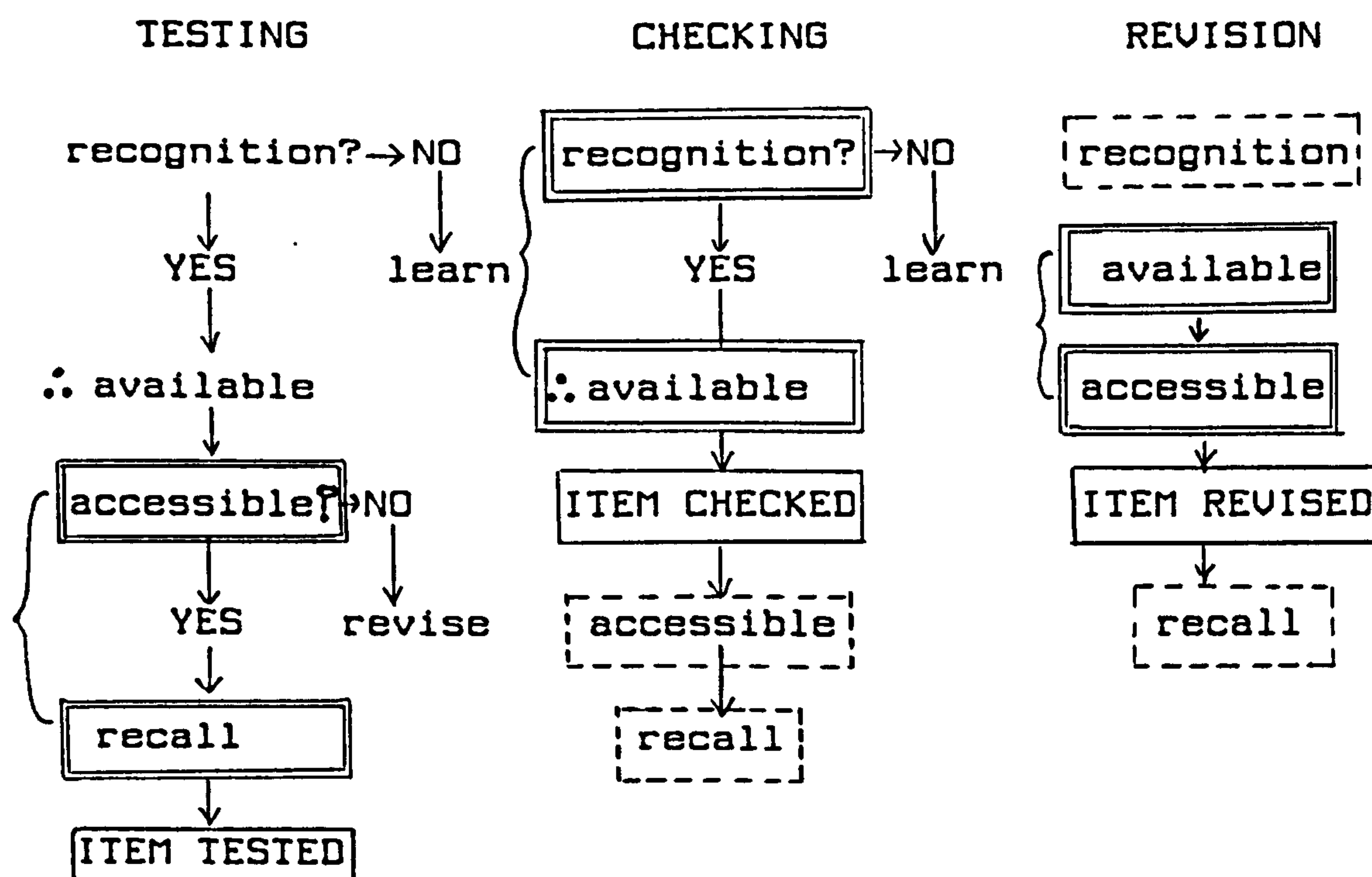
Table 6.3 (Vol.2, p.53) gives a summary of dictionary set reinforcement use by set, and is used throughout the analysis. On the left of the table all uses have been categorized as revision, checking or testing, and for each instance the number of cards turned is indicated. The Ss are listed in rank order by test score, and divided into the three groups, L (low), M (middle) and H (high). On the right of the table the context and position of set use are shown (see Section 6.4.4 re context).

6.4.1 Definition of Testing, Revision and Checking

As a means of introducing the description of the data and in order to provide a comparison between the testing, revision and checking methods, I shall suggest a simple model based on the recognition vs recall, and availability vs accessibility dichotomies. I use both dichotomies because, although essentially describing the 'same difference', the recognition/recall pair can be regarded as superordinate, in that they involve the input and output phases of the underlying mental activity, thus they denote processes. Whereas the availability/accessibility pair denote features of the data stored in memory, and do not imply activity.

A comprehension process involves the recognition (an activity) of a word or picture/word relationship, i.e. the proof of its availability in storage. And a production process involves gaining access to the available item and bringing it out of storage, which is recall. Recall (the activity) proves the availability and accessibility of stored items. (For discussion of these concepts, see Mandler, 1967:24ff.)

The following models are intended to show the focus of learners' intentions (I take intention as being conscious), and the way this differs between testing, checking and revision.



Double lines and a bracket indicate the focus of the learner's attention, what he intends. Dotted lines indicate an optional part of the process.

The intention with Testing is to find out whether recall is possible and thereby to test accessibility of the item.

The intention with Checking is to recognize and thereby test availability of an item, though the process may be

continued and recall may in fact occur. This is what I refer to as sub-conscious recall or translation.

The intention with Revision is to strengthen the availability and accessibility of an item. There may be a focus on the one or the other (comprehension or production) in the revision process, and with lexis one might expect a process of rehearsal to try and ensure accessibility of the item. This is possibly more likely in medial than in final position, due to time restrictions.

This model of testing, checking and revision in the context of the use of dictionary sets in this task arises from the data, and provides a simple way of comparing the three process from the point of view of learners' intentions. I do not intend it to be a complete or detailed model, nor do I feel that an investigation into its validity is possible on the basis of my data. It could however be of interest as a starting point for further hypothesizing and model testing.

6.4.2 Reinforcement Use

6.4.2 A Set A

Testing: a deliberate self-testing process is a conscious attempt to check one's ability to access and recall a word, given in this case the stimulus of a picture. Naturally this can occur only after learning, that is in m (medial) or f (final) position. The distinctive features of testing are that it is a deliberate strategy on the part of the learner, and that the focus is on testing accessibility by means of recall.

Only those set uses where the subject indicates clearly that testing is being done are included in this sub-category, e.g. S4:M "Test on words". Due to the format of the cards, testing would seem to be an appropriate method to use with Set A. It provides the opportunity to use the picture as a stimulus, and to recall the word before turning the card to see if the answer is correct.

On the basis of the card format and the pattern of card turnings, the following procedure can be suggested:

Look at card

1 if familiar

2 -> translate -> success 3 -> exit

3 -> turn card to check

-> no success 3 -> turn card to
revise/learn

1 if unfamiliar

2 -> (guess) 3 -> turn card to learn

(Brackets indicate an optional process)

At stage 1, the learner is checking recognition of the picture and availability in memory of the word for the picture. At stage 2, the learner attempts to recall the word, in other words he is testing whether it is accessible from storage. In stage 3, the learner, depending on results at stages 1 and 2, has a choice of turning the card or not. If he has been unable to recall the word, he will turn the card for learning purposes if the word is unavailable, and for revision if it is inaccessible. If the learner has recalled the word, he may turn the card to check correctness, or move on to the next card if he feels satisfied. One could suggest that the distinction between these last two choices is one of a risk-taking or confident learner (no check) as opposed to a more cautious learner (check).

From Table 6.3, we can see that 5 learners use testing with the A set. S4:M, S31:M and S27:H turn all the cards, S2:L and S24:H turn 4 and 3 cards respectively. They all state the intention of testing, e.g. "Going through picture dictionary to test words" (S31:M), except S27:H, who writes "about time to see how much vocab I remember". Her notes suggest that she is testing.

Revision: This is understood as a process of looking again in order to refresh the memory. This method could

not be used early in the task as revision presupposes previous learning. Similarly, revision would not be a selective process, and with the A set, the learner would need to turn all cards if he wished to be exposed to each word once again. Using this set is presumably not a particularly efficient way of revising vocabulary, unless the aim is also to reinforce the picture/word relation, as all cards would need to be turned, and the set does not cover the whole vocabulary of the language.

The main intention in revision is presumably not to test whether one knows the words (availability and accessibility), but to reinforce previously learned items in a systematic fashion by one more exposure. Of course one may also come across unfamiliar items. Revision is thus closer to learning than to testing in intention, but it is not the same as learning. One can suggest a dual purpose for revision. Firstly, to increase the stability of an item in storage, and secondly, in this task, to enhance the accessibility of an item by means of a recency effect, either prior to a testing phase in the task, or at the end of the task prior to the language test.

The following procedure is tentatively suggested, as there are no completely clear cases in the data of revision use with the A set.

Look at picture -> Turn card -> (Rehearsal of word)

The following learners are possibly revising:

S17:L, after a very brief testing phase, begins to look through the A set (apparently not completed), these are his final cards. The commentary in his protocol is "Learning some vocab". At this stage however 'learning' seems inappropriate, and the fact of his turning nearly all the cards as far as he goes (see Table of Card Turnings) leads me to categorize this use as revision rather than checking, though it could be a mixture.

S34:H's use of Set A with the commentary "Flash through" is opaque. It is immediately followed by a 'flash through' set B, and both set uses precede a practice and testing phase. Given its position, this use of set A may be revision, or some kind of checking.

S6:H looks at all the cards on initiating a testing phase in the task. She writes; "To check spelling and relearn the nouns I'd forgotten". Despite the use of 'check', this seems to be possibly a mixed revision and checking approach, though I have categorized it under checking.

The unpopularity of clear revision use for the A set supports the contention that it is an uneconomical way of revising, unless reinforcement of the picture/word relation is intended.

Checking: Checking could be described as conscious testing of recognition, as opposed to conscious testing of recall, which is testing proper. Thus checking is less stringent (and probably less time-consuming) than testing proper. The learner wishes to check whether the picture is familiar and the relevant word is available (known), without necessarily consciously desiring to recall the word (though there may be a sub-conscious production process).

The method seems to incorporate at least two possible procedures:

1 Look at picture->turn card->if word not familiar:learn

2 Look at picture->if familiar->(translate)-> exit
->if unfamiliar->turn card-> learn word

Procedure 1 is not selective (similar to revision), the learner turns all cards. The translation process (picture-> word) is most probably absent. The difference between this type of checking and revision is in the learner's intentions. With checking he wishes to either find out whether an item is known (available), or to make

sure that no items are unknown (unavailable). If unknown items are encountered, learning will take place.

Procedure 2 looks rather similar to testing, but is simpler, probably quicker, and there is no intentional production stage, though production may occur sub-consciously. The focus is on checking the availability of an item but this is a selective procedure, only unfamiliar cards being turned.

In Table 6.3 we see that checking is a relatively common procedure using the A set. Seven subjects have been categorized as using the set in this way.

Ss6:H and 30:H turn all the cards (procedure 1). S30:H is clearly checking "Looking for new words", whereas S6:H may be using mixed checking and revision (see above under 'revision'). S34:H who is categorized under revision may instead be checking (see above).

The other five subjects Ss15:L, 16:L, 20:H, 7:H and 25:H, use procedure 2, turning only some of the cards. Ss15:L, 16:L and 20:H all write briefly "Vocab" or "Learn vocab", but the position and turning behaviour suggest checking for unknown words, and testing is not mentioned. S7:H and S25:H are clearly checking: "Want a break from learning rules. Look at vocab I haven't assimilated through the examples" (S7:H), "Looking over picture dictionary pictures - one I want to find out" (S25:H).

It would seem that checking is an appropriate procedure with Set A, as a number of subjects use it. Where only some cards are turned (five subjects), it is a moot point whether recall of the words on the unturned cards is inevitable. I would suggest that recognition of the picture leading to recognition of the availability of the corresponding word is possible (see checking model 6.4.1), making recall unnecessary. It may be that sub-conscious recall does occur, in which case this is probably equivalent to recognition of accessibility, rather than real recall (actual production).

6.4.2 B Reinforcement Use: Set B

Testing: Conscious testing is not a method used with Set B. The procedure would be the same as for Set A (see 6.4.2 A, p.114), but of course the stimulus is the Novish word and the response would be an English translation. There is one case, S25:H, where the learner uses the B set twice in succession. The first time he turns the cards one by one, then he goes through them again to "see if I know them". This second viewing could be testing. However testing is not mentioned, so I have interpreted this second use as checking.

As this set has the Novish words on the front of the card and is also a larger set, and as it contains 'untranslatable' grammatical words such as ma, ta, ki, it would seem to be inappropriate for testing, a feature recognized by the learners, hence the dearth of testing uses.

Revision: Given the fact that this dictionary contains all the words needed for the task, and that both the translation and/or the grammatical category are on the reverse, it would seem an appropriate set to use for revision.

With Set B two revision procedures would be possible:

- 1 Look at word -> if understood-> (rehearse)-> exit
if not understood-> turn-> learn
- 2 Look at word -> turn-> (rehearse)

The purpose (refreshing/reinforcing memory) and position (medial or final) of revision would be the same as with Set A, but as the Novish word is on the front it would not be necessary to turn all cards.

There are five instances categorized as revision (see Table 6.3). S21:L states that he intends to revise and turns 5 cards (procedure 1). S14:M, S18:M and S34:H write

"as flash cards", "flicked through", and "flash through". This suggests reinforcement without rehearsal or recall. It is unclear whether they turn the cards or not, but they either turn all or none. A commentary like "flash through" with Set A (S34:H) will suggest turning, but with Set B as the Novish words are on the front, it is impossible to tell. The similarity of these commentaries leads me to categorize these three instances in the same way, as revision, as there is no indication that checking is intended.

The fifth learner S28:M indicates "economizing vocabulary learning" as his aim when turning the preceding card, C6: 'Language Contact - Influences on Novish'. But he writes "quick run through" for the B set. I have assumed that he turned all the cards, and as this use occurs in the middle of his learning phase, but after considerable exposure to the grammar cards (which contain translated examples) and reference use of A and B cards, it is difficult to know whether he intends to learn or revise. His use is similar to the first use by S34:H (see above 6.3.2 p.106), but he only uses the set once, which is my reason for including this use in the reinforcement category.

Checking: It seems from the data that for this set, unlike Set A, only one procedure is used for checking:

Look at word-> if familiar -> exit
-> if unfamiliar-> turn card-> learn

This procedure seems both sensible and economical. There may possibly be a sub-conscious translation process, but it seems unlikely, as recognition of availability implies comprehension, making recall of the English word unnecessary.

Of the four instances categorized as checking in the data (see Table 6.3), three clearly involve this procedure: S35:L turns only one card, "Checking whether I know words";

S30:H turns none, "To see if all words I'd come across - which they were";

S22:M writes: "Want orthography" and turns no cards. Afterwards he turns one B card to learn a word and one A card to test. Given this commentary, his intention would seem to be learning, however in this position (F) and with the following context where he writes "Want to check ideas", learning is unlikely.

The fourth subject S25:H (see under Testing above), may or may not have turned all the cards, though given that he has just looked carefully at them all once for learning, this seems unlikely. I have categorized this use as checking because of his commentary: "See if I know them".

6.4.3 Discussion of Reinforcement Uses of Sets A and B

Stepping back from the data a moment, we see that the analysis above clearly shows that learners are using dictionaries in a special way, as half of them have chosen to use a dictionary set for the purpose of reinforcement. Given that this is a free-learning task, this choice must be a strategic one, representing a use one would not expect with 'real' dictionaries.

Firstly, it is apparent that many learners desire/need systematic reinforcement. In this task, the A/B sets provide the most efficient and comprehensive possibility for such a systematic review of the language. Set A contains all necessary nouns, and its use presumably shows a concentration on vocabulary review, and perhaps consideration of the time factor as it is the smaller set (19 cards). The B set, on the other hand, provides a review of both vocabulary and grammar (up to a point), but is considerably larger (29 cards). From Table 6.3 we can see that for reinforcement in general, the A set is preferred, perhaps reflecting subjects' awareness of the time factor.

This use of the dictionaries cannot be compared with use

of dictionaries in a normal setting, but is more similar to possible uses of word lists. However, in my view this is irrelevant, the important factor being that it is the subjects' obvious desire for systematic reinforcement which leads them to use the dictionaries in this way.

Secondly, regarding the distinction between testing, revision and checking, the table shows a difference in pattern of use between the two sets: the Picture Dictionary (A) being selected for testing, and the Translation Dictionary (B) for revision, while both are used for checking, though the A set is preferred. The introduction of pictures could be a confusing factor, in that recognition of pictures is needed for the completion of the Examples(F) set exercises (F9-16). I would however maintain that nearly all the pictures are clearly recognizable and therefore learning/testing pictures is very unlikely to be the subjects' aim in using the A set.

I have already suggested that this pattern of Set Choice + Reinforcement Type shows a sensible evaluation of possibilities on the part of the learners, the sets being used on the whole with those activities for which they are most suited. This gives further evidence that set use for reinforcement is based on considered strategic choices by the learners.

No clear answer can be found to the question of why some learners choose to revise, and others to check or test. Nevertheless, certain tendencies in the data can be noted. These tie in with the number of sets used by the different rank groups, as seen in the introduction to the set mode analysis (6.3 above). There we observed that the H group has considerably more set uses than the other groups. In conjunction with Table 6.3 we can now observe further, that it is checking and testing uses of Set A which account for most of this difference.

A closer look at the distribution of these set uses reveals that the H-group B set users also use Set A for

checking(revision), whereas none of the other B set users do. Secondly, the two M group A set users (both testing) are the two top ranked subjects in that group. This investigation of the distribution shows that the most successful learners make testing or checking use of the A set (10 out of the 14 top ranked learners).

A further observation is that revision is not a popular use with either set, but that more instances occur in M group than in H or L, and these are using Set B. No other patterns of distribution can be seen, either in terms of numbers of sets used, or purposes for use.

Having found these patterns, it is necessary to look at position and context of use, in order to discover whether this apparent consistency of use by the most successful learners is a real one.

6.4.4 Context of Reinforcement Use

There is evidence in the data, from card turning order and the commentaries in the learner protocols, that most of the subjects divide their activity while doing the task into phases. Generally speaking, a typical pattern would be Orientation -> Learning -> Reinforcement, where orientation is optional. The fact that Ss consciously move from one phase (activity with a particular intention behind it) to the next is often indicated in the commentaries. Some examples are:

S29:H "Now I'll go on and test myself", the word now is quite frequently used as a kind of functional indicator;

S6:H "To practise what I've learnt", on starting a series of F cards;

S8:L "Start on examples";

S12:L "Seemed as good a place as any to start", she looks at D1, having already looked at four C cards and the A set for orientation.

There may also be sub-phases within the learning phase, for example repeated learn -> test cycles, or a period of practice.

The reason that this use of phases is of interest in the present discussion is that the reinforcement use of a dictionary set in all but one case (S2:L) occurs at, or marks, a boundary. This boundary may be between phases of activity, for example a checking use between learning and testing phases, or at the end of the task, for example a checking or revision use, to 'round off'. In some cases one or two cards are turned after this, but it is most likely that this only occurs because there is a little time left, e.g. S15:L, S21:L. Even with S28:M, who uses the B set in the middle of grammar learning, the use is a boundary, albeit of a different type, between use of D (Grammar) cards and E (Semantics) cards.

It is not possible to judge whether A or B set use is regarded as part of the preceding or following phase, or is seen as a separate phase in itself. However it does seem to fulfil a need for variation in activity, as S7:H

puts it: "Want a break from learning rules".

It is difficult to summarize the contexts of use of the sets, as so many variations are possible. I have nevertheless tried to generalize, which of course obscures some individual differences. The results of this generalization can be seen on the right-hand side of Table 6.3.

Reading Table 6.3 (right-hand side)

All set uses are coded as m(medial) or f(final). The context of use is shown in this form: L<>T, where <> indicates use of the set and L, T, C, P stand for learning, testing, checking and practice. These show the activities (phases of activity) the learner engages in prior to and following the A/B set use (i.e. the 'activity' context of set use). The comments column shows special contexts of use, and which cards are used in a post-set-use testing phase.

6.4.4 A Context of Reinforcement Use: Set A

There are 14 reinforcement uses of Set A, the majority by group H:

Set A Reinforcement uses L: 4 M: 2 H: 8

Taking groups M + H first, the subjects discussed above, a clear pattern of use can be seen. Nine of these ten subjects use the set in medial position as a boundary between a learning (or learning and practice) phase, and a testing (or practice and testing) phase. And in all nine cases, except S25:H (who also uses Set B), all Examples practice cards (F9-16), or all Examples cards (F1-16) are used in layout order in the following phase, with very few or no other cards (See Table of Card Turnings). Thus, the final phase represents an extended period of activity.

It is clear from the commentaries that the use of the A set here is seen by the Ss as a boundary between distinct phases, either as a rounding off of learning or a

preparation for testing (checking or revision use, or as the initiation of testing (testing use). Some examples:

S7:H for her checking use of set A she comments "Want a break from learning rules...", the following cards are introduced by: "Want to use more examples to test";

S24:H "Think I know th system now", he then checks two cards he hasn't turned, before he moves to the A set (testing) with "Going to test vocab I don't know". This is followed by "All examples to test memory";

S34:H "flashes through" both dictionaries (revision?), then writes "Gone through basics now to exercises". This is presumably a practice and testing phase as he uses all F cards, and then has a final test or check phase at the end using F9-16 again.

S25:H and S30:H have a somewhat different pattern from the other eight learners. Both use both dictionary sets. S25:H, however, follows the A set use with testing using F cards (this is shown by his notes rather than his commentaries, which include both "checking" and "self-testing"). The notes indicate that he is testing himself, even when using the F1-8 example cards. His testing process differs from the others in that he selects some items to test, and then moves on to "random, choices" rather than going through the cards in the table layout order. He also has a brief final checking phase.

S30:H, on the other hand, is the only one of these learners who has no clearly delineated testing phase. His checking uses of sets A then B initiate some checking, which is then broken off by a period of "light relief" using three C cards, followed by a return to "reinforcement". He is an experienced exotic language learner, and though there are phases in his activity, he does not make use of the final testing phase common to most successful learners.

The remaining four Ss who use set A for reinforcement are all in the lowest rank group (the four lowest scores). Two, S15:L and S17:L, use the set in final position, and

show no very clear phases in their work. An alternative explanation is that they ran out of time, and might have initiated a test/check phase given more time.

The third, S2:L, uses the set in medial position, but this is not a clear boundary use as she has already started practice with two cards, continues this after the set use with the same practice card, and follows this with some brief checking.

S16:L appears to be doing something similar to S30:H (see above), but there is less indication of intended pedagogical phases of activity, and the commentary "Idle curiosity" before turning all seven Context cards in the final stage of the task, in conjunction with his earlier pattern and number of card turnings (see Table of Card Turnings), suggests a rather desultory approach at this point. This could be the result either of over-confidence or of giving up.

These four learners, therefore, differ from the others in that their use of Set A is not followed by an extended systematic testing or checking phase, and that the phase structure of their activity is less obvious.

Thus, it is clear that the apparent similarity in reinforcement use of Set A by the most successful learners is real. This suggests that systematic checking or testing may be an important part of a conscious learning strategy, and that vocabulary reinforcement, if used, generally precedes/introduces structural testing or checking. Moreover, the variation in activity provided by this reinforcement use of Set A may also be important. This would support a suggestion that not only are certain types of activity important to a strategy, but that also variation is an important factor. This aspect is taken up again in the analysis of the Contextual cards (Set C - Ch.7).

6.4.4 B Context of Reinforcement Use: Set B

There are 9 reinforcement uses of Set B, and these are distributed more evenly among the rank groups than the uses of Set A:

Set B Reinforcement Uses L: 2 M: 4 H: 3

With regard to position and context of Set B use, we can see from the table that no pattern is evident. Both context and position are varied. However, these instances do have a feature in common with Set A: the boundary factor. They all represent a boundary, either

- a) between phases - S35:L, S14:M, S22:M, S30:H, S25:H, S34:H
- b) finally - S21:L, S18:M
- c) between use of card sets - S28:M

Some examples from the commentaries:

S35:L "Quick scan to see how much I understand" introduces his use of six Examples cards to check/test comprehension. This is followed by: "Checking whether I know words - don't know this one" for the B set. He follows this with random checking of three cards "See whether I find anything important". Here S35 finishes a systematic check and test phase by using the dictionary; S14:M, after learning, she looks through the B set (revision use), then says "Now checking 'self, testing, spot check for what's wrong".

Another feature of the B set uses is that none of them is for testing, and none initiate an ordered testing phase (using F1/9-16). Two of the nine uses are followed by testing + checking (S14:M, S25:H), and S34:H uses the B set between the A set and his testing/practice phase. A reasonable assumption is that as Set B is not really suitable for testing use, it is less likely to initiate a testing phase than Set A.

It is difficult to group the uses of the B set, but certain trends can be seen. Two subjects, one in L group and one in M group, use the set for checking in final position, S35:L and S22:M. The set use is preceded by

learning using all card types, and there is no clear testing phase although some testing does occur. This checking use of the B set is followed by, and is possibly the start of, a general checking procedure: S35:L "To see whether I can find anything important"; S22:M "Want to check ideas". S30:H could be grouped with these two subjects, although his use is nearer to medial than final position (see above), as he uses B for checking and then says "Checking through at random for bits and pieces that look interesting".

S14:M and S25:H (mentioned above) are using the set in a similar context, after learning and before a mixed checking and testing period, though S14:M appears to be revising vocabulary (looking through as "Flash cards"), and S25:H checking ("See if I know them"). They differ from the subjects above in that this is a clear medial position use.

The remaining three subjects use the sets in individual ways: two, as their final cards for revision (S18:M and S21:L - his last two cards are for using up the time), and the third, S28:M, for revision/learning in the middle of his learning phase, as a boundary between the D and E sets.

From this attempt to summarize the context of reinforcement use of the B set, it is clear that this set, while still providing a boundary, tends to be used in different and more individual ways than Set A. There is a greater tendency for final or near final use as revision or checking (five out of nine instances), and it is not followed by an ordered testing phase (except S34:H), but more often by checking or a mixture of testing and checking.

The use of this set, in contrast to Set A, does not seem to be symptomatic of a particular type of learner, or of the strategic awareness related to success. The only tentative correlation may be with learners who have a

checking phase, in the sense of looking for things they might have missed and double-checking problem areas (Ss35:L, 14:M, 22:M, 30:H and 25:H).

This observation leads to the following suggested interpretation based on the difference in constitution of the two sets:

While the use of Set A (vocabulary reinforcement) tends to be followed by the reinforcement of structures by other means (testing using the Examples cards - Set F), giving a systematic reinforcement of the whole language, Set B does not tend to be followed up in this way. The majority of learners who use Set B alone, or Set B in addition to Set A (except S34:H), use it as part of, or prior to, a non-systematic reinforcement phase, where Examples and Grammar cards are used for testing and checking. This difference could be related to the fact that use of the B set provides a review, not only of vocabulary but of grammar also. So having used Set B, the learner then has the option of selective review, involving only those structures he feels need reinforcement, instead of the systematic review of all structures advisable after Set A. The context data for Set B do support this interpretation, which shows, yet again, a general strategic awareness on the part of the learners.

6.4.5 Reinforcement Use: Conclusion

Taking this discussion of the context of Set B use in addition to that of Set A, my original suggestion about a systematic reinforcement phase needs to be altered. It would appear that reinforcement of both vocabulary and structure is regarded by many learners, and especially the most successful, as a necessary activity in language learning. However, learners seem to vary in their preferences as to how such reinforcement is achieved. In this task, we see some learners who prefer a systematic review of vocabulary followed by a systematic structural review using testing with examples (where the systematicity is provided by the materials). Others prefer a

systematic review of the whole language, (also materials-dependent), followed by selective reviewing activity using examples and rules, for testing and checking.

No correlations can be made with other features of learning strategy or with learner types at this stage in the analysis. However, in Chapter 10, where the different strands of the analysis are drawn together, we shall return to these observations and suggestions to see whether they have any implications for strategy types.

For now, the contribution of this analysis is as follows:

- 1) it provides evidence of strategic awareness on the part of the learners;
- 2) it suggests that a reinforcement phase (possibly testing) appears to correlate with success, and hence that the selection of certain types of activity is an important factor in learning strategy;
- 3) it shows that variation in activity may also be of importance to learners.

CHAPTER 7: THE USE OF THE CONTEXT CARDS (SET C)

7.0 Introduction

The set consists of 7 cards as follows:

- C1 Map of Nova Island
- C2 Language Map of Nova Island
- C3 Distribution of the Languages of Nova Island
- C4 History of British Influence and Settlement on Nova Island
- C5 Social Organization
- C6 Language Contact - Influences on Novish
- C7 Religion on Nova and its Influence on Novish

C1 and 2 are maps, C3-7 give information in text form. The cards are laid on the table in number order in one column with C1 at the top. (For copies of cards see Appendix 3B, Vol.2, pp.15-17.)

These cards were included in the task partly because they represent one type of information usually available to foreign language learners, and partly because Pask shows that some learners (redundant holists) wish to have access to contextual information which is not strictly relevant to the learning task, but which they use as a kind of mnemonic device. This suggests that they possibly make use of 'episodic' memory (informally structured memory based on temporally dated episodes or events - Tulving, 1972) to a greater extent than other learners. Such a tendency also points to the style dimension called levelling/sharpening (pp.9-10 above), where a 'redundant holist' (p.22 above) would be at the 'sharpening' end of the scale, both using and inventing contextual information as a memory aid.

Of the seven cards, C6 and C7 give information which is of direct relevance to the task. C6 introduces the gru/stil classification of nouns, and the singular/dual/plural categorization, and C7 provides the cultural background of the gru/stil distinction. None of the other

cards can be said to give information which is directly relevant or useful.

Table 7.1 (Vol.2, p.54) is needed for reference throughout the following analysis, and the Table of Card Turnings may also be useful. In Table 7.1, the subjects are listed in rank order by test score and divided into the Low(L), Middle(M) and High(H) groups. The table shows all uses of the Contextual Information cards, and gives an indication of their position of use. Each instance is also coded by reason for use. The total numbers of cards used are shown by subject and by card number on the right of the table.

7.1 A Brief Look at Learners' Selection of C Cards

The right-hand side of Table 7.1 shows the numbers of cards used and the total turnings for each card (bottom right). There are only 64 card turnings by 18 of the 33 subjects, which shows that the learners in general do not consider this type of information particularly necessary, and restrict their use of these cards.

Clearly, C6 is used most often, with C5 and C7 in second place, and surprisingly C2, a map. This pattern and the more limited use of C1, C3 and C4, shows that many learners are selecting cards carefully and restricting themselves to those cards which are most likely to contain useful general information about the language and its background. The use of both C1 and C2 is an anomaly which can only be explained by 'curiosity' overcoming 'commonsense', or by bad judgement. In the following analysis of reasons for use, we shall see that the selection of C6 (and to a certain extent C5 and C7) is related to a particular type of use.

7.2 Orientation Uses of Contextual Cards

Given the type of information on these cards, it would seem reasonable to suggest that those learners who wish

for an orientation at the beginning of the task would use C cards. This is however not the case. Of the 13 learners categorized as having an orientation phase (see Table 6.1, Vol.2, p.51), only six use C cards in this phase, whereas 12 out of the 13 use dictionary cards (S34:H uses only C cards). This presumably means that the majority of the learners were task-oriented, at least at the beginning, rather than topic-oriented, and realized that the C cards were unnecessary. If the language had been a real one, the situation might have been different.

The presence of five 'distractor' cards out of the seven, presumably led the majority of the learners to avoid these cards in the first stage of the task before they knew exactly how demanding the task would be and how much time they would need. C6 is nevertheless a very useful introductory card and both S27:H and S13:H turned it first in order to check which languages would be of use to them. S8:L and S34:H use C6 in a brief orientation phase, and all four Ss follow up this use by referring to other cards giving information about the gru/stil distinction and about singular/dual/plural.

7.3 Reasons for Use of C cards

The reasons given in the learner protocols for turning Contextual cards fall into three groups:

- i) Curiosity or interest
- ii) General background information
- iii) Specific check on information

i) Curiosity or Interest

Eleven Ss have looked at C cards giving one or other of these reasons. Some examples of associated commentaries are:

S16:L C1-7 "Idle curiosity";

S21:L C1-2 "Curiosity";

S14:M "Out of curiosity going to look up a C - most interesting C6";

S30:H C2-3 "Turned these as things that I would be

interested in if it was a real language" and "I like maps";

S13:H C5 "Interest".

S18:M writes "Have a look at info." and looks at C1-7. I have called this interest as it comes near the end of the task.

A feature that most of these uses have in common is that they occur near either the beginning or end of the task.

Apparently, looking at cards out of 'curiosity' occurs either when the S has more or less decided that he has completed the task and has a little time to use up (e.g. S2:L, S18:M, S30:H), or very early in the task, where it is likely that only one or two cards are turned with this reason given, the subject bearing in mind that the task has still to be done and time is getting on. Occasionally a subject turns a card in medial position, apparently for some light relief, e.g. S11:M C4 "For the heck of it".

As a result of these observations, I have chosen to categorize S3:M's use of the whole series at the beginning of the task as 'general background', although "General interest" is stated as her reason. This use is therefore shown as 'general background' in the table, but placed in parentheses.

ii) General Background Information

This can be seen as trying to obtain any information which may be of use in providing a basis for learning the language.

There are only three cases where getting background information is clearly the aim:

S12:L C4-7 "Get background";

S8:L C6+5 "General background";

S34:H C2,3,6 "General info.".

All of these uses are in an orientation phase.

There are four other instances where reasons like

"Background" S2:L (C2) are given, but the card chosen and the position in the task would be more likely to suggest curiosity or interest as the real reason. The subject is possibly giving a description of the card rather than his reason for choosing it. With S2, C2 is the final card. Looking for background information as an aid to learning at this stage would not seem particularly useful!

S14:M's turning of C5 in the middle of the final checking phase, with the commentary "Back to contextual information" would seem to resemble S2:L's use (above).

S11:M, having turned C4 earlier, turns the remaining six C cards after learning and before she begins a long self-testing phase introduced by the commentary "See if I've forgotten anything yet". She seems to use the C cards as a rest and self-imposed distraction (similar to counting backwards between the learning and recall stages of a word list learning experiment?), between learning and testing recall. She writes "To find out something about the context of the language", whether her reason is curiosity or intending to find useful information is not made clear, but again at this stage curiosity would seem to be more likely.

S21:L turns C7 as part of his orientation where he turns one of each card to get some idea of the card sets.

These four instances where the commentary suggests 'background' and the position suggests 'curiosity/interest', have been shown as 'curiosity' in the table, and placed in parentheses.

iii) Specific Check on Information

Where the subject has indicated that he is looking for the answer to a specific question or is checking a hypothesis, the instance of C card use is categorized as 'specific check'.

Some examples of the learners' commentaries are:

S15:L C6 "To see if there is any resemblance to Novish in another language";

S27:H C6 "To see if/how related to English";

S13:H C6 "See which languages help me";

S14:M C7+4 "Want to see if exceptions affected by religion and history" with reference to the gru/stil classification of nouns;

S2:L C5+6 "Reasons for E2 anomalies" re gru/stil again;

S6:H C5,6,7 "Try to find out why they classify their nouns into 'growing' and 'non-growing' things" gru/stil again.

C6 and C7 are the cards most often used in this manner, and the learners have one of two aims:

1) C6 is used by seven Ss to check the connection between English or other languages and Novish, (Ss15:L,28:M,22:M,4:M,27:H,30:H,13:H). In four of these cases, C6 is the only Contextual card used by the learner. Also in three cases the subject follows up the C6 use by turning related explanatory cards, e.g. D6-singular/dual/plural, E2/E3-gru/stil classification of nouns, D11-the verbs gru/stil. (For commentaries, see above).

2) There are three instances of Ss searching for a reason for the gru/stil classification (S2:L,S14:M,S6:H). Two of these directly follow the use of the gru/stil cards E2 and E3. (For commentaries, see above.)

7.4 Discussion and Summary

Of the 18 subjects who use Contextual cards (64 cards turned in toto), four, Ss16:L, 18:M, 3:M, 11:M, use all the cards, and three of these (possibly four - see re S3:M above) apparently with no task-related (general or specific) purpose. Four subjects (Ss15:L, 28:M, 4:M, 27:H) use only one card, C6, with a specific purpose, and the rest use cards for both task-related purposes and out of interest/curiosity.

Two of the four Ss who use all the cards, S18:M and S3:M, follow a general strategy of turning all the cards, set by set, and more or less in table layout order (see Table of Card Turnings). S18 uses the C cards at the end (interest) and S3 at the beginning of the task (interest/background?). The general strategy of these two subjects is discussed in more detail later in relation to their use of the other card sets. S16:L's strategy is also discussed later, and it would seem that his use of the C set is an indication either of over-confidence or of giving up on the task. S11:M, as mentioned above, uses the C set before her testing phase to provide what appears to be a period of relaxation or as a distraction.

In all other instances the learner selects particular cards for one of the reasons described above - curiosity, or task-related specific or general reasons.

A Closer Look at Curiosity

In seeking an explanation of this 'curiosity' behaviour, it is necessary to turn to the literature. Curiosity can be viewed either as a motivational variable or as a personality trait. Here, I shall look at it as a motivational variable as the voluntary recruitment to the task would imply a certain level of curiosity (personality trait) in all participants.

The motivational variable of curiosity is defined as the state of a person

"who has been aroused by a stimulus environment which induces a high level of uncertainty and who engages in exploration in order to gain information and reduce arousal." (Day & Berlyne, 1971:312))

Surprisingly, this definition could possibly cover the use of all the cards. However, if we assume that the Ss have undertaken to carry out the task out of general curiosity, but that within the task certain, apparently irrelevant, activities are to be investigated, it is here that a more particular curiosity becomes evident.

Day and Berlyne suggest two major responses to curiosity: specific exploration and diversive exploration, both induced by uncertainty and high arousal.

Specific exploration results from response conflict, i.e. uncertainty about the nature of a stimulus, and appears to be dependent on the nature of previous experience of similar stimuli. In an intellectual task, this would lead to a particular type of specific exploration, which Berlyne calls epistemic exploratory behaviour, whose aim is "to equip the individual with knowledge" (1971:313) and reduce "conflict about concepts and symbolic representations" (1971:314). This behaviour may be manifested as consultation of sources and/or directed thinking.

Diversive exploration, on the other hand, while still resulting from high arousal, occurs when the individual is searching for "stimulation in the form of entertainment and recreation" (1971:315), generally because the stimulation in the environment is not adequate for the individual's level of arousal (e.g. the environment may be repetitive, or homogeneous).

Given that the information presented on the Contextual cards is not necessary, and most often not even relevant, to accomplishing the task, it should be safe to assume

that some form of curiosity lies behind all uses of these cards. And Day and Berlyne's categorization of curiosity would seem to provide a useful framework for describing not only those C card uses classed under the reason 'Curiosity or Interest', but all uses of contextual cards.

Let us look at diversive exploration first. Instances where the Ss select C cards in the middle or near the end of the task with the declared reason of curiosity or interest, or with such commentaries as "For the heck of it" (S11:M), or "For a bit of light relief" (S30:H) would seem to be diversive (seeking "entertainment or recreation"). A reaction perhaps to the growing familiarity both of the language and of the format of the cards the learner has been working with.

Specific exploration, on the other hand, could cover instances in all three reason categories, the degree of use of C cards possibly depending on the degree of uncertainty of the subject. Day and Berlyne suggest that the degree of response conflict depends "upon the nature of previous experiences with similar stimulations" (1971:313), and that

"The strength of response conflict determines the strength of the exploration which reduces the conflict. Unimportant specific curiosity...may induce only slight arousal and casual exploration. A meaningful situation with a high level of uncertainty...will probably induce intense exploration." (1971:313)

From Table 7.1 we can see that in general the use of C cards is greater for the less experienced (language) learners, even when all apparent diversive uses are omitted (i.e. all medial/final curiosity uses + S11:M). 3 of the 9 Arts PG subjects (Ss22-31) each use one card (C6) for specific exploration, and 1 of the 4 Science PG's uses three cards (S34:H). In contrast, the undergraduates (Ss1-21) use considerably more cards in this way:

Arts UG: 15 cards by 4 out of 11 subjects
Science UG: 14 cards by 5 out of 9 subjects

This observed difference in frequency of use by the different groups of learners would support the idea of specific exploration, and hence curiosity, as a motive factor in the use of Contextual cards. The less experienced the learner, the more uncertainty he feels, and the greater the degree of specific exploration behaviour shown. The fact that many of the less experienced learners do not use C cards at all would appear to argue against this interpretation, but could be explained by a fear of wasting time overcoming curiosity.

Conclusion

As a result of this discussion of curiosity, the data appear in a different light, where all uses of Contextual cards can be seen as motivated by curiosity. The curiosity results in either a search for information, called specific exploration, or a search for stimulation and entertainment, called diversive exploration.

The use of C cards does seem to fit well into this division, with variations in the number of cards used being related to the experience of the learner. It appears that more cards, and possibly less relevant cards, are turned by less experienced learners, indicating a higher level of uncertainty, and possibly an inability to focus their search for information.

An attempt to tie this interpretation into the cognitive style/strategy theories mentioned in the introduction to this chapter, produces no clear result. The search for information by specific exploration could be interpreted as a holistic tendency; the learners are searching for further more general and explanatory information which could help them obtain an overview of the structure of the area of knowledge, and could render concepts more memorable. Alternatively, one could suggest that seeking specific information from cards such as C6 and C7 in order to extend knowledge, might suggest that the learner is attempting to 'understand' in Pask's sense. In this case, saying the learner displays curiosity, becomes the

equivalent of saying he is seeking 'understanding'. However, neither of these interpretations can be proved.

At this stage in the data analysis, it is impossible to show 'typical' FLL strategies across individuals, or to describe idiosyncratic individual strategies. Strategy descriptions can only be built up when regularities and differences in the use of each card set are combined. But features of the use of each set must be noted before this combination can be effected.

For the Contextual cards certain features can be noted:

- 1) The number of C cards used varies considerably between learners, who can be divided into three groups. Ss who use no cards, or only one or two cards for the purpose of answering specific questions; Ss who use the whole set for 'recreation' or for background information; and those who use a few cards for a variety of reasons.
- 2) Less experienced learners are more likely to make greater use of Contextual cards.

It remains to be seen whether the suggested interpretations of holistic tendency, attempted 'understanding', and inability of less experienced learners to focus an information search, are upheld in the analysis of the use of other card sets by the same individuals. The interpretation of all uses of Contextual cards as motivated by curiosity, also raises the question of whether any other differences appear between learners who do, and do not, use these cards.

In the final integration of the observations made in the analysis of all the card sets (Chapter 10), the interpretations suggested here will be taken up for reappraisal. At that point, it may be possible to judge whether the use of Contextual cards does contribute to, or is indicative of, particular types of strategy, and in what way the two uses, specific and diversive, contribute to the learning process.

CHAPTER 8: USE OF THE EXAMPLES (SET F)

This chapter is organized as follows:

Section 8.0 the introduction, gives a general description of the card set and some general features of card turning and purposive activity on the part of the learners, which are of relevance to the analysis;

Section 8.1 describes the approaches taken to the analysis of the data, and some general learning approaches;

Section 8.2 presents the framework for the analysis, describing the types of data used, the features of F card use that arise from the data, and the categories I have defined to enable a description of these features;

Section 8.3 presents the analysis of the data, using the categories described in Section 8.2.

8.0 Description of the Card Set and Introduction

The Card Set

Within this set there are two sub-sets of different types of card, the F-examples cards and the F-practice cards.

(See Appendix 3A, Vol.2, pp.2/3 for full list of cards.)

F Examples (Feg) Cards

These cards are numbered F1-8 and give access to examples of a particular structure when the learner turns the card. The structure exemplified on the reverse is named on the front of the card.

Example

EXAMPLES OF NOVISH

F :

QUESTION AND
SHORT ANSWER
Negative response

(gal)



Ki sade mane pokit?

Nu, gru.

(bukh)



Ki sade mane poi ta?

Nu, stil ta.



(kuh)

Ki sade mane hus?

Nu, gru.

(pom)
food



Ki sade mane tre ma?

Nu, stil ma.

F 7

F Practice (Fp) Cards

These cards are numbered F9-16 and are designed to be used for practice or testing, there is an exercise on the front of the card (writing a sentence from a picture stimulus or answering a question), and the required response is on the reverse.

Example

EXAMPLES OF NOVISH

F :

	<u>QUESTION</u>	→	<u>SHORT ANSWER</u>
	1 <u>Ki sade mane pooni ta?</u>		1 <u>Nu, stil ta.</u>
	2 <u>Ki sade manena kuh?</u>		2 <u>Nu, stil.</u>
	3 <u>Ki sade manena gilaa?</u>		3 <u>Nu, gru.</u>
	4 <u>Ki sade mane pokit ma?</u>		4 <u>Nu, gru ma.</u>

F 15

(See Appendix 3B, Vol.2, pp.26-33, for copies of all cards, these are shown together in Feg + Fp pairs.)

Throughout this chapter I shall use Examples to mean F cards in general, Feg to refer to F1-8, and Fp to refer to F9-16.

The cards were laid out in three columns on the right-hand side of the card array. Each F-examples card (Feg) has a corresponding practice card (Fp), and these were laid out in pairs with the practice card following the related examples card in the column. Therefore, although the practice card does not specify the structure required in the response other than 'Long Answer' or 'Short Answer', the learner can see what is required, if he so wishes, by looking at the card above in the same column. It is also quite easy to see which type of card it is from the format of the front. (See Appendix 3C, Vol.2, p.34, for diagram of layout.)

Before analysing the data, it is necessary to point out that for all learners there is an interplay between the use of Grammar(D) and Semantics(E) cards (referred to collectively hereafter as Grammar), and the use of Examples(F) cards. Whether these two types of cards are used in blocks of unbroken sequences of the same card type, e.g. DDDDDDDDDDDFF FFF FFF F, or are alternating, e.g. DD FDFD FDD FDF, whether the learner starts out from Examples and then moves to Grammar or vice versa, and so on, is a reflection of the learner's overall approach. This means that the analysis of the Examples set of necessity brings in references to Grammar card use and to learner strategies in general.

There are two general tendencies in the data which deserve mention as being of importance to the analysis of Examples cards: the use of 'phases' of purposive activity by the learners, and the general pattern of use of Examples and Grammar cards. These are described below.

Macro/Microstrategies based on Learner Purposes for Card Use (Phases of Activity)

There are two data sources, the learner protocols, which give two types of data (the commentaries and the sequence of card turnings), and the learners' notes. From these, a pattern of purposes for card use emerges, such that activities with a particular purpose tend to occur in a certain sequence. This sequence seems to be both natural in that some activities cannot take place before others, e.g. revision cannot occur before learning, and conventional in that, for example, revision occurs before testing. The sequence can be stated as follows: LEARNING ---> EXPOSURE TO EXAMPLES ---> PRACTICE ---> (CHECKING) ---> REVISION ---> TESTING ---> (CHECKING).

These sequential activities can occur in two different ways. Firstly, the sequence may support a macrostrategy of phases of activity, where each phase consists of a series of cards of the same type, or of different types, all turned for the same purpose. Secondly, it may be a

recurring sequence, where each purpose for use will occur with only one or two cards, and in this case the sequence of activities supports a microstrategy. The microstrategy only occurs within the learning phase of a macrostrategy and may be followed by further phases, for example a testing phase or a checking phase where several cards are used for the same purpose.

It must be pointed out that this sequence of purposive activities is a construct from the data, no learner uses all activities as a macrostrategy or microstrategy, but whichever of these activities do occur are generally performed in the stated sequence. Nor is it the case that a particular card set is used exclusively for one purpose, or that for a particular purpose only one card set is used.

There are some tendencies, for example testing will usually be done by using Examples cards or a whole set of Dictionary cards, similarly practice is almost exclusively the domain of the F-examples (Feg) cards. But there are also purposes for which different card sets may equally well be used, for example revision, checking, hypothesis making. In Section 8.2.2 below, I shall describe in detail the use of Examples cards for the purposes mentioned above. I shall attempt to define the labels used in terms of the learner's cognitive activity, his actual procedure in using the card and which sub-set of the F cards would be most suited for each purpose.

The Pattern shown in the Table of Card Turnings

Even a brief glance at the Table of Card Turnings reveals that Examples (F cards) tend to be used in the latter part of the task, and Grammar (D and E cards) tends to be used earlier in the task before the F cards. This tendency is especially clearly seen in the H group of subjects. Hence, a 'typical' learning strategy is grammar learning using D & E cards, followed by use of Examples cards for practice, revision, and so on. There is only one subject (S32:M) who actually reverses the use of card

sets, starting with Examples and finishing with an unbroken sequence of Grammar cards.

It is equally clear from the table that not all Ss pursue this 'typical' strategy. There are some who use Examples throughout the task, with only occasional reference to Grammar cards (e.g. S31:M, S24:H). Some of these Ss are using F cards as the basis for their grammar learning, developing hypotheses from the examples and then checking them by reference to the Grammar cards. Others seem to regard Grammar cards as the place to gain information, but wish to see relevant F cards immediately in order to check their understanding and increase the number of examples to which they are exposed (remember there are also examples on the D cards). These two approaches produce similar alternating sequences of D/E and F cards, which usually merge into a continuous sequence of F cards towards the end of the task.

At this point it is necessary to remind the reader again that the Table of Card Turnings is not the complete data. And while the sequence patterns visible in this table can be suggestive of tendencies, similar patterns can sometimes mislead by masking radical differences in the way the learner is using individual cards.

Summary

In this introduction, I have described a sequence of purposive activities which can be seen throughout the data, and suggested that this sequence is the basis of a general learner strategy with regard to phases of activity while doing the task. I have also mentioned the general patterning of card turnings to be seen in the Table of Card Turnings. Neither of these aspects of the analysis of the data rely solely on the inspection of the use of Examples cards. The importance of Examples can only be seen if they are placed in their context of use (i.e. in the context of which type of card precedes and follows each F card use). As a consequence, the general nature of the descriptions in this and the following

section is a necessary preliminary to a more detailed analysis of the use of Examples cards themselves.

The tables used in the following sections are to be found in Volume 2, pp.55-60. All tables for this chapter are prefaced by the chapter number (8).

8.1 Approaches Taken to the Analysis of F Card Use

The analysis of when, why, and how the Ss used Examples was approached in two ways, qualitatively and quantitatively. Both approaches showed a general division of learners into types.

8.1 A: The Qualitative Approach

First, all protocols and notes were read and the reasons for using F cards were noted for each learner, together with their position of use in relation to Grammar cards (D+E), and the numerical sequence of the F cards. This resulted in a division of the Ss into learners who based their learning of structures predominantly on the use of Grammar cards, I shall refer to this as Rules-based learning, and learners who based their learning of structures predominantly on the use of Examples cards, I shall refer to this as Examples-based learning. Both types of learner are attempting to learn the grammatical system of Novish. However, whereas the Rules-based learners use the D/E cards to get information and learn rules, and F cards are used for other purposes (practice, testing, etc.), Examples-based learners learn the grammar through the F cards, only referring to D/E cards to check hypotheses and for help when they cannot discover the rule. They also use F cards for the other purposes (practice, testing, etc.).

This is a description of two types of learning shown by the data, and it is the case that the majority of the Ss use one or other type of learning. There are however instances of switching from one type to the other. For

example S30:H and S27:H both start with brief exposure to basic grammar rules from the D cards, and then switch to an Examples-based learning approach. S32:M, who is mentioned above as atypical, starts with an attempt at Examples-based learning and then switches to Rules-based learning. There is evidence, in fact, that this S is having difficulty in finding a suitable strategy for doing the task, whereas the first two Ss seem to switch deliberately as part of their planned approach to the task. There is also evidence that some subjects appear to use a mixture of the two types of learning, often with a preference for one or other type, e.g. S4:M (see p.181/2 for details). Learners who do not appear to have a predominant learning approach have been referred to as Uncategorized.

8.1 B: The Quantitative Approach

As an alternative, a quantitative approach to the analysis was also tried, where all instances of use of D+E cards and of F cards were counted. Other types of card were ignored. Each sequence of the same type of card was counted and the total noted, counting beginning again when the card type switched from D/E to F, or vice versa. Counting was also recommenced whenever, in terms of a macrostrategy, the purpose for using a particular card set changed.

Table 8.0 shows the result of the quantitative approach. In the Table, the Ss are listed in rank order and divided into the three groups Low(L), Middle(M), High (H), numbers of D+E cards are entered in bold and of F cards in ordinary type. Each number represents an unbroken sequence of one type of card, and the totals for each type of card are in the right-hand column.

The table shows that some learners have periods of Grammar card use early in the task, with long unbroken sequences of D+E cards. These have been circled in the left-hand column of the table. Where a sequence is only broken by one F card it has been counted as unbroken and

the two figures have been circled and linked by a line. The shortest sequence included is eight cards (S7:H). Other learners have no unbroken sequence of more than three D+E cards, and they frequently switch between card sets. Also the Ss with long sequences of Grammar cards tend to have used more grammar cards in toto than learners with only short sequences. These features are most clearly seen in H group.

This difference in card switching behaviour, long initial sequences of Grammar versus frequent switching between card sets with less use of D/E cards, coincides with the two types of learner defined by the qualitative analysis. Those Ss classed as using Rules-based learning are those with long unbroken sequences of D+E cards, those classed as Examples-based are those with the frequent switching between card sets and no long sequence of D+E cards.

Some subjects could not be clearly placed by the quantitative analysis as having an unbroken early sequence, or as switching frequently: S15:L, with a sequence of 11 D/E cards broken by two F cards; S21:L, longest D/E sequence is five cards; S28:M, longest D/E sequence is six cards; S32:M, eight card D/E sequence at the end of the task; S4:M longest D/E sequence is four cards. S15:L is shown by her commentaries in the learner protocol to be using mainly Rules-based learning, while the other four Ss cannot be clearly identified as using predominantly one or other approach to learning, even by examining the protocols. The only subject where the quantitative analysis provides an incorrect classification is S7:H (who has an eight card D/E sequence). The qualitative analysis shows her probably to change learning strategy from Rules to Examples.

Summary

Although counting instances of card use is not sufficient as a basis for analysis of these data, as it may obscure individual differences, it seems to be useful in supporting the suggestion of general learning approach

differences which results from the qualitative approach. The Rules-based learner's pattern of card turning is shown to differ substantially from that of the Examples-based learner.

However, in order to make use of the numerical data, it has been necessary to concentrate on the use of D/E cards rather than Examples cards. If we look again at Table 8.0, at the Grammar card totals, we can see that the totals which are circled, indicating the Examples-based learners, are the lowest in the table (except S27:H), whereas the F card totals show no such pattern. Similarly, in terms of distribution, F cards may be used throughout the task by both types of learner, and long unbroken sequences of F card use may occur with either learning approach. Whereas it is the long initial sequences of D/E cards which can distinguish between types of learners.

Thus, while this description of the results of the quantitative approach can give support to the learning approaches suggested on the basis of the general qualitative analysis, it is only of relevance to the more specific analysis of the F cards in a negative way. It tells us that quantitative analysis of Examples cards alone does not provide us with information which can help us distinguish between different ways of learning. Only by looking at the switching between Examples cards and Grammar cards can relevant information be obtained.

Recapitulation of Sections 8.0 and 8.1

In Sections 8.0 and 8.1 above, I have sought to set the scene for the analysis of the use of Examples cards. By way of introduction, I outlined the general sequential pattern of purposes for card use seen in the data, and the way in which this sequence forms the basis for learners' micro/macrostrategies with regard to phases of activity while doing the task. The clearly seen patterns of D+E and F card turning visible in the Table of Card

Turnings, were also pointed out.

Then the two approaches to the analysis of Examples cards were described. From these it was seen that the results of the quantitative approach support the general finding of the qualitative approach, that the subjects tend to use one or other of two learning approaches, which I have called Rules-based learning and Examples-based learning. With both the qualitative and quantitative approaches, it was necessary to look not only at Examples cards but also at Grammar cards. However, whereas in the quantitative approach the analysis of F cards alone does not yield any useful information, in the qualitative approach, the analysis of the use of F cards, both alone and in conjunction with D+E cards, gives valuable information as to the subjects' strategies in doing the task. The framework for this qualitative analysis of the use of Examples cards by the learners is described in the next section, 8.2.

8.2 Framework for the Qualitative Analysis of the Examples Cards

This section is divided into two parts. The first presents the categories I have devised for the analysis of the data. The second expands the category of purpose, which is introduced in the first part, giving definitions of the activities the learner engages in when using Examples cards.

In order to give a comprehensible account of the data and to show the strategic relevance of F card use, I have attempted to generalize, at the risk of misrepresenting some individual instances and omitting some detail. However this is necessary, if the strategic patterns which are present are to be shown clearly and not submerged in a sea of minor variations.

8.2.1 The Types of Data Analysed and the Features of F Card Use Shown by Each Type of Data

From the learner protocols two types of data can be analysed:

A the Learner Commentaries, where the subject gives his reason for turning each card; and

B the associated listing of card numbers, for which I shall refer to the Table of Card Turnings;

The third type of data used in this analysis is

C Learners' notes *

The features of Examples card use which are shown by each type of data will be described in detail below. The fact that the data are complex, and that many features occur in combination, makes it necessary to give an extensive description in order that the actual analysis may be comprehensible.

8.2.1 A: The Learner Commentaries

In their commentaries the Ss give a variety of reasons or purposes for using Examples cards. Some of these never occur with Grammar cards, for example 'testing',

'practice', 'exercises', others are equally applicable to Examples and Grammar, for example 'learning', 'hypothesis testing/checking', 'checking', 'revision'. The problem with some other commentaries, such as 'look at' or 'go through', is that they are opaque. It is not really possible to divine precisely what the learner is doing or intending to do. Similarly, even with some of the purposes which are apparently clear in meaning (e.g. 'revision', 'practice'), the notes the learner makes, and the sequence in which cards are turned, suggest that this is not the activity being pursued by the learner.

This problem is partly one of definition of terms, and as a result, I considered it necessary to attempt precise definition of the terms which have been used by the learners. These definitions were then used in order to categorize by purpose the instances of use of Examples cards found in the data. The purposes defined are: hypothesis making, exposure, practice/exercises, revision/reinforcement, testing, and checking. Note that learning is not included. This word will be used in its conventional non-technical sense and covers any activity the learner undertakes while he considers that his learning is not yet finished. The detailed definition of the purposes is to be found in Section 8.2.2 below.

The multiplicity of purposes given, and the fact that some purposes can be the same as for Grammar card use, mean, as stated before, that in this analysis it is often necessary to look at Grammar card use also. The manner of using cards from different sets differs as the type and format of information presented differs. But this does not alter the fact that the learner's purpose, for example learning a particular grammar rule, may be the same for both Grammar (D/E cards) and Examples (F cards). This is one of the factors that complicates the analysis of F cards, as it allows the use of Examples at any point during the learning phase of the task as well as during testing and checking phases, etc.

8.2.1 B: The Table of Card Turnings

From this table, which presents the listing of cards turned by each learner as given in the learner protocols, there are three features of card turning order which will be examined.

- 1 Block Use and Integrated Use
- 2 The Sequence of F Cards
- 3 Set/sub-set Use and Number of Cards Used in a Series

8.2.1 B1: Block Use and Integrated Use

I have defined the block use of cards as:

the use of a sequence of same type cards for the same purpose

e.g. a block of D cards for rule learning (S26:H), a block of F cards for testing (S7:H - F9-16 at the end) or for regularly switching purposes:

e.g. S18:M a block of F cards alternating between exposure to examples (Feg sub-set) and practice (Fp sub-set).

An integrated use is where:

different types of cards are used in close succession and possibly for a variety of purposes

e.g. S9:M who uses Examples cards for hypothesis making and exposure, alternating with Grammar cards used for checking and learning rules.

An Examples block may be broken by reference to Grammar or Dictionary cards for help. A Grammar block may be broken by the use of an F card for further examples, or by Dictionary cards for reference. It is difficult to set numerical limits to what constitutes a reasonable number of references to other types of cards before the block can no longer be regarded as a single block. For F blocks, I have decided to accept any number of individual dictionary references (A/B cards), as these do not indicate any change in purpose, and up to three Grammar references (D/E cards), as none of those Ss who, from the purposes given in their commentaries, appear to have a definite block of F card use exceed this within the

block.

Block uses generally coincide with phases of activity in the task, and thus with phases in a macrostrategy.

Where Examples are used as the basis for learning (Examples-based learning) in the learning phase of a macrostrategy, even though reference to D/E cards may be limited, e.g. S31:M, S9:M (see Table 8.0), I have not chosen to describe this as a block use, as the purposes for which the F cards are used tend to vary in an irregular pattern, and reference to Grammar cards always exceeds three instances, e.g. S24:H, S30:H (also other circled Grammar totals in Table 8.0). This integrated use of cards at the beginning of the task may indicate that the learner has an Examples-based learning approach, but does not necessarily do so. The learner may be using a Rules-based approach with occasional reference to Examples, he may have a mixed approach, or he may change approach.

8.2.1 B2: The Sequence of F Cards

Within an F block, or throughout a phase of activity, the Examples cards may be used:

in series

(i.e. numerical order, e.g. 9,10,11,12..., or table layout order, e.g. 1,9,2,10,3,11...)

or in selected order

i.e. random order numerically speaking, e.g. 5,9,3,16...)

This feature is also of importance in interpreting the data. By looking at the numerical sequence in combination with block or integrated use, it is possible, for example, to refine the description of an Examples-based learner's overall strategy in learning the structures of the language.

I shall take S9:M for exemplification (see Table of Card Turnings for list of cards). This is an integrated use and the Examples are used in series in table layout order

(1,9,2,2,10,3,11,4,12,5,13,6,7,6,8 - alternate use of Feg and Fp cards). This tells us that S9:M is using the syllabus suggested by the materials, rather than a syllabus of his own. Also, by looking at the associated commentaries, we learn that he is working with a recurring microstrategy of learning (inducing) a rule from an Feg card, followed by testing himself for knowledge of that rule by using the related Fp card. There is also an indication that he runs out of time towards the end as he omits the testing.

S31:M by comparison, although she is another Examples-based learner with integrated use of cards, uses a selected order of F cards in her learning phase (12,12,16,16,16,12,11,13,14,15,7,8,1,9,2,10), therefore she is following her own syllabus. A closer look at the actual order of F cards and the associated commentaries reveals the structure of her syllabus. She also differs from S9:M in that her learning phase (integrated use of F cards) is followed by an F block for revision and testing.

An inspection of the choice between series or selected order for a block use can also help clarify the learner's purpose for using the cards where the commentary is opaque, e.g. testing is unlikely to occur in selected order.

8.2.1 B3: Set/sub-set Use & No. of Cards Used in a Series

Two other features related to the numerical sequence are also of interest.

Firstly, whether one or other sub-set is used exclusively or predominantly within a block, or within the learning phase of a macrostrategy, i.e. only/mainly Feg cards (F1-8), or only/mainly Fp cards (F9-16), or whether both sub-sets are used. This can be of help again in interpreting unclear commentaries, e.g. S13:H uses F9-16 as a block with the commentary "Check learning". This would seem to be a testing use (in my definition), as checking would be more likely with the Feg cards (see 8.2.2,

p.162ff below, for definitions of testing and checking). This contention is supported by her notes, where the answers are written out and corrected.

Secondly, whether all the cards in the set or sub-set are used can also clarify what the learner is doing. For example, at the end of his learning S30:H uses 3 F cards: F2,6,7, they are not for testing (wrong sub-set), and the cards form an incomplete series (i.e. in numerical/ table layout order but some cards are omitted), which suggests that his activity is nearer to checking for possible problem areas than "reinforcement" as his commentary states. Similarly, unfinished series (i.e. in numerical/ table layout order but the last card turned is not the final card of the set/sub-set) can provide additional information. For example the unfinished F card series of the following Ss, S24:H, final F block, or S33:L, integrated use of Examples, suggest that these Ss did not manage to finish what they had set out to do, which has implications in the general interpretation of learning strategies.

8.2.1 C: Learners' Notes

From the learners' notes, additional information can be obtained about what learners are focussing on and about what they actually did, as a check on what they state as their intentions in the commentaries.

Two approaches can be taken to an inspection of the notes. Firstly, the notes relating to a particular card can be inspected to see whether they support the purpose stated by the learner in the associated commentary. Secondly, the type and quantity of notes made by each learner can be inspected to see whether any pattern emerges from the data as a whole. Here I shall focus on note-making related to the use of Examples cards, and only mention more general note-making behaviour where it has a bearing on the use of these cards or on the general distinction between learning approaches. (Appendix 4D, Vol.2, pp.45-54, gives some examples of learner protocols with notes.)

Notes related to particular cards (Examples cards): these are of two kinds.

- 1) The learner may note down a rule, a hypothesis, a comment on, or query about, a rule; or
- 2) he may write out the examples themselves.

1) As examples of the former, there are notes of the following type:

S33:L F1 "plural: 'ma' suffix to noun
dual: 'ta' suffix to "
collective: no " " " "

S22:M F9 " 'sade': generalized demonstrative:
(this, these); (that, those)?"

This is followed up by looking up sade in the B dictionary to check this hypothesis.

2) Usually the second type of note, writing out examples, consists of the answers to the questions and gap-filling exercises on the Fp cards (F9-16), sometimes with ticks and corrections of errors. In a few cases Ss have also written out some examples from Feg cards (F1-8). Here, if only one example is copied, it seems safe to assume that this is a model to aid memory, if all are written out, then it seems that some kind of practice activity is taking place.

With notes related to particular cards, the first type of note (rules/comments/queries), taken in conjunction with the learner commentaries, can be helpful in deciding what use is being made of a card. For example S6:H writes in her protocol "To practise what I've learnt" for F9, and notes "Got 2/4 right (or wrong!)". She then checks a grammar card and returns to F10 "To see if I can get it right this time". The note for F10 is "4/4". Although she writes no answers, I feel this evidence of assessment from the notes suggests that she is perhaps testing herself, rather than just practising (see 8.2.2 below for definitions of practice and testing).

Similarly, the second type of note (writing out examples) can also clarify the commentaries. As an example we can take S25:H. He writes out both question and answer for all the F cards he uses, both examples and practice cards, seeming to make no distinction between sub-sets. His commentaries are "look over different examples", "test myself" for one Fp card, and "checking". However his note-making suggests that he is either practising or testing, or both (my definitions).

General note-making behaviour: making a general inspection of notes in order to discover patterns in the data, the following features of F related note-making can be observed. Not all Ss write notes, but of those who do, nine write out answers to all Fp cards used; two with an Examples-based learning approach, four Rules-based, and three with 'other' approaches (Uncategorized).

Of the total of 19 Rules-based learners, only three copy out single examples from Feg cards, (S15:L, three structures; S8:L, three structures; S10:H, one structure) and only one, S17:L, makes a note of a hypothesis resulting from an Feg card. Apart from the above-mentioned answers to Fp cards (five of these learners), two others write answers to three Fp cards each. There are no other F related notes made by this group of learners except by S25:H (see below), and the general note-making tendency is for notes other than practice/testing with Fp cards to be based on the Grammar cards.

Of the 9 Examples-based learners, three have extensive notes of comments, rules and hypotheses relating to F cards, and three more have at least one comment and/or examples copied from Feg cards. In general they have no or few notes related to Grammar cards, even though they turn up to ten such cards, (S16:L one D card note; S33:L one E note; S9:M one D note; S22:M four E notes; S24:H two D notes and three E notes). In contrast, Rules-based learners often have extensive notes based on D and E cards. It is also noticeable that the notes made from

Grammar cards by Examples-based learners are mostly from the E set (Semantics).

None of the 5 Uncategorized learners have a typical Rule-based learner note-making pattern. S7:H has one Feg note, one comment on a D card plus one E card note, and the answers for one Fp card only; S21:L has a query related to an Feg card and answers the Fp cards she uses. S32:M is idiosyncratic in that she writes out the examples from D5, makes two other D notes, and translates the examples from F14. S28:M is also idiosyncratic, in that he creates drills for himself on the basis of the examples on both types of F cards and on the D cards. He does this by writing out transformations, for example by transforming long answers to short answers, or positive to negative, etc. The latter kind of transformation could be misleading as these are deictic statements and the relationship with the picture is important for verb choice. However, for learning the 'form' rather than the 'function' of a structure, it is presumably an adequate strategy. His commentary "Exercises" is appropriate (see 8.2.2 for definition of exercises/practice). Finally, S4:M's only notes are answers to the Fp cards.

Two other learners resemble S28:M in writing out examples from Grammar cards. The only notes that S25:H writes are examples from both the Grammar cards and all the F cards he uses, he writes both question and answer from these. However, judging by S25's commentaries and his use of a Grammar block, his learning seems to be based on rules, though this may be a mistaken categorization in the light of his note-making behaviour. One other learner, S27:H, writes out some examples from Grammar cards in addition to the answers to Fp cards, she also has one Feg note. Together with her lack of other notes, her general card turning behaviour, and her commentaries, the profile of her notes supports her categorization as an Examples-based learner.

From this review of note-making behaviour, we can see

that the lack of D notes from Examples-based learners, and their tendency to note down rules and hypotheses based on F cards, supports their categorization as Examples-based. The Uncategorized learners also tend to be distinguished from Rules-based learners by their lack of D notes and/or by idiosyncratic note-making behaviour.

Note-making behaviour alone cannot provide a categorization of learners, but in conjunction with other features in the analysis, e.g. block/integrated use, it provides useful additional support for the suggested division of learners into types.

8.2.2 Definition of Purposes/Activities

Having outlined in Section 8.2.1 A above, the problem posed by the purposes for turning Examples cards which the learners give in their commentaries, I shall now turn to the promised more detailed definition of purposes. I shall attempt to define, label and group the possible activities the learner may engage in when using Examples cards. This is a rather speculative enterprise, nevertheless it seemed necessary as learners' use of words in their commentaries is often imprecise, and in order to categorize instances of F card use, it was advisable to have clear definitions of the categories used and the activities involved.

Looked at from the point of view of learner purpose there seem to be three major groups of activities:

A Getting information

B Stabilizing information in memory

C Making sure that the information is available/accessible (see Ch.6.4.1, p.111, for discussion of these terms)

The problem with labelling and defining activities is that they differ depending on the stage of the task at which they occur, and also there is no one-to-one correspondence between potential mental processes and the available labels. I have sought to present clear definitions for the categories I suggest, I also give a suggestion of the procedure used by the learner, and suggest which sub-set of Examples cards would be most suitable for each purpose.

8.2.2 A: Getting Information

One could be tempted to use the traditional label learning for this type of activity, however this usually also covers at least some of the activities included under B: Stabilizing information in memory. I therefore prefer to retain the word learning to be used in its conventional more general sense. Instead I have chosen to use hypothesis making.

Hypothesis Making: using the Examples cards for this purpose would entail the learner discovering regularities in the language for himself. He would need to study the examples and formulate hypotheses as to structural rules and word meanings. This is a conscious process. An alternative method of learning structures might be an attempt at unconscious rule learning by using a behaviourist learning approach, i.e. attempting to internalize structural rules by repeated exposure, without conscious rule formation.

There is no evidence from the protocols of a consistent attempt to do this. The design of the language and the relationship between example and picture is such that pure stimulus-response learning should be rather difficult, as lack of understanding of at least the gru/stil classification of nouns would make choices between verbs completely arbitrary, and the more complex structures incomprehensible. Therefore, this approach to internalizing the grammar of Novish would be at best cumbersome and time-consuming, at worst impossible. Some learners may attempt this type of learning, the evidence being use of an F card followed immediately by a relevant Grammar card, where no mention is made of hypothesis making or exposure (see below) for the F card, or hypothesis checking for the Grammar card. Such a card turning sequence would suggest that S-R learning does not work, and that looking at rules becomes necessary if it is attempted.

The Feg cards (F1-8) would seem most suited to hypothesis making, as the front of the card gives an indication of the structure to be found when one turns the card, and the picture, and its related statement or question and answer pair, are together on the reverse of the card. Fp cards (F9-16) could be used if further examples are needed, or if, for example, the question form is the object of study, as this is on the front of the card. But as the picture, or the picture and question, are on the front and it is necessary to turn the card to see the

picture related statement, or the answer to the question, these cards would not seem generally as easy to use for hypothesis making purposes as the Feg cards, at least in the very first stage of the task.

8.2.2 B: Stabilizing Information in Memory

There are three activities under this heading.

Exposure: with this activity the learner wishes to see as many examples of a particular structure as possible. Again Feg cards would seem most suited (for the reasons given above), but Fp cards could be used (with the same inconvenience as described above). I would suggest that maximizing experience of structures in this way is an attempt to ensure recognition and enhance availability of the items, and that the learner is reading examples and possibly rehearsing rules. Where the card being used is an F practice card (F9-16), it is impossible to know whether in fact the learner's activity is more akin to practice.

Practice/Exercises: for this activity the Fp cards (F9-16) would be the most likely choice, though it appears from the subjects' notes that some subjects also use not only Feg cards (F1-8) but the examples on the Grammar cards (especially S28:M, S25:H). The aim with this activity is to improve accessibility and correct recall of structures/vocabulary by repeated production of the structures. When using the Fp cards, the S would use the front as a stimulus, say or write the response, and then check this response on the reverse.

This procedure would be similar to testing (see below), but it seems to me that the learner probably imposes different demands on himself. There may be less stringency in terms of trying to recall without 'cheating' (turning the card and having a preview of the answer). This might mean that where the learner is practising rather than testing, he will be less likely to look at other cards for help (e.g. D cards for the

grammatical rule, or the related Feg card), and more likely to just turn the card for the correct answer. Also, I would suggest that the intention of practising, in the sense of doing exercises, does not imply that the learner feels that he has finished 'learning', whereas the intention of testing oneself does.

Revision: the learner's intention is to enhance the availability of items and their accessibility from storage, (see Ch.6.4.1, p.111, for general description of revision). The most convenient sub-set to use here is the Feg cards (F1-8), as all the information is on one side of the card, and the learner knows which structure he is dealing with, though of course both sub-sets could be used. I have defined revision as probably not including any conscious attempt to recall. Though, if the Fp cards are used, it is possible that recall will occur, which would make the activity closer to practice or testing. The difference between revision and exposure would be in the stage of the task at which it occurs, rather than in the activity itself. Revision implies that the learner regards the learning as finished. One would therefore expect him to have the purpose of revising towards the end of the task, or, in a microstrategy, after learning of and exposure to, or practice of, examples of that particular structure.

8.2.2 C: Making Sure that the Correct Information is Available/Accessible

Under this heading I have included two activities: testing, which by definition occurs towards the end of the task in a macrostrategy, or at the end of each cycle of activity in a microstrategy; and checking, which subsumes more than one activity and is more difficult to define precisely.

Testing: if the learner's purpose is to test, this implies that he regards the learning as finished. His intention is to see if structures and lexis can be recalled and used correctly in response to the stimulus.

The Fp cards (F9-16) are ideal for this activity, as the stimulus is on the front and the correct response on the reverse of the card. Feg cards could also be used by masking the responses, but as there is a clear indication of the desired structure on the front of the card, which there is not on most of the Fp cards, this would give the 'testee' a slight advantage. With Fp cards, the learner would read the front of the card and try to produce the correct response without help, before turning the card to compare his answer with the solution. As mentioned above, this procedure is the same as for practice, but the learner's approach is different. Help will probably only be sought if absolutely necessary, and is more likely to be sought on other cards, so that an attempt at producing the correct answer may still be made.

Checking: this is rather difficult to define as it may subsume a diversity of activities, some of which could be variations on revision and testing. The central feature of checking is that the learner intends to verify something. This may even be as trivial as verifying that the information given on different cards is consistent. There seem to be two major types of checking.

Firstly, verification of the correctness of a hypothesis, comparing the information in memory with the example on the card, and verifying that the example is recognized as consistent with this hypothesis. I shall refer to this type of checking as hypothesis checking. This type of checking is likely to occur within the learning phase of the task, especially if the learner is using Examples cards as the basis for learning (Examples-based learners). Either sub-set could be used, but again the Feg sub-set would seem more convenient. However, if an Feg card has been used for hypothesis making, then the paired Fp card could be used to check the hypothesis.

Hypothesis checking with an Examples card may involve recall, i.e. in response to the stimulus, the learner

produces a sentence in accordance with his hypothesis, and then compares this with the response given. This is a similar procedure to testing, but the learner's intention is different, in that he is consciously focussing on a particular hypothesis. An alternative label for this could be hypothesis testing, but I have chosen to include it under checking, as it seems that the learner intends to verify availability of a correct rule/item rather than accessibility.

A second type of checking would be verifying that the structure on the card is recognized and therefore available in memory. This is most likely to occur at the end of the task, when the learner feels that the learning and any following testing or revision is finished, and now wishes to make sure that nothing has been missed. I refer to this as plain checking. The Feg cards (F1-8) would be most convenient for this, as this type of checking should presumably be a fairly rapid procedure. The learner will look at the examples to see if they are consistent with what he would expect on the basis of his knowledge of the grammar and lexis of Novish. The cognitive activity involved may be the same as for hypothesis checking without recall, but, with checking, the learner is focussing on finding any items which are not recognized, whereas with hypothesis checking, the focus is on recognition of a particular item.

Discussion

I have attempted above to define the activities engaged in by the subjects in the process of learning Novish. This regularization is not to be seen as denying the possibility of other activities, or of blends of the activities described. My intention was to take those purposes for F card use which appeared regularly in the commentaries, and to try to determine what precisely the learner intended to do, what he did do, how he did it and, possibly, why he did it. This led to a somewhat speculative description of the activities, which is based on the learners' commentaries and notes, on personal

experience, on practical considerations and on the psychological concepts of availability and accessibility.

These concepts are, in my opinion, both intuitively appealing and helpfully explanatory in a discussion of language learning activities. They are especially useful in providing a possible way of clarifying the differences between the various activities engaged in by the learner. The descriptions I have made have no pretensions to constituting a psychological theory, they do however, at least in the context of this task, give me the possibility of interpreting the data on the basis of a set of defined categories of purpose/activity. This is essential given that the commentaries constitute a large proportion of the data, and that everyday use of language is notoriously imprecise.

The activities described;: Hypothesis making, Exposure, Practice, Revision, Testing and Checking, do encompass, as far as I can judge, all the activities undertaken by the learners when using Examples cards. The cognitive processes, and the manner of using the cards for each activity, are hypothetical, as is the suggestion of which sub-set would be preferred for use with a particular activity. This last feature, though, has been based on the conjunction of declared purpose and card choice seen in the data, as well as on general practical considerations.

Recapitulation of Section 8.2

Section 8.2 has presented the framework within which the data is analysed. This framework has not been imposed on the data but arises out of the data. I have tried to make the analytical categories: purpose, block and integrated use, sequence of cards, and sub-sets and number of cards used, as self-explanatory as possible. The fairly large number of categories was necessary, in order to be able to reflect in the analysis the complexity of the data, while at the same time simplifying sufficiently to make

generalizations possible.

Section .8.2 was organized so that the first part described in turn those features of the framework which arise from each type of data, the learner commentaries, the Table of Card Turnings, and learners' notes. This was followed by the detailed description of learners' purposes and their related activities when using Examples cards.

Having set up the analytical framework it is now possible to move to the actual analysis of the Examples cards in Section 8.3.

8.3 The Analysis of the Data

Having explained the types of information used as the basis for the analysis, and defined the categories of purpose (8.2.2), block/integrated use (8.2.1 B1), series/selected order (8.2.1 B2), sub-set use and use of all cards or incomplete/unfinished series (8.2.1 B3), it is time to turn to the results of the data analysis.

I have chosen to present the results in a series of tables. The different features of each particular instance of use of Examples cards are shown in different tables, but the tables are directly comparable by the reader, which will hopefully ease the burden of reading. Any patterns of use which can be seen in the data are discussed for each table, and across the tables where a conjunction of features is of interest. The implications of these patterns for strategic differences, or their relationship to successful completion of this task are noted in the discussions of the tables, and drawn together in the summary and conclusion sections.

The tables are in Volume 2, pp.56-60.

They are as follows:

Table 8.1: Block and Integrated Use of F Cards. Here the learners have been divided into three groups: those who have block use only, those who have integrated use only, and those with both block and integrated use of F cards.

Table 8.2: Features of the F Blocks Used

Table 8.3: Purposes for F Block Use

Thesetwo tables present the details of F block use by the two groups of learners who use F blocks as shown in Table 8.1.

Table 8.4: Integrated Examples Use with Following F Block

Table 8.5: Integrated Use Only of F Cards

These tables describe the integrated use of Examples by the two groups of learners who make integrated use of Examples as shown in Table 8.1.

The layout of each table is described as a preliminary to

the discussion, and it should be noted that throughout the analysis, orientation uses of F cards have not been included. Also, in all tables the subjects are listed in rank order by post-test scores, and learners in the categories Examples-based and Uncategorized have been indicated by coding to the right of the subject number. All subjects left uncoded are in the Rules-based category.

TABLE 8.1: Block and Integrated Use of F Cards

The first table shows the subjects' use of F cards. Three types of use are shown. In the first column are those Ss who have only made block uses of F cards, usually as the final phases of the task, or who have F blocks only, with the addition of a brief checking or revision phase in final position in which some F cards have been used, (S35:L, S8:L, S20:H, S25:H). In the second column, those Ss are indicated whose use of F cards did not fall into blocks, and who used F cards throughout the task, that is integrated use only. The third column presents those subjects who made (at least some) integrated use of F cards in addition to block uses of these cards towards or at the end of the task.

The following pattern of type of Examples use can be seen, when the number of subjects in each of the rank groups (Low, Middle, High) who use Examples cards in these three ways is totalled:

	<u>L</u>	<u>M</u>	<u>H</u>
Block use only	4	2	8
Integrated use only	5	4	1
Int. + Block use	1	5	3

Of interest here is the high proportion of H learners who only make block use of the Examples cards. Similarly, in H group only one learner, S30, has no apparent block use of F cards at all (he may have a brief checking block of three cards in final position). This may suggest two things. Firstly, that a sustained phase of activity using

Examples cards with a single or alternating purpose, is a feature of a successful strategy for accomplishing this task, whether the learner is using Rules-based learning or Examples-based learning (See also discussion of Table 8.3). And secondly, that this type of F card use may be indicative of the learner following a strategy of clearly delineated phases of activity, and using a particular type of card for a particular type of activity, and that this modus operandi would seem to be a successful one.

The pattern in M group is different. Only two Ss use F blocks only, four make only integrated use of Examples, and five use both blocks and integrated cards. This greater tendency to make integrated use of Examples cards in M group possibly shows a less 'clear-cut' strategic approach to the task in terms of sustained phases of the same activity. It also reflects the larger number of Examples-based and Uncategorized learners, seven out of eleven in M group as against four out of twelve in H group. The more successful of these, S11:M, S4:M and S31:M, use blocks as well as integrated cards.

In L group, we see yet another pattern, with half of the learners making integrated use of cards only. Four of these are the lowest scorers, and this would suggest that only integrated use of F cards is likely to be indicative of an unsuccessful strategy. (Only one learner who has integrated use only falls in the top 50% of the scorers S30:H.)

(8.1)

Some further general points may be noted about the table/. With regard to Examples-based learners, firstly, the more successful Examples-based learners both make integrated use of F cards and have F blocks (except S30:H), that is Ss27:H, 24:H, 31:M, 11:M. Secondly, two of the four less successful Examples-based learners who have integrated use only do not complete their learning. S33:L and S9:M follow a similar strategy of integrated use, working through the Examples cards in table layout order (See Table of Card Turnings), but they do not manage to work

through the last cards. S33:L fails to use the last five cards (score 29 out of 53), and S9:M fails to use the final three Fp cards (score 35 out of 53). This integrated use only may be a feasible strategy for an Examples-based learner, but it is time-consuming, and given the task conditions was not a suitable choice for these two learners. None of the other Examples-based learners follow this particular integrated use strategy.

With regard to Rules-based learners, we can see that the use of F blocks occurs in all three rank groups, there are, however, differences both in the constitution of the blocks, the purposes, and the total number of F cards used. These come to light in the inspection of tables two and three.

Block Use of F Cards: Tables 8.2 and 8.3

Tables 8.2 and 8.3 show the block use of Examples cards. Table 8.2 presents the details of the blocks used with regard to sub-set, sequencing of cards and whether all cards in a sub-set are used or not. Table 8.3 gives the purposes for which these blocks were used.

TABLE 8.2: Features of the F Blocks Used

In Table 8.2 all block uses of F cards have been described by sub-set(s) used, by the type of ordering of cards as series (table layout/numerical) or selected order, and by whether the set/sub-set is complete, incomplete or unfinished. Where two F blocks have been used, these are shown with the second block to the right of the first. (Description of these categories, see pp.155-7.)

Again it is the most successful learners who stand out as having used similar strategies. In H group the likelihood of a learner having completed an ordered sub-set (the Fp set or the whole set) is greater than in groups L or M. This suggests once again that an orderly or planned strategy and use of at least one complete sub-set of the F cards increase the chances of success in this task.

Similarly, the use of complete sub-sets in numerical order is only found in H group and with S4 in M group. H learners are less likely to use the cards in table layout order than L or M learners. They are more likely to separate out the sub-sets into two blocks with different purposes, whereas L and M learners are more likely to work through in layout order with alternating purposes between Feg and Fp cards (See Table 8.3 for purposes for use). These differences between H learners and L & M learners may again indicate a greater strategic awareness on the part of the most successful learners. They would seem to be able both to plan a strategy in terms of deciding which activities to engage in and how long to spend on these activities, in that they complete the sets, and in terms of selecting which type of cards to use for particular intended phases of activity.

Seven learners have an Examples block with a selected order of cards: one in L group, four in M group, two in H group. Of these, two have selected order in a first F block, which is then followed by a second block in series order (S3:M and S10:H). Seven out of 28 blocks in all is not a high proportion, and the fact that, when it comes to the Examples blocks, the majority of the learners prefer to follow the order given by the cards, is partly a result of the fact that they are not apparently randomly laid out as the C, D and E sets are, and partly a result of the purposes for which these cards are being used (when they are used as blocks).

The layout follows a fairly traditional idea of increasing grammatical complexity (see Appendix 3A, Vol.2, pp.2/3, for list of cards, and 3C, Vol.2, p.34, for layout). The purposes for which Examples blocks are used are largely those which do not involve initial experience of new structures. Therefore the learner already has a 'mental map' of the language and is content to be presented with Examples at the 'teacher's' discretion. Also a purpose such as general testing, by its nature requires the 'teacher' to give items. With

integrated use of Examples, it is far less likely that the subjects will use the cards in series, and the purposes for use vary more (see Tables 8.4 & 8.5). Thus the salient factor with regard to the chosen sequencing of the cards appears to be the purposes for which these Examples blocks are used. This leads us on to Table 8.3.

TABLE 8.3: Purposes for F Block Use

Here the purposes for using F blocks are shown. The purposes of hypothesis making and checking have not been included as columns, as they are generally speaking not used with F blocks. One block, especially if it is a block constituted of both sub-sets (Feg and Fp cards), may contain more than one purpose, usually two, one for each sub-set. Where more than one block has been used, this is shown by coding.

(8.3)

The most interesting information revealed by this table/ is that the most common purpose for an Examples block is testing. It is also the case that for learners who use F blocks, the testing use appears to be the purpose which might distinguish the more successful learners:

H : 8 Ss have testing blocks (11 Ss have F blocks)

M : 3 " (7 Ss have F blocks)

L : 2 " (5 Ss have F blocks)

If, instead of taking the learners by the three rank groups we divide them in half, the difference is even more striking:

High 50% 11 Ss have testing blocks (15 Ss have F blocks)

Low 50% 2 " (8 Ss have F blocks)

Also, in conjunction with Table 8.2, we can see that if a numerical series of the practice sub-set (Fp) is used, e.g. S6:H, S27:H, it is for testing, and that this is done only by successful learners.

Thus the incorporation, at or near the end of the task, of a testing phase of activity in which F cards are used, more particularly the complete Fp sub-set, seems for most learners to be a necessary part of a strategy for

completing this task successfully. In this there is no distinction between Rules-based and Examples-based learners.

Another feature to be noted is that in most cases where both sub-sets are used, a division of purpose is indicated by the learner, cards from the two sub-sets being used for different purposes. Taking Table 8.3 in conjunction with Table 8.2, we can see, for example, that where Feg and Fp are both used in a block, the purpose may be Exposure (Feg) + Practice (Fp): S12:L, S8:L, S20:H; or Revision (Feg) + Testing (Fp): S5:L, S31:M. Alternatively, the sub-sets may be used in numerical order as two blocks, each with a single purpose, e.g. S29:H, Fp for testing followed by Feg for checking, and S26:H, Feg for revision followed by Fp for testing. This separation of activities, taking one type of card and using the whole sub-set for one activity, followed perhaps by the second sub-set with a different activity is only used by the more successful learners, S11 and S4:M, and Ss 6.10.24.27.7.29.26.13 in H group.

With regard to the general choice of purposes for Examples block use one further feature is of interest. From Table 8.3 a difference can be seen between the frequency of the purposes chosen by learners with F blocks as their only Examples use, and by learners with integrated use of Examples cards also. It seems that learners with some integrated use of Examples cards are less likely to use an F block for exposure, practice or revision than learners with block use only. We can also see that the majority of these learners are those categorized as Examples-based or Uncategorized, except S14:M. This suggests that after (extensive) use of examples, both from Examples cards and Grammar cards, in the 'learning' phase of the task, the learner feels no need for a concentrated period of exposure, practice or revision in the final stage, and prefers to use his remaining time in testing or checking. Only three of the fourteen block-use-only learners, S35:L, S6:H and S13:H, appear

to have the confidence to follow this strategy, only using Examples cards in what seems to be a final testing block..

For learners in both groups, block use only and block plus integrated use, the choices of purposes for using F blocks seem to show a general appreciation of a need for particular types of activity and a sensible disposition of the time available. I would also suggest that to move directly to testing as the only use of Examples cards shows considerable self-confidence and may be a risky strategy. S10:H attempts to do this but realizes that she needs further exposure to examples before she will be able to reap any benefit from testing (see note 2 Table 8.1).

Conclusion: Block Use of F Cards

From the foregoing analysis and discussion, the following generalizations can be made with regard to the use of Examples blocks by the learners.

Firstly, a sustained period of activity using Examples towards the end of the task is incorporated as a final or near final phase of their macrostrategy by over two thirds of the learners. This suggests that the majority of learners feel the need for a concentrated period of activity with text that exemplifies the grammar they have been learning, if they are to feel satisfied with their preparation for a test based on grammar.

Secondly, most of the learners who were successful in this task used this final period of activity for the purpose of testing their knowledge, with the addition in some cases of a second concentrated period of revision, or checking. The concentration on a single activity appears to distinguish more from less successful learners. It suggests that a successful strategy is one where the learner plans and orders not only the content to be learned, but also the activities to be engaged in, in such a way that the use of Examples for practice,

revision or testing takes place over a single sustained period of time, rather than intermittently.

And finally, such a practice, revision or testing period is best if it is comprehensive (covering all structures), and with these activities, most learners appear to prefer a 'given' order of items rather than selecting the order themselves.

To generalize, it seems that the use of Examples in separate sustained phases near the end of a grammar learning task is beneficial to the learning. It is particularly so, if each phase only involves one purposive activity, especially testing, but also practice or revision, and if at least one phase is extended enough to cover all rules learned.

Integrated Use of F Cards: Tables 8.4 and 8.5

Tables 8.4 and 8.5 show the number of cards, which cards are used, and the purposes for which cards are used by the learners who make integrated use of the Examples cards.

Table 8.4 shows the learners who use integrated F cards and also F blocks. Table 8.5 shows those learners with integrated use only.

TABLE 8.4: Integrated Examples Use with Following F Block

The Table is laid out with the total of integrated F card turnings for each learner on the left. Moving to the right, we then have a list of the numbers of the actual cards turned. Then the purposes for use are given, and on the far right, for the sake of completeness, the purpose for use of the following F block is given.

Of the nine subjects who fall in this group, four are Examples-based and four are Uncategorized learners. The remaining subject is a Rules-based learner, and I shall look at her integrated use of F cards first.

The Rules-based learner, S14:M, only makes integrated use of two F cards. Her uses occur before and after her Grammar block, and do not appear to be an integral part of her learning process. She does, however, use the first F card, F5, to make a hypothesis about the word ta. Similarly, in her orientation phase at the beginning of the task she says, "Want to get an idea of what the language looks like," she turns F16, and then makes a hypothesis about questions: "Always start questions with ki and answers with ue perhaps", which she then checks with E1. This tendency to make (and describe) hypotheses continues as she looks at D/E cards, and many of these are turned to check hypotheses. I have categorized her as Rules-based because of her long Grammar block, but it is clear that she is using a mixture of reception learning and discovery learning, presumably using the few Examples

cards she turns in the learning phase, and the examples from the Grammar cards, as her basis for making hypotheses. With regard to her final F block, she is also idiosyncratic, in that she seems to be mainly checking, and she also checks particular structures (hypothesis checking); e.g. for the last F card, F10, she says "Sitting formulating rules - mane in statements - check ideas on negative statements".

From this example, we can see that there is no clear one-to-one correspondence between reception/discovery learning and the two groups I have described as Rules-based/Examples-based learners. Also, my division of learners into categories is a matter of practical necessity, and not all learners in each category will be central cases in the sense of following a thoroughgoing Examples or Rules-based approach.

Moving to the Examples-based learners with integrated plus block use, we can see that three of the four, S11:M, S31:M and S24:H, show fairly similar profiles of integrated Examples use, turning between ten and sixteen F cards with the focus on Fp cards. S24:H works through the cards more or less in numerical order, whereas the other two select their ordering according to a syllabus of their own, (e.g. questions first, then positive responses, then negative responses, etc.). Why they prefer to use Fp rather than Feg cards for hypothesis making (where it would seem more efficient to use the Feg sub-set, see p.163) as well as other purposes is difficult to say. It could be that to a learner with an aversion to 'dry' rules, these cards appear more attractive - no grammatical designation of the structure, more pictures. Or that the problem-solving format of the cards presents a greater challenge to a subject who favours discovery learning. All three learners use all cards in the Fp sub-set (S11:M omits F12 but looks at its partner F4).

The fourth Examples-based learner, S27:H, turns only

three Feg cards, which could cast doubt on her status as Examples-based. However, although she begins her learning with some Grammar (three cards), a feature shown by some other Examples-based learners, e.g. S24:H, S30:H, her commentaries suggest that she then switches to hypothesis making, using F cards, and checks the hypotheses with further Grammar cards. Also her initial three Grammar cards are turned in response to C6, her initial card. Thus she does not appear to have a rule-learning phase based on Grammar cards, nor does she turn many Grammar cards before moving on to testing, using an F block (a complete Fp series). All four of these learners follow their integrated use of F cards in the learning phase, with an F block for testing purposes.

The final four learners with both integrated and block use, S21:L, S28:M, S4:M and S7:H, are all Uncategorized. As their learning profiles are rather individualistic, I shall look at them one at a time.

S28:M shows initially an Examples learning type pattern, turning an Feg card and making reference to the dictionaries, but he then moves to Grammar cards. Later he turns the same Feg card and its partner Fp card for exposure: "To see some more of the language at work", before moving on to "Some more grammar" with the E set (see Table of Card Turnings). Thus, he uses only three integrated F cards, and these do not appear to be used for hypothesis making. His final F block is for practice. However, he has already been mentioned (see p.160) as the learner who creates drills from all the examples he finds on both D and F cards. His strategy is clearly idiosyncratic and for this reason I have placed him as Uncategorized.

S4:M presents an interesting case. We can see by looking at the Table of Card Turnings that S4's pattern of card use in general does not conform to that of the typical Rules-based learner with a grammar block. Nor does she have the preference for F cards typical of Examples-based

learners (only two integrated F cards turned). In order to explain the initial card she turns, F4: 'Question and Negative Answer', she makes extensive Reference use of the translation dictionary (the B set) and also turns D11 (verbs gru/stil). Hence, she turns nine cards in all in response to F4, and first moves to other cards, D8 in response to D11, when one of the grammar points raised by D11 needs further explanation. Her second Examples card, F11, is used to check her understanding of the gru/stil distinction which she has been concentrating on.

This type of procedure, starting with an Example and attempting thorough understanding and analysis of it, is more typical of Examples-based learners, compare for example S31:M. However S4's commentaries suggest that she is relying on Dictionary(B) and Grammar(D+E) cards for information and rules, having used the Example as a starting point. It is possible that this initial card turning pattern precedes a change in approach, but her commentaries and the general pattern she displays in later card turning are more suggestive of her pursuing what could be called an 'opportunistic' strategy.

Less rigid than those learners who doggedly work their way through either the Grammar (D) cards or the Examples cards, following a particular syllabus, she uses whatever type of card appears to be likely to answer the questions raised by the cards she has already seen. As a consequence, she follows up a problem by turning sometimes several cards from different sets. She also seems to be making hypotheses rather than relying on pure reception learning. She does not turn many Grammar cards for rules, or "further information required" as she puts it, before she moves to testing with the A dictionary and checking of hypotheses with two D cards, after which she begins testing with an F block. From this example, it seems that this type of opportunistic strategy can be fairly successful, given a phase of self-testing to follow up the learning (S4:M scores 39 points on the test, maximum score 53).

S21:L uses mainly reception learning of rules, but may be checking hypotheses with two of his four integrated F cards, and is probably forming hypotheses with another. He follows a semi-syllabus, starting with statements and then moving to questions, but also has a tendency, like S4:M, to follow up 'leads' from cards already seen. This apparent use of F cards for hypothesis making and checking, together with his lack of a Grammar block is the reason for including this learner in the Uncategorized group, although he does appear from his commentaries to be relying mostly on D/E cards for getting information. In his final block he uses Feg cards for exposure and Fp cards for practice.

The last of these four learners, S7:H, resembles an Examples-based learner both in the number of integrated F cards she uses (8), in her concentration on the Fp sub-set, and in her purposes for use. Looking at the Table of Card Turnings in conjunction with her commentaries, we see the following progress through the task. She starts from an Example, follows up leads to Grammar cards, and then switches to an attempt at 'organized' grammar learning. Before turning D1 she comments: "Want to look at qualified pos. responses, but will start with basic word order". However she only turns three Grammar cards for rules before deciding to test what she knows with F3. She then proceeds to use Fp cards almost in series to check her hypotheses as to rules, using Grammar cards only when she needs help. In general this pattern of Examples and Grammar card use suggests an initial Rule-based strategy, with a switch to Examples-based learning for further development and checking of hypotheses. Her final block, is a complete Fp series used for testing.

Discussion and Summary: Table 8.4 - Integrated Use with Following F Block

I have looked in some detail at these learners in order to illustrate the variability in their use of Examples, and the different roles that F cards play in the learning

phase of the task.

Clearly, any Examples-based learner will have integrated use of F cards. However, no two learners are quite the same with regard to the number and order of F cards used, or to the purposes for which they are used. Yet there are similarities, in the fact that they all use a variety of purposes, and in that hypothesis making on the basis of F cards is a major activity for these learners.

All the Examples-based learners (S11:M, S31:M, S24:H, S27:H) seem to use Grammar (D+E) cards as little as possible, referring to them only when they are unable to discover a rule, or for hypothesis checking (S27:H). With Grammar cards, they also select a disproportionately large number of E(Semantics) cards (see Table of Card Turnings).

Thus, in general they show a preference for Examples cards and as mentioned above, particularly the Fp cards. Their approach involves using F cards as a basis for making hypotheses and also for a variety of other purposes, particularly hypothesis checking, and they all follow their learning with an F block for testing. It should be noted that these four learners are four of the five most successful Examples-based learners, and that the common traits of F card use just mentioned will form a basis for comparison with the less successful Examples-based learners discussed in relation to Table 8.5.

The single Rules-based learner discussed under Table 8.4, S14:M, uses only two integrated F cards, but formulates hypotheses on the basis of one of these and also on the F card she uses in her orientation phase. In this she resembles the Examples-based learners though not in the number of integrated F cards used. Nor is her final block used for testing, but for (hypothesis) checking, in this she can be compared to S30:H (see below under Table 8.5).

None of the four Uncategorized learners, (S21:L, S28:M,

S4:M, S7:H), show a general pattern of card turning which resembles that of other learners, except for the use of a final F block. S7:H does show some similarity to the Examples-based learners discussed above, after her initial Grammar block. S4:M uses what I have called an opportunistic strategy. This is defined as not insisting on adherence to a particular card set for access to a particular type of information, together with the following up of questions raised by cards already seen, rather than following a syllabus either 'given' by the order of the cards or self-imposed. S21:L uses a semi-opportunistic strategy and his integrated F card use is most similar to that of S4:M. S28:M starts with Examples and follows up leads to Grammar cards, but then switches to Grammar with the E set. He is however using all cards in a special way, creating drills from all examples, and cannot be grouped with any other learner.

Generally speaking, the main interest in looking at the integrated use of F cards lies in the evidence it gives in support of the inclusion of a subject into one of the general learning approach categories, Examples-based or Rules-based, and in revealing typical behaviour for these learners. The close scrutiny of the integrated F cards can also help in revealing in what ways a learner deviates from the more typical members of the Rules-based and Examples-based categories.

In addition, the setting out of data in tabular form in this way allows for more specific observations as to features of certain groups of learners. In Table 8.4, the most interesting feature is the pattern of F card use shown by the more successful Examples-based learners.

Table 8.5: Integrated Use Only of F Cards

This Table is laid out similarly to Table 8.4, without, of course, the indication of F block purpose, as the ten subjects in this group make no block use of Examples cards.

Five of these learners have been categorized as Examples-based learners, one is Uncategorized, and the remaining four are Rules-based learners.

If we look at the integrated use of F cards for the five Examples-based learners first, S16:L, S33:L, S9:M, S22:M and S30:H, we see that they vary considerably. I shall therefore look at their profiles individually.

S16:L (test score: 17 out of 53) bases his learning on Examples but appears to have no planned approach to learning, and looks at only six Examples cards four of which are Feg/Fp pairs. Some Grammar cards are referred to for help. In addition, he spends a lot of time reading the Contextual cards. As a result, his exposure to the language is probably just not sufficient. In terms of F card turning he is most similar to S15:L, a Rules-based learner (see below).

S33:L and S9:M have been mentioned in the discussion of Table 8.1 (p.172). They use a consistent strategy clearly based on Examples and with a division of purposes between the two F sub-sets. They both use Feg for hypothesis making, but S33:L uses Fp for practice, while S9:M uses Fp for testing, and they both work through the cards in table layout order. Grammar cards are only referred to when help is absolutely necessary. Unfortunately neither subject completes his planned work, and it is therefore not possible to tell whether they would have wished to follow up with an F block for testing, revision or checking. What one can say is that this rather dogged version of Examples-based learning is not suitable for this task, as it takes too much time, and that these learners determinedly pursue a strategy which they must

have realized was inappropriate given the task conditions.

This adherence to a chosen strategy even though it proves unsuitable, is a feature not uncommon when learners are given a free hand (cognitive fixity/rigidity - see Pask, 1976b:130/2/4; Pask & Scott, 1971:211; Mayer, 1983: section 1). But I would like to suggest that the root of the problem is not necessarily the strategy in itself, but its implementation.

These two learners could be called serialist in their approach (see p.21), taking item by item of a syllabus they see as given. This in itself is not problematic, however they seem to display what Pask calls the 'improvidence pathology' of operation learners ("the failure to use valid analogies or a common principle or both", Pask, 1976b:140, my underlining. See also p.25).

These learners' improvidence does not mean that they will be unable to learn Novish or do the post-test, as the hierarchical organization of information implied by Pask's theory does not hold for this small artificial language. But it does mean that 'understanding' in Pask's sense (see p.26) will not be achieved. It also means that their learning process will take more time than is necessary, as it seems to me that one aspect of improvidence not discussed by Pask lies in its slowing down of the learning process. The failure to make valid analogies and find common principles would lead to re-learning of certain features of a system which have in effect already been learned. And the same failure would preclude the possibility of predicting similarities and checking for them in items still to be learned.

For example, the principle of the ellipsis in all the short forms of Novish responses is the same, so it should only be necessary to spend time on one of the three short form Feg cards, and then, having predicted the ellipsis in the other responses, possibly to use the Fp short form

cards for practice or testing.

Therefore, improvidence in an independent learning situation would not only hinder a deeper 'understanding' of the subject matter, but would slow down the learning process as a result of the incoherence of the learning.

The other two Examples-based learners, S22:M and S30:H show no particular pattern in their F card use, some choices are opportunistic and others are looking for unknown structures. S22:M shows greater similarity to the Examples-based subjects shown in Table 8.4, in that he uses mainly Fp cards and a variety of activities including hypothesis making and checking. Also his use of Grammar cards is limited, mainly the E set being used for general information and possibly hypothesis checking. He does not however have a subsequent testing phase using an F block, which is what distinguishes the most successful Examples-based learners.

S30:H is idiosyncratic, using equal numbers of Feg and Fp cards and using the Feg cards towards the end of his learning unlike most successful learners. Grammar cards are used for help or confirmation, and initially to see the basic structures. He uses a variety of activities with F cards however, as do most of the successful learners with integrated use, but like S22:M, and unlike all other learners in H group, he has no F block.

In comparison to the more successful Examples-based learners discussed above (Table 8.4), the major difference is these learners' lack of an F block. Other differences are, for S33:L and S9:M, their general strategy which seems to show a pathological serialist tendency resulting in improvidence, and for S16:L, his insufficient use of F cards particularly the Fp sub-set. S22:M conforms to the successful pattern except for his lack of an F block, and S30:H has an idiosyncratic strategy and conforms to the pattern only in that he uses a considerable number of Examples cards.

The only Uncategorized subject with no F block is S32:M. After a false start with vocabulary learning, she switches to what appears to be discovery learning using three Examples cards and dictionary reference, she then moves to Grammar cards both for rules and also for examples. She, like S30:H and possibly more like S28:M, has an idiosyncratic approach. Hers is based on translation, and she appears to use examples from both F and D cards for this purpose. She both makes hypotheses using F cards, and later learns rules from D cards and uses them for translation practice.

Considering the fact that she uses only three Examples cards, has no F block, and no testing phase, changes strategy at least once, possibly twice, and in fact turns the fewest cards of any subject, her learning is surprisingly successful with a score of 36 out of 53 on the test. This could suggest that while changing strategy might be considered a trait of an insecure learner, it does not necessarily imply lacking strategic awareness. On the contrary, if we contrast S32:M with S33:L and S9:M (serialist strategy, discussed above), it would seem that the ability to recognize an inappropriate strategy, and the willingness to try a new strategy, indicate a flexibility and adaptability which is probably advantageous when faced with a new kind of learning situation.

If we now look at the four Rules-based learners, we see that S15:L, S17:L and S2:L achieved three of the four lowest scores on the test, and that S1:M is the lowest scorer in the Middle group. They have other features in common; between 7 and 9 F card turnings, a selected ordering of cards, and a fairly even distribution between use of the two sub-sets. In terms of purpose, S17:L, S2:L, and S1:M have a division of purpose between Feg and Fp cards, and all four have a variety of purposes for use of the F cards. Three use some Examples for hypothesis checking but only S15:L uses any for hypothesis making. Both S17:L and S1:M attempt some testing with the Fp sub-set, but this involves not more than three cards.

Given that these four learners all have blocks of Grammar of between 10 and 12 cards (see comment re S15:L on p.149), and that in addition they use integrated F cards for a variety of purposes including hypothesis checking (a positive feature for Examples-based learners), one can ask why they are unsuccessful. What distinguishes them from their more successful fellow Rules-based learners?

The distinction appears to be both in the presence of considerable integrated use of F cards and in the absence of an F block. Although the majority of their F cards are used in the second half of their card turnings, as with most Rules-based learners (see Table of Card Turnings), the cards are in selected order, both sub-sets are used, and the purposes for use tend to vary from card to card. This means that even though 'block' like in appearance they do not constitute blocks.

For a Rules-based learner it seems that this randomness in terms of purpose indicates uncertainty as to strategy, with regard to the planning of activities to engage in. As the D cards all contain translated examples, the only integrated use of F cards which would seem appropriate would be for hypothesis checking. Or, given a serialistic strategy of the type adopted by S33:L and S9:M, but with Rules as the basis of learning, a regular strategy of, say, practice, using an F card after each rule learned, would be a possibility. (No learner appears to follow this strategy and it would probably lead to improvidence.)

This strategic uncertainty with regard to activities is, it seems to me, what is hindering these learners. For Rules-based learners the data suggest that a clear F block for a selected purpose following the main rule learning phase, provides a more beneficial use of the time available than integrated use of F cards. It seems that for successful engagement in activities such as exposure, revision, practice or testing, sustained and preferably ordered work of the type done by the learners

in H group is most useful, if not essential.

Discussion and Summary: Table 8.5 - Integrated Use Only

In general, one can ask why some learners with integrated use only are so much more successful than others. In what way do S22:M and S30:H differ from the L learners with integrated use only? In order to attempt to answer this question, we need to look at and compare the learners' approaches to the task, using the analysis of F cards as an aid.

Several points of difference arise. Firstly, S22:M and S30:H each use six of the eight Fp cards, whereas the other learners use fewer Fp cards, and fewer F cards in toto with the exception of S33:L and S9:M. These two subjects on the other hand clearly do not complete the task to their satisfaction, which S22 and S30 both seem to do. Whereas these differences are quantitative and only indicative of a possible trend, there are qualitative differences which appear to be more important.

From their commentaries it seems that S22 and S30 are both following a search strategy, where they look for specific items and carry out particular activities according to a learning plan. S30's commentaries suggest an awareness of the learning process. Comments such as "I want examples of Novish in use as I have enough to piece together the whole thing, matter of picking up vocab now...", "Need a little reinforcement of structures", plus the general organization of his learning, both in terms of looking for particular structures and consciously changing activity, suggest a planned procedure. He moves from learning, to exposure, some testing, then "light relief" with some C cards, and finally "reinforcement" (checking).

S22's commentaries are sparser (he was writing whereas S30 was using a tape recorder), but he first looks for general information using E cards, before making hypotheses based on Examples and following up queries with C,D,E or F cards. His final stage is checking of

orthography with the translation dictionary (B set), and hypothesis checking using one D and two F cards.

Apparently both these learners are following a planned series of activities. In addition S30 seems to be following his own structural syllabus in ordering items to learn, while S22 is following up leads from cards he has turned, his first card (F5) being a random choice (opportunistic strategy).

These observations provide further evidence for the existence of two components of a planned learning process, as suggested in the conclusion of the Block Use analysis (p.177):

choice and ordering of items to be learned, and
choice and ordering of the activities to be engaged in.

In the light of these suggestions, if we look at the less successful learners in the integrated use only group, we find that S33:L and S9:M also follow a plan both in terms of activity and content syllabus. They use the two F sub-sets for particular purposes and they follow the syllabus given by the layout of the F set. However, this strategy rigidly adhered to proves too time-consuming, probably as a result of improvident learning (see discussion above), and is therefore unsuitable for this task.

S32:M, on the other hand appears to change strategy twice and to be feeling her way towards a learning approach.

S15:L, S17:L, S2:L and S1:M all follow a mixture of a self-imposed syllabus and opportunistic following up of leads from cards already seen, but S15:L, S2:L and S1:M do not appear to have an 'activity syllabus' in that they do not move from one type of activity to another in any ordered way. S17:L does move from rules learning with Grammar cards to checking and testing towards the end of the task, but uses only very few cards for these last two activities. After his first few cards where he uses F1 to get the basic structure and then practices with F9, S16:L does not appear to be using a planned approach to either content or activity.

Conclusion: Integrated Use of F Cards

We can see from the discussions of Tables 8.4 and 8.5 that integrated use only of F cards is not generally speaking a strategy used by the more successful learners.

Secondly, it is clear from the data that the integration of use of F cards into the learning phase of the task, while the natural province of Examples-based learners, has to be done with caution by Rules-based learners, who may be wasting valuable time.

Thirdly, it seems that when Examples are integrated into the learning process as separate items (i.e. not as exemplification of rules just presented as on the D cards), learners prefer the presentation form of the Fp sub-set, possibly due to the problem-solving format (i.e. once the basic word order has been learned, a guess, trying out a hypothesis, can be made before a particular response structure is seen).

And finally, the integration of Examples into the learning process as separate items rather than in blocks, possibly because of the variety of purposes for which they can be used, requires the learner to be able to plan not only the order of the items to be learned (in this case structural rules), but also the order of the activities to be engaged in (the purposes for which the Examples will be used). This latter type of planning also takes place when the learner makes no integrated use of Examples, but the scope for confusion as to purposes when using Grammar cards is very narrow, as there is a limit to the type of activities which they invite.

To generalize, it seems that use of the Examples integrated into the learning process can only be beneficial if the learner operates with a strategy where Examples are either used opportunistically in the search for answers to specific questions, or where they are integrated as fulfilling certain 'activity roles' in a planned strategy of activities.

CHAPTER 9: USE OF THE GRAMMAR (SETS D AND E)

9.0 Introduction

This chapter is organized as follows:

- 9.0 some introductory remarks;
- 9.1 a brief description of the card sets and the layout, and of the grammar learning task which the learner was presented with in his instructions;
- 9.2 the framework for the analysis;
- 9.3 the analysis itself.

Before embarking on the analysis, an explanation of my reasons for conflating the analysis of these two card sets would seem appropriate. There are basically two considerations. Firstly, from the data it is clear that the subjects tend to use cards from these two sets for similar reasons and in similar positions in the task. There are some differences among learners as to their preference for one or other type of card, and these will be discussed in the course of the analysis.

The second consideration is the similarity of the subject matter on the cards. It is true that 'semantico-grammatical' would be a better label to apply to the semantics cards. However, I did not think that the use of such technical labels would be particularly conducive to dissipating any anxiety felt by the Ss, especially the linguistically naive ones. As it was, it was necessary to explain to the subjects that the Semantics cards contained more general information and rules about the expression of certain areas of meaning in Novish. The mention of rules and the topics chosen, Negation, Questioning, etc. make obvious links to the more specific rules given on the Grammar cards, as does the indication that the Semantics cards are 'more general'.

The format of the cards themselves differs, in that there are no examples of sentences on the Semantics cards (except E4-Negation with one example), while exemplification and translation are major features of the Grammar(D)

cards.

Despite the differences in the cards, the similarities in their content and use argue for a combined analysis, and where differences in their use do appear, these will be pointed out in the analysis.

Throughout the following sections I shall refer to these cards in general as Grammar cards. Where reference is made specifically to cards of one or other set this will be made clear.

9.1 The Card Sets and the Learner's Task

9.1.1 A: The Grammar (D) Set

The Grammar(D) set consists of eleven cards. On the front is a designation of the rule which is to be found on the reverse, together with sentences exemplifying this rule. On all the D cards except D11 the examples are translated into English. On cards D7 and D8, which give rules for the short forms of responses, the examples are set in a discourse context, i.e. a picture with accompanying question and response, both long form and the transformation to the short form. On the 'Word Order' cards (D1, D2, D3, D4, D5), only the structure in question is exemplified. For the list of the cards see below, 9.1.2 Layout. The cards themselves are reproduced in Appendix 3B (Vol.2, pp.18-22).

9.1.1 B: The Semantics (E) Set

The Semantics (E) set consists of five cards with information about: Questioning (E1), The gru/stil classification of nouns (E2/3), Negation (E4), and Number (E5). Some exemplification is given but not in sentence form, except for one example on E4. There is some information on these cards which is not in fact relevant for the learners' ability to do the post-test, but which gives a more general view of the grammar of Novish, e.g. the mention of numerals in E5, and the description of 'time' questions in E1. All the cards are reproduced in Appendix 3B (Vol.2, pp.23-25).

9.1.2 Layout

The full layout of all the cards can be seen in Appendix 3C (Vol.2, p.34). The layout of these two sets is worthy of specific mention as it is not 'obvious' in the same way as that of Sets A and B (alphabetical order), irrelevant as that of Set C, or 'traditional' as that of Set F, where the cards are arranged in a fairly traditional syllabus order of increasing complexity of structure. Taking the D set first, the word order cards are numbered following the same 'traditional' complexity based syllabus as Set F:

- D1 Rules for Word Order - Basic Word Order
- D2 " - Statements affirmative/negative
- D3 " - Questions
- D4 " - Positive and Negative Responses
- D5 " - Qualified Positive Response

These are followed by the dual/plural rule:

D6 Rule for Use of Dual and Plural Markers: ta and ma

And then the short forms of responses with discourse exemplification, also by increasing complexity:

D7 Rule for Formation of Short Answers: Positive and Negative Responses

D8 Rule for Formation of Short Answers: Qualified Positive Response

Then the phonetic rule:

D9 Rule for Use of Suffix -na

And finally the verb rules, with the more 'basic' first:

D10 Rules for Use of Verbs: mane

D11 " : gru and stil

The numbering of the cards in this way was for my own convenience, as it gives a certain correspondence between the numbers in the F (Examples) set and this set. As far as the subjects were concerned the numbers were irrelevant, as they could not see them till they had turned the card. With regard to layout, these cards were laid out in two columns of six and five cards, in such a way that no two adjacent cards in a column presented an obvious sequence of card turning, as for example a sequence such as D1-D2, or D5-D8, or D10-D11 might have done. The only 'obvious' features of the layout were that the top card

in the left hand column was D1 - Basic Word Order, and that word order cards occurred at regular intervals. The aim was for it to be immediately apparent to the subjects that the cards were not organized into a syllabus, in the hope of ensuring that they actually would read the fronts of the cards and make conscious choices, rather than relying on a 'syllabus' provided by the layout. The sequences of D card turnings in the data show that this hope was fulfilled.

The five E (Semantics) cards were laid out in one column to the right of the D (Grammar) cards. They were also in an apparently random order in that the two cards dealing with what could be construed as discourse structures, E1 'Questioning' and E4 'Negation' were separated, as were the two cards describing the gru/stil classification (E2 and E3).

Unfortunately, it was not possible to use this 'random appearance' strategem with the Examples cards (Set F - 16 cards), as I felt this would make the burden of searching for items too great for the subjects. This may have caused an imbalance in the data, as the subjects do tend to turn the F cards in layout order, and there is no way of telling whether they would have done this regardless of whether these cards were laid out as a syllabus (which they were), or in an apparently random order.

9.1.3 Learning Aim

From their instructions it should have been clear to the subjects that this is primarily a grammar learning task. As well as an oral explanation, the subjects were given two sheets to read. The first, 'Instructions', contains these paragraphs (for full text see Appendix 4B, Vol.2 p.42-43):

"Before you begin you will be given a sheet (Sheet X) describing what it is you will have to learn. When you have read this once you will start the task."

And later:

"Aim: Your aim is to use the cards to learn the grammar-

tical system outlined in Sheet X, together with the vocabulary in this sample of Novish, so that at the end of the 'lesson' you will be able to do a short test and hopefully get all the answers right."

Having read the instructions sheet and been through it orally with the task leader (myself), each subject was then given Sheet X to read (see Appendix 4C, Vol.2,p.44).

The instructions and the outline of the system in Sheet X place the emphasis on grammar learning, and give a summary of the structures to be learned, thus setting up expectations in the learner's mind, without in fact giving any indication of the form which the questions in the test will take. It is a grammar learning task, with the learning burden resting in the novelty of the grammatical system and not in the vocabulary, which is obviously based for the most part on English, with a little French.

I considered it necessary to provide the subjects with a clear indication of both the subject matter and the extent of the task for three reasons. Firstly, because in any reasonable independent learning situation the learner has a specific aim of his own, and has a general idea of what it is he wishes to learn and of the type of materials he is using.

Secondly, I wanted the learners to be able to learn a system large enough to at least give the appearance of having some coherence and enough reality to warrant an imaginary cultural background. At the same time, I wished to have a learning task which could be regarded as a single 'lesson', hence I did not want it to take appreciably more than an hour. The only way to reconcile these two requirements was to provide the learners with sufficient orientation initially that they did not waste a lot of time finding out what it was all about.

And thirdly, not the least of these considerations was

that of learner anxiety. The knowledge that any kind of learn-test situation is likely to cause anxiety, coupled with ~~the~~ intrigued but rather overwhelmed reactions of colleagues and friends (linguists!) to the card array, convinced me that the task would probably appear unmanageable to the subjects and cause considerable anxiety, unless it was delimited as clearly as possible beforehand.

As far as I can tell, Pask gave less detail to his subjects, informing them for example that they were to learn a taxonomy of Martian animals, without providing further information. However, for one thing his subjects seem to be experienced (as subjects), and for another, it seems that language learning is an intrinsically more threatening activity (to the ego) than other types of learning. This conjecture is supported by the assertions I received from many of the subjects (linguistics students included), that they were 'no good at learning languages'. It seems that they needed to guard themselves emotionally against some kind of failure at the task. My desire to avoid excessive anxiety is grounded in its deleterious effect on performance (see discussion p.69/70), which would provide a confusing factor in the analysis.

My inability to avoid the bias which the instructions may have imparted to the data with regard to the learners' use of Grammar cards, has, I hope, been explained by the discussion above. Given these instructions, it would be reasonable to expect learners to concentrate on Grammar cards in the learning phase of the task, although obviously a certain amount of grammatical information is available on other cards, i.e. the Translation Dictionary (Set B), and two of the Contextual Information cards (C6 and C7). That some subjects do not do this testifies to the strength of individual preferences with regard to strategies of language learning.

9.2 The Framework for the Analysis

9.2.0 Introduction

Probably partly as a result of the apparently random organization of the Grammar cards, the sequence in which they are turned differs from subject to subject, as do the number of cards and which cards are turned. This presents a problem for the analysis in terms of making generalizations about subjects' use of these cards. One possibility is to take a quantitative approach, counting the number of D/E cards turned and attempting to account for differences between subjects in this manner. Another possibility is to take a qualitative approach, using the commentaries in the learner protocols and the learners' notes relating to D/E cards as the basis for an attempt at distinguishing approaches and strategies used by the subjects.

Quantitative analysis gives certain indications of general approach to the task, as described in Chapter 8.1B, p.148, where the analysis of Grammar (D+E) and Examples (F) cards is related. And as has been seen in the analysis of the Examples cards, the two approaches to learning suggested by the quantitative analysis, which I have called Examples-based and Rules-based learning, are supported by the qualitative analysis of these cards.

A simple statistical analysis of Grammar card use, where the use of these cards was investigated for the three rank groups (Low, Middle, High), reveals only minimal differences between them in terms of number of Grammar cards used (see Ch.5, p.78). Therefore, in order to discover any differences in strategy among learners, and possibly to distinguish between more and less successful learners, it is necessary to turn to a qualitative analysis of these cards also. The following analysis will be seen to support both the general categorizations of approach already suggested, and to indicate other features of grammar learning strategies.

As with the Examples cards, there are two sources for the material upon which the qualitative analysis is based. Firstly, the learner protocols, and secondly, the learners' notes. A third element, which is not in itself part of the data, but which must be taken into consideration in this analysis, is the relationship between the cards themselves, as this has a profound effect upon the order in which Grammar cards (especially D cards) are turned, particularly within a Grammar block (the concept of blocks is defined in Ch.8.2 B1, p.154).

As a preliminary to the presentation of the analysis itself, I shall introduce the categories used in the analysis, and also describe the relations between the cards in the Grammar and Semantics sets, as these are important for the interpretation of instances of card use in a sequence of Grammar cards.

Relations between the Cards

Because here we are dealing with a miniature artificial language which is not just a set of symbols, but a series of structures and lexical items which have real meanings and are used in a discourse context, it is not possible to set up rules and give examples without 'begging questions'. Thus, although each of the Grammar cards focuses on a particular rule or aspect of meaning, they do not exist in a vacuum, and cannot be regarded as isolated entities. Especially the need to give examples on the D cards entails the use of structural items which are not explained on the card in question. Also, as the cards were not to be laid out as a 'syllabus', it was not possible to build up knowledge from card to card in such a way that on any particular card the examples only incorporated rules already learned.

As any card can be the first which a learner sees, the formulation of the rule, the explanations, and the examples on the card can all give rise to further queries with regard to other grammatical points. The stimulus a card provides may be a direct query in that a particular

item may be present but completely unexplained, as for example the suffix -na in an example, or an indirect one, in that the learner may wish to just check his understanding of a particular point.

These two possibilities result in a number of potential references from each Grammar card to its fellows, as shown in the Table of Relations between Cards below. Because of the lack of example sentences on the Semantics (E) cards, direct queries to other cards from these cards are less likely than from Grammar (D) cards to other cards. Similarly, because of the more general nature of the E cards, references to E cards from D cards are less likely to be direct queries.

TABLE ON NEXT PAGE

TABLE OF RELATIONS BETWEEN CARDS

Relations between Cards

D	-> D	-> E
First card	References:	References:
	Check Query	General
D1	D2 D6 D9 D10 D11	E5
D2	D10 D1 D6	E4 E5
D3	D10 D6	E1 E5
D4	D6 D7 D11	E4 E5 (E2 E3)
D5	D2 D4 D8 D9 D10 D11	E4 (E2 E3)
D6	D2 D3 D7 D8	E5
D7	D3 D4 D9 D10 D11	(E4)
D8	D5 D10 D11	(E2 E3 E4)
D9	D2 D3 D4 D10 D11	(E4)
D10	D2 D3 D4 D5 D6 D8 D9 D11	(E4 E5)
D11	D4 D5 D6 D8 D10	E2 E3 (E4 E5)

E	-> D	-> E
First card	References	References
E1	D3	(E5)
E2	D11	+E3 (E5)
E3	D11	+E2 (E5)
E4	D2 D4 (D5 D8)	E2 (E3 E1)
E5	D6	(E1)

KEY: (nn) = weak lead +nn = lead from front of card

List of Cards

Rules for Word Order:	E1 Questioning
D1 Basic Word Order	E2 <u>gru/stil</u> class-
D2 Statements affirmative/negative	ification of nouns
D3 Questions	E3 exceptions in
D4 Positive & Negative Responses	<u>gru/stil</u> classifi-
D5 Qualified Positive Response	cation of nouns
Other Rules	E4 Negation
D6 Dual & Plural markers <u>ta</u> and <u>ma</u>	E5 Number concept
D7 Formation of : Pos. & Neg. Responses	
D8 Short Answers: Qualified Positive Response	
D9 Use of Suffix <u>-na</u>	
D10 Rules for use of Verbs: <u>mane</u>	
D11 " : <u>gru/stil</u>	

The Table reflects the complexity and centrality of the topics on each card, in that the more complex/central the rule (structure), the more potential references it is likely to give rise to. This tendency is shown in both the D and the E sets, especially in E where Negation represents by far the most complex topic, and in D with D10 and D11, which are central to an understanding of the grammatical system. Also from the table, we can see

that references to D10/D11 and to E2/3 are very numerous, and this would lead to the expectation (which is fulfilled) that they would be numerous in the data. However, the most important use for the information in this Table lies in the aid it can give in analysing the data, in interpreting the sequences of Grammar cards turned by the subjects.

In order to discover the strategies used by the subjects in selecting the order of cards to turn in a Grammar block, it is necessary to carry out a close inspection of the commentary associated with each card turning. This describes in many cases the S's reason for turning a particular card. In other cases, however, no clear reason is given, either in terms of the intended use of the card (learning, checking, etc.), or of why this particular card has been selected, and it is particularly in these latter cases that the Table of Relations can be of use.

In general, the learners' reasons for turning Grammar cards in a certain order can be said to depend either on an idea of syllabus (a self-imposed sequencing of topics or activities), or on the following up of topics from previously turned cards. Where no indication is given of the reason for selecting a particular card as the next choice, it is possible, by looking at this table, to judge whether the card turned is probably a direct follow up to the preceding card or not. The general check on the data which was provided by this comparison with the Table of Relations, shows that the subjects are not turning cards at random, and that nearly all choices are made on the basis of a strategy.

9.2.1 The Analytical Categories Used

As with the previously analysed card sets, the categories set up for the analysis of the Grammar cards arise from the data. The categories, the feature or features of the data described by each category, and the status of each category in the analysis are described below.

The following categories will be described:

A Block/Integrated Use

B Purposes for Use

C Transition Types

9.2.1 A: Block/Integrated Use

The category Block use, which is common to the analysis of both the Grammar and the Examples cards, has already been introduced, (see Ch.8, p.148/9, p. 154). In brief, my definition of a Grammar Block is an initial sequence of grammar cards, where any number of interspersed dictionary references are allowed, but only one Examples(F) card use.

Where Grammar cards are not used in a block, I shall call this Integrated use (also common to both Grammar and Examples cards). With integrated use of Grammar cards, the purposes for which the cards are turned, and the reasons for which particular cards are selected (Transition Type - see below), are similar to those for block use. There are, however, some differences in the frequency of particular purposes and transition types, depending on whether a card is used in a block, or for integrated use by a learner without a grammar block, or by a learner with a grammar block. Such differences will be pointed out in the analysis. Despite the negative definition of the category of Integrated use, the distinction between Block and Integrated use is nevertheless central in the analysis, in terms of attempting to demonstrate differences between learners, particularly with regard to overall learning strategy.

Apart from the general categories of Block and Integrated use, there are two other groups of categories which are needed for an analysis of the way in which the learners use Grammar cards. Firstly, the Purposes for which cards are turned, in other words what type of activity the learner wishes to undertake with a particular card. And secondly, what I have called Transition Types. That is, what leads the learner to switch attention from a card, and to select a new card, why that particular card at that time. The latter group of categories is perhaps more obviously of interest in connection with the sequencing of cards within a Grammar block, but it seems that with Integrated use also, especially for learners making Integrated use only of Grammar cards, the learners have the same reasons for Grammar card selection.

These two groups of categories are not entirely separable, as, although there is not a one-to-one correspondence between the categories from the different groups, there is a strong tendency for particular Purposes to co-occur with particular Transition Types. I do however feel that the analysis provides the justification for the decision to separate these two ways of looking at the learners' activity when choosing a Grammar card to turn.

The two sets of categories, Purposes for Use and Transition Types, will be introduced below, before we move on to the detailed analysis.

9.2.1 B: Purposes for Use

From the learners' commentaries and notes, several purposes for use of the Grammar cards can be seen. I have chosen to use traditional labels, such as revision, checking, etc., for the activities the Ss undertake. It would seem esoteric and unnecessary to invent 'special' terms to refer to activities and purposes which are familiar from any teaching/learning situation. However, the way my subjects refer to various activities, and the nuances of purpose which they show in their selection of

cards, show quite clearly that the meaning of these traditional labels is very imprecise. Therefore, both here for the Grammar cards and in the analysis of the Examples cards, although I use for the most part traditional labels, it is necessary to present a definition of each term and, as far as possible, a description of the learner activity associated with each term.

The general concepts relating to learner intentions (availability, accessibility, recognition and recall), which were used in the cognitive descriptions of revision, checking and testing presented in the analysis of the Dictionary cards (Ch.6.4.1, p.111), provide the basis for these new definitions. But for each card set there are differences in activity which require further description.

The definitions of the purposes/activities found with the use of Grammar cards are presented below.

1) Learning

In the context of the Grammar cards, I have decided to use the category 'learning' despite its very broad meaning. With the Examples cards it seemed inadvisable to use this category, as these cards seem to invite a wider range of activities which might in normal everyday use be described as learning (e.g. activities which would be stabilizing information in memory rather than getting information, such as practice, exposure, see Ch.8,p.162). As these activities do not occur overtly, and never constitute the intended purpose for turning a Grammar card (exceptions S28:M, S25:H, see p.160), it seemed justifiable to use the category 'learning' in the analysis of the Grammar cards.

LEARNING in this context can be described broadly as getting information and attempting to commit it to memory, thus making it available and, possibly, accessible. An important aspect of learning, related to the manner in which information is committed to memory, is the possibility of attaining 'understanding' of an

item, of seeing how it fits into a wider context or system of associated items, of comprehending its scope and limitations, etc. (See Ch.2.3.2, p.26 for definition of this term). It is not however possible, in the context of this task, to ascertain whether understanding is achieved in any particular instance of learning. Therefore the definition of learning given here does not imply any particular method or result of learning.

The Ss use a variety of commentaries which I have interpreted as showing the purpose of learning. Examples such as "Look up ..", "Learn ...", "What is ...?", "Want to know about..." are typical, as are more general commentaries just indicating the topic the learner is now interested in, e.g. "Negation", "Time for Questions", and so on. I have interpreted the latter examples as learning, on the assumption that, as this is a learning task, the learners, especially when turning cards in a Grammar block, will have the intention of learning unless there are indications to the contrary, such as position in the card turning sequence.

Under the general category of learning, it is possible to distinguish variations in terms of what information it is that the learner wishes to obtain from a particular card. In most cases the learner turns the card with the apparent intention of 'learning' what is on it, as described by the rubric on the front. But there are instances where the learner is deliberately seeking out the answer to a specific question, and where the card chosen may or may not be an obvious source for the answer. An example of obscure sources would be S22:M who turns E5 because he wants "to know more about sade". (Sade = that/those, and E5 is 'The Concept of Number'.) His notes and other commentaries suggest that he wants to find out the scope of sade as a demonstrative with regard to number. Another instance is when subjects turn D11 (The verbs gru and stil), or E4 (Negation), when trying to find out about Qualified Positive Responses.

This type of use of cards may in some cases constitute a conscious attempt at hypothesis formation (or adjustment/completion), and it would also seem to indicate an attempt at understanding, especially where the card is not an obvious source of the information required. It is not always possible to distinguish when a learner is just learning generally from the card, and when he is seeking specific information. But in the tables of Purpose presented with the analysis, I have indicated the clear instances of seeking specific information and called this type of learning FOCUSSED LEARNING, which is how I shall refer to it where it is necessary to distinguish it from Learning generally.

2) Hypothesis Checking

This, like other types of checking, involves the intention of verifying something. One could describe checking in general as making sure that information is available. With hypothesis checking one needs to add that the learner is making sure that the information, his hypothesis or assumption as to a specific rule, part of a rule, or a meaning, is correct. This involves the deliberate choice of a particular card as does focussed learning, and there is probably some overlap between focussed learning and hypothesis checking. I have only included instances in the category of hypothesis checking, where the learner states a hypothesis, or comments that he is checking a hypothesis.

3) Checking

Checking is a vague concept, and the Ss tend to use this word to cover a variety of related activities. The common features of these activities are that they involve verification, and that they tend to occur towards the end of the task (integrated use of Grammar cards), or at or near the end of a Grammar block. There are at least two readily distinguishable types of checking, which I shall refer to as Recognition Checking and Completion Checking.

RECOGNITION CHECKING: With the grammar cards, only one

type of checking can be clearly defined as making sure that an item is available in memory (see Ch.6.4.1, p.111). This is when the learner, on the assumption that some or all of the information is known, turns a card with the intention of making sure that the information on the reverse is known (recognized as available) to him. The card may or may not have been turned before. Of course, if the check reveals lacking knowledge, learning will probably follow.

One problem with the word "check", so often used by the Ss, is that it does not necessarily refer to the process just described. In some cases it may be nearer to a revision process, where the intention is both to verify and to refresh the memory in order to ensure accessibility. In others, it may be hypothesis checking, and in still others it may be completion checking (see below). If, however, only the word "check" has been used in the commentary, and there are no indications that it is an instance of hypothesis checking, completion checking or revision, I have categorized the instance as recognition checking.

COMPLETION CHECKING: This is where the subject turns a card simply because he has not turned it before and feels that it may contain useful information. This is distinguished from learning, in that the learner indicates that this card is either not regarded as particularly important, or that he is fairly certain that he already knows the content of the card.

For example, S35:L writes "see whether I find anything important" and turns D10 and D4 at the end of the task; S29:H "been through all the Grammar cards and Semantics cards except Questioning" - turns E1, then "just to be systematic, the semantic one on Negation which I don't seem to have looked at yet" - turns E4. These are the final two cards of her Grammar block.

For Examples-based or Uncategorized learners, if this

type of checking occurs, it is with Semantics (E) cards. The Semantics set has only five cards and tends to be preferred by non-Rules-based learners, thus completion checking with the E set is possible for them.

One could suggest that this type of checking arises not out of a cognitive need so much as an emotional one. The first type of checking (Recognition Checking) is possibly used in a way similar to revision, as a means of both verification of knowledge and of stabilizing information in memory (cognitive aims). Whereas the second type (Completion Checking) suggests that the learner wishes to be certain that everything possible has been done to ensure that in the ensuing test, he will not be faced with any unwelcome surprises.

I feel that one further comment is needed with regard to the sub-categorization of Checking. The categories (definitions) I have suggested cannot be seen as mutually exclusive, in that learners in some cases may have a purpose which is essentially ambiguous (including aspects of more than one sub-category). I do not regard this overlapping of categories as sufficient reason for avoiding the attempt at categorization. My reason for attempting to clarify this area is that the learners do have different purposes and activities for which they use the same label. Consequently, I felt that the risk inherent in attempting to be precise in a fuzzy area was worth taking, as sub-categorization might possibly reveal details of learning strategy or approach, which would be concealed if all instances were regarded as identical.

4) Revision

I have left this purpose till last as it is one which, as a purpose stated by the learners, occurs only very infrequently with Grammar cards. And secondly, because I am not certain, given a definition of revision as an activity where the learner has the intention of strengthening the availability and accessibility of items (see p.111), i.e. stabilizing information in memory, that

any of the activities undertaken by the Ss with Grammar cards can be defined as revision. It would seem to me that revision is usually undertaken as part of an activity syllabus, where the learning phase is concluded, and the learner decides that the next activity should be a general run through of items to stabilize them for later use. This would be a non-selective activity, thus, one could expect a series of cards turned to provide an overall 'refreshing' of the whole grammar.

Three of the subjects who turn a series of E (Semantics) cards at the end of their Grammar blocks, S17:L, S5:L and S3:M, could be revising. S17:L writes "Need some background", S5:L writes "Revision" and S3:M writes "To find concepts behind rules and reinforce". I have counted S5:L and S3:M as revision, but as "background" does not necessarily constitute revision, I have counted S17:L as learning. Most other instances in the data where a learner has stated revision as his intention and has used a single card, have been indicated in the tables as Recognition Checking. This decision was made as I feel that revision using a single card is more likely to be a hybrid between checking and revision, as described above under Recognition Checking.

From the discussion above, and the lack of instances in the Grammar data compared to the use of other card sets, it seems safe to suggest that learners are most likely to regard revision as most beneficial with vocabulary or examples, and that revision of rules as such does not occur. This seems very sensible, as with language it is not the rules themselves but the ability to apply them, which is most important.

5) Note re Practice

This activity (see Ch.8.2.2B, p.164 for definition), which could be considered as part of learning, and whose aim is to stabilize information in memory (like Revision), does not occur as a stated purpose with the Grammar cards. It is in the nature of practice to occur

with the use of examples of linguistic structures, rather than with rules. There is one learner, however, S28:M, who definitely does use the examples on the D cards as the basis for practice activity. This can be seen from his notes (see Ch.8, p.160 for discussion of this learner). One other learner, S25:H, probably also uses these examples for practice. As these are the only instances in the data, and as no learner has stated practice as his intention in turning a Grammar card, I have not included it as a category in the analysis of the Grammar cards.

6) Discussion

The categories of Learning (plus sub-category Focussed Learning), Hypothesis Checking, Checking, with the sub-categories of Recognition Checking and Completion Checking, and Revision have been used to classify each instance of Grammar card use in the data. These classifications are shown in the Purpose Tables (Vol.2 p.61-63), which are used in the analysis.

It is clear that the classification of instances of use in terms of purpose, rests, in many cases, on my interpretation of the learners' commentaries and notes. I have, however, in making my judgements, also used the features of position of occurrence and number of cards turned, together with the Transition Type of a card. I feel that this gives me a reasonable basis for interpretation.

One could also argue that the blurred boundaries between some of the categories invalidate the attempt to categorize instances of use according to purpose. Although some nuances may be lost, the majority of instances of use do fall into the central definition of each purpose, and, as I have mentioned before, it is necessary to run the risk of mistaken classification of some instances, if the possibility is to be created of seeing general patterns of activity by the learners.

9.2.1 C: Transition Types

With the Grammar cards, in addition to the more obvious mode of purpose analysis, I felt it was necessary to investigate the reasons why learners select the cards in the order they do. Close reading of the commentaries and cross-checking with the Table of Relations between Cards, showed that the subjects were not selecting randomly. The transition from card to card was dependent either on the learner's own idea of the organization of grammar learning, or on the content of the previous card(s).

Within these two general types of transition, there are variations. The categories are described individually below, but grouped under the two general headings as:

1) Syllabus-based transitions

2) Reference-based transitions

1) Syllabus-based Transitions

1)a LAYOUT TRANSITIONS: The learner may select the next card because it is placed next in the column of cards. Thus, the transition from one card to the next is dependent not on some strategy of selection based on the content of the cards, but purely on their physical position on the table. This leads to learners going through whole sets of cards in layout order, a strategy which is common with the Examples and Dictionary sets, but rare with the Grammar cards. I have included this category as syllabus-based, as learners apparently adopt this transition strategy on the assumption that the cards have been arranged in some kind of systematic syllabus.

1)b SYLLABUS TRANSITIONS (in a learner-generated content syllabus): This is the opposite of a completely externally controlled syllabus (layout). Here the transitions between cards are based on an idea the learner has of a language (grammar) syllabus, hence the order of his card selections is generated by the learner himself according to some systematic criterion.

Quite how learner-generated such a syllabus is, is a matter for argument. The instructions given, and the cards available, of course constitute constraints on how free the learner can be. Similarly, it is not possible to measure the influence of previous language learning experiences, which probably provide schemata the learners can, and do, draw upon in organizing their learning. But I feel that as the use of previously acquired schemata is the norm as far as learning is concerned, this use of experience cannot be said to detract from the 'learner-generatedness' of a syllabus. Though it would of course be interesting to know what schemata a learner is using and to what extent.

With regard to the constraints on freedom imposed by the task itself, on occasion learners make comments/notes which indicate self-generated syllabus items that go beyond the information available. For example: S22:M, after checking on sade (B23) on the hypothesis that it is a general demonstrative, and finding the translation that/those, notes "What about this/these?"; S14:M says "Wonder how you ask 'Is that not a house?' - not going to worry about it now." Comments such as these suggest that at least some learners are generating a syllabus which goes beyond the constraints imposed by the task, while at the same time being aware of these constraints. This would indicate that the concept of a completely free (learner-generated) syllabus as opposed to a bound one (layout) is after all reasonable.

The variation in the learners' feelings of being constrained by the task, and/or by past experience, would favour regarding the opposites, free (learner-generated syllabus) and bound (layout syllabus), as the extremes of a continuum. It is evident in the data that learners do vary both in their adherence to particular past experiences of language learning (e.g. S5:L who writes "Other foreign languages were taught this way in my experience" to justify the syllabus order she is following), and in how constrained they feel by the task,

see the examples above. But as the data do not contain enough information to place all instances of syllabus-based transitions on such a continuum, I shall regard the two categories of Layout and Syllabus transitions as discrete and opposite, though the actual degree of freedom the learner uses in making a Syllabus transition may vary considerably.

I have based my categorization of instances of use as Syllabus transitions on two types of evidence. Firstly, the Table of Relations between Cards (above, pp.201-4), which can help to indicate the likelihood of a card being turned only as a result of previous card turnings, and, more importantly, on the learners' commentaries and notes. The commentaries often indicate syllabus changes, for example:

- S17:L "Simplest structures" - turns D2
"Slightly more complex" - turns D4
"Study questions before studying responses" - D3
- S29:H After D1 and follow up cards:
"Fresh area - statements" - D2
"On to questions" - D3
"Answering questions" - D4
"Short answers" - D5

(There are follow up cards, Reference transitions, interspersed between these Syllabus cards.)

The same types of Syllabus transitions can also be seen with Examples-based learners, who use Examples (F) cards for grammar learning:

- S31:M Having done extensive work on questions and responses, she writes
"Moving on to statements" - turns F1, F9, then
"Negative statements" - F2, F10.

With subjects whose learning strategy is based on Examples, Syllabus transitions may occur with either Grammar or Examples cards. With Rules-based learners, this type of transition almost exclusively occurs with Grammar cards.

2) Reference-based Transitions

I have called the second group of transitions Reference-based, as the learner, stimulated by something seen in an already used card, searches for information in other cards. This is similar to the way in which, as a result of reading a section of grammar in a book, or an example, or a word in a dictionary, one may be led to refer to other sections, examples, words, in order to follow up queries, or to check hypotheses.

2)a DIRECT REFERENCE TRANSITIONS: This is where the second of any pair of cards is turned as a direct result of something seen on the first card of the pair. All the learners show instances of this type of transition, it is common both within Grammar blocks, and is also used by Ss with integrated use of Grammar cards.

The evidence for this transition type is found both by using the Table of Relations between Cards (pp.201-4), and in the learners commentaries. Commentaries of the following type give clear evidence:

S9:M Turns F5, then D8 with the commentary "Trying to explain F5."

S3:M Turns E2, then E3 with the commentary "Ref. back to E2."

It is equally common for the commentary to reveal purely by its language content that the lead is from the previous card:

S21:L Turns F1, then D9 (-na) with the commentary "to see why mane & manena used in different places."
(These are on F1 in the examples.)

There are variations on this type of transition. For example, where the learner looks up more than one card following a lead from the preceding card. The leads may be to cards dealing with the same topic, e.g. E2 & E3 (the gru/stil classification of nouns), or different topics. For example:

S15:L D4 -> E2 "confusion over gru/stil"
-> D10 "confusion over the word manena"

Another variation is when the learner looks at other cards, and then takes up a direct lead from an earlier card. In this case, the transition is not between sequential cards, but is nevertheless direct. This type of transition can usually only be identified unambiguously if the subject mentions the reference, e.g.:

S34:H Turns C6, then three other cards, then D11 with the commentary "Basic, see C6."

2)b GENERAL REFERENCE TRANSITIONS: Here the learner follows up a grammatical or semantic problem which he has noticed on one or more cards, and which he has ignored for the moment. This is often indicated by the commentary as exemplified:

S12:L D10- "check mane encountered in D1, D6 and D9."

S5:L "Basic structure covered, now go back to unexplained variations in language as yet accepted without being explained."

But sometimes only by looking at the sequence of cards does it become clear:

S32:M Having looked at several Examples of responses and at dictionary cards, she looks at E2 & E3 "to find out when to use gru/stil". Gru/stil will have been used on the dictionary (B) cards and in the responses.

Generally speaking, General Reference transitions are less common than Direct ones when it is a matter of learning, but more common where the purpose with the card is hypothesis checking, or recognition checking of a rule near the end of a Grammar block.

3) Discussion of the Transition Type Category

The aspect of card use described above, Transition Types, may require some explanation both as a mode of analysis, and because it is a categorization exclusive to the analysis of the Grammar cards.

I feel that the difference in the types of material presented in the different sets, provides sufficient jus-

tification for devising differing analytical categories and approaching the analyses in different ways, as I have argued in the introduction to the analysis (Ch.5, p.81).

There remains however the justification for the use of Transition Types as a mode of analysis.

With other card sets, the reasons for selecting a particular card next were generally obvious, with the exception in some cases of the selection of Examples cards when grammar learning was the aim. In these cases, and with Grammar cards, the order of cards selected was extremely varied, and apparently random. As it was a safe assumption that random selection would be unlikely in this situation, it was necessary to look for patterns. And as there were no obvious numerical patterns to be seen, the alternative was to seek patterns in the commentaries. The resulting observation, that learners were following 'pathways' through the grammar, and that their routes were determined either by an innate idea of what should be done next, or by the cards they had just turned, or by a mixture of the two, led to my setting up of the category of Transition Types.

This category has proved generally useful in investigating strategies of grammar learning, both with Grammar cards and Examples cards. It is perhaps also more useful in determining a learner's general approach to the grammar learning aspect of the task, than purposes are. The latter tend to provide detailed information about the way in which a learner uses materials, whereas transition types give information about the way he organizes the learning.

On occasion, for example where a learner refers to a D card in order to complete the exercises on an Examples (F) card, it is not really possible to distinguish between Purpose and Transition Type. Similarly, Syllabus transitions often imply the purpose of Learning. The fact that Purpose and Transition Type do not always coincide,

however, obviates the criticism that they are for all practical purposes the same.

Finally, as mentioned above, this category is not exclusive to the Grammar cards, although it is exclusive to this analysis of the Grammar card sets. It is relevant to grammar learning in general, and this may be accomplished by the use of cards from several sets. Therefore, in the following analysis, transitions between cards other than Grammar cards are introduced, and, especially for Examples-based learners (Integrated Use only of Grammar cards), the analysis and discussion will bring in the use of cards from other sets (especially Set F - Examples).

9.3 Analysis of Grammar Use: Sets D and E

9.3.0 Introduction

The analysis is presented against the background of the preceding section of this chapter, and with the use of the categories Block and Integrated Use, Purposes for Use, and Transition Types.

The results of the analysis are presented in a set of tables with related description and discussion. In these tables, all instances of Grammar card use have been coded by Purpose for Use and Transition Type, according to the sub-categories introduced in the preceding section of this chapter. For ease of reference, as constant reference to these tables will be necessary, they have been included in Volume 2, pp.61-66, and are prefaced with the chapter number (9). Reference to the Table of Card Turnings may also be necessary.

The tables are as follows:

Table 9.PI : Purposes for Use - Block Use

Table 9.PIa: " " " - Integrated Use with
a Grammar Block

Table 9.PII: " " " - Integrated Use only

Table 9.TI : Transition Types - Block Use

Table 9.TIa: " " - Integrated Use with
a Grammar Block

Table 9.TII: " " - Integrated Use only

Tables 9.PI and 9.TI present those learners who use Grammar Blocks.

Tables 9.PIa and 9.TIa deal with the same learners, and show their Integrated use of Grammar cards.

Tables 9.PII and 9.TII present those learners who make only Integrated use of Grammar cards.

As a preliminary to the discussions, the layout of each table is described. The layout is kept constant across the P and T tables so that cross-reference presents no

problem. In all the tables the subjects are in rank order by post-test scores, and divided into the three groups, Low, Middle and High (L, M, H). To the right of the subject number, those subjects who have been categorized as Examples-based or Uncategorized learners are indicated by the letters E and U, the remaining subjects are Rules-based.

Obviously, in the four tables dealing with Integrated use, it has been necessary to include other card turnings in order to show roughly the position of use of Grammar cards. Where cards from other sets are used for grammar learning, these have been coded for Purpose and Transition type.

In the two Block use tables, where transitions to Grammar cards have been made on the basis of cards from other sets, these are included, together with coding if relevant.

The analysis follows the same order as the list of tables above:

First, 9.3.1:Purposes for Use, then 9.3.3:Transition Types. Each aspect of the analysis is rounded off with a summarizing discussion of implications for learning strategies and foreign language learning in general. More general quantitative features of Grammar card use are integrated into the Purposes for Use analysis.

9.3.1 Analysis of Purposes for Use

TABLE 9.PI: Purposes for Use - Block Use

Description: In this table all Grammar cards used in blocks have been coded for purpose, and interspersed cards also used for grammar learning have also been coded. Four learners have been included as 'Special Cases'. These are instances which conform only in some respects to my definition of a Grammar block (near the beginning of the task, not more than one interspersed Examples card, no interspersed dictionary set).

The following codes are used for the purposes (these codes are used in all the P tables):

- L - learning
- F(L) - focussed learning
- H(C) - hypothesis checking
- RC - recognition checking
- CC - completion checking
- R - revision

Asterisks indicate whether the subject makes Integrated use of Grammar cards before and/or after his block. The number of cards used is shown at the right hand margin, and Semantics (E) cards are coded.

In the following analysis, I look at the cards in general first, and then at the Semantics cards in particular.

General Analysis: There are 19 subjects who use clear Grammar Blocks for their initial learning, and one, S32:M, who has a block at the end of the task. Three other learners (shown in Table 9.PI as 'Special Cases', together with S32:M) have sequences of Grammar cards which constitute uses similar to blocks, but not conforming to the definition of block which I have set up (see p.205).

These 23 subjects are the majority of the learners, and the clear cases of block use (except S7:H) are all Rules-based learners using the rules on the Grammar cards as the basis for learning and hypothesis making.

On looking at the table, we see that subjects generally use at least twice as many D cards as E cards in their block. Only 27.5% of the cards used are Semantics cards. Given that there are 11 D cards and only 5 E cards, this is predictable, as is the fact that the overwhelming majority of cards are used ^{for} Learning (78.2% of all cards).

With regard to purposes other than learning, we see that very few cards are used for Revision(R). A total of 8 cards are turned for this purpose at or near the end of

the block, by only three learners, S17:L, S5:L and S3:M. Notably, of these 8 cards, 7 are Semantics cards (see Summary of Purposes section, p.231f, for discussion of this).

Checking - Recognition Checking(RC) and Completion Checking(CC) - is also sparsely represented, with 11 instances of RC plus 3 uncertain instances, and 4 instances of CC plus 1 uncertain instance. These also occur at or near the end of the block. And here also, we see that, given the ratio between the two card sets, a disproportionate number of these cards are Semantics cards; 8 out of a total of 19 instances. This could be explained by the learners wishing to check, using cards which cover larger areas of grammar, as this would provide them with the opportunity of making sure that nothing had been missed. Alternatively, they might wish to use an as yet unseen card for this purpose, thereby killing two birds with one stone.

From these figures it is clear that the learners are using a commonsense strategy in choosing not to use the cards in their Grammar block for revision and checking purposes. They regard the block as a learning phase, and sensibly enough reserve revision for later use with other card sets. Examples (F) cards and Dictionary sets are used for this, as they provide the possibility of a quick run through of an ordered series of cards. Similarly, there is very little checking in the Grammar blocks. Subsequent Integrated use of Grammar cards, however, is predominantly for checking. This again shows practical use of the materials, as it is presumably only after using the rules, when the learners have become aware of the weaknesses in their knowledge, that checking can pay.

That those instances of revision and checking that do occur are placed at or towards the end of the blocks, is entirely predictable, as both these purposes by definition entail prior learning.

When we turn to Hypothesis Checking(HC) and Focussed Learning(FL) (for definitions and the relation between these two purposes, see p.208/9), we see a slightly greater number of instances.

<u>Group</u>	<u>No of Ss.</u>	<u>HC</u>	<u>FL</u>	<u>Tot.</u>	<u>(i)</u>
L	7	4	4	8	
M	7	3 (4)	7	10 (11)	
H	9	11 (12)	6	17 (18)	

(The figures in brackets give the total when uncertain instances are added.)

Given the nature of these two purposes one would expect only a small proportion of Semantics cards to be used, especially for focussed learning. This expectation is fulfilled except in M group where 5 of the 10 instances are using Semantics cards, 3 of which are for focussed learning. The L and H groups use only 1 and 3 Semantics cards respectively, all for hypothesis checking. This difference is difficult to explain, but Ss28:M and 32:M, both 'Special Cases', in fact account for 4 out of the ten uses in M group, and for the 3 FL uses of Semantics cards. These learners have somewhat idiosyncratic strategies in general and are difficult to compare with other learners.

(i)

The table above/reveals that the more successful learners have a tendency to make slightly greater use of hypothesis checking and focussed learning. Although 13 of the 18 uses in H group are by three learners, S6, S10, S20, (see below re individual differences), these purposes are nevertheless more widespread amongst these learners. This may be partly a reflection of a greater conscious awareness of, and ability to report, their precise purpose in turning a card, or it may show that they are more likely to consciously formulate rules and search for the scope and limitations of these rules.

In summary, it is this more widespread use of hypothesis checking and focussed learning in H group, which presents

the only appreciable difference between the groups in the proportions of cards used for different purposes within blocks. Although the use of cards for revision only occurs in the lower groups (L and M), it is difficult to generalize, as only two learners account for all but one instance of revision. The only possibility would be to suggest that a revision strategy is slightly more likely to be recognized as inadvisable by more successful learners.

On the other hand, there are indications of individual differences in learning approach, in that certain learners use considerably more Focussed Learning(FL) and Hypothesis Checking(HC) than the majority, e.g. S35:L, S6:H, S10:H (such learners account for the majority of instances.) It should also be noted that these learners tend to use fewer Grammar cards in toto than most other Rules-based learners with Grammar blocks (see Table B.0: Quantitative Analysis of F & D/E cards, Vol.2, p.55). The coincidence of fewer Grammar cards and greater focussed learning and hypothesis checking suggests that either it takes longer to work with conscious hypothesis making and checking, or that it is more profitable in terms of learning the grammar.

It seems to me that the individuals who show explicit hypothesis making and checking are adopting a strategy (deliberately or not), of rule-formulation (induction) rather than rule-assimilation (reception learning). Where the attempt to formulate rules possibly resembles the approach used by many of the Examples-based learners, and is in contrast to a more 'passive' receptive approach, which may resemble rote-learning in some cases. It seems that these learners are treating the task as a problem-solving one.

One interesting interpretation of this difference in approach could be related to learners' judgements of the optimal relation between cognitive effort involved in card selection and learning per card selected, and number

of cards turned. Bruner, Goodnow and Austin (1956:112) suggest that in concept learning by problem-solving, one of the learner's major concerns is reducing cognitive strain. In order to do this, he makes strategy decisions which will vary depending on the situation he is in (viz. factors such as time pressure or random organization, will affect which strategy is chosen). Thus, he attempts to maximize his potential learning without suffering cognitive overload.

As a result, learners could be expected to make judgements as to optimal use of the cards, a trade-off between cognitive effort, time taken and amount and quality of learning. Thus, it may not only be different strategic preferences, but also different trade-off judgements, that play a part in deciding the learner's approach.

The three learners mentioned, within a preference for Rules-based learning, have either judged that it is an optimal strategy, or preferred, to invest effort in formulating-rules. This has the possible benefit of increasing understanding, with its potential for making systematic analogies (moving to higher nodes in the rule hierarchy), with the result that fewer cards will then need to be selected (selection in itself entails considerable cognitive effort).

An alternative strategy seen in Ss14:M and 18:M is one of lack of selection with regard to either card or purpose. They both use the layout as their syllabus (see under discussion of Transitions, p.255ff), and turn the cards for Learning. The effort of selecting is reduced, increasing the effort available for numerous card turnings, and possibly also for gradual hypothesis formation throughout the learning process. (There is evidence of this in S14's commentaries.)

This feature of distribution of effort may possibly account for the differences between subjects in both the

number of Grammar cards turned, and the Purposes for which they are turned. The idea of a general strategic preference may therefore be more complex than the usual affective interpretation would suggest, in that the preference may, at least partly, be a choice which is dependent on the task and the situation.

Distribution of Semantics(E) Cards in Grammar Blocks:

It is not feasible to do a statistical analysis of such small numbers of instances, but the raw figures (see summary table/⁽ⁱⁱ⁾below) show that there is a slight tendency towards a difference between the rank groups in the number of Semantics cards they use.

In the table/⁽ⁱⁱ⁾below, the learners are divided into the rank groups (L,M,H). Column 1 shows the number of subjects with a block, (throughout, the figures in brackets indicate the total when 'Special Cases' are added in); column 2 - the total number of E cards used; column 3 - the number which are integrated into the block; and column 4 - the number which are used at the end of a block. The last two columns give figures relating to the use of E cards in a cluster at the end of the block (i.e. more than one card). Column 5 - the number of subjects with such clusters; column 6 - the total number of cards used in these clusters.

						(ii)
Ss with Blocks	<u>No. of E cards</u>			<u>End clusters</u>		
	Tot.	Integr.	End.	Ss	Cards	
1	2	3	4	5	6	
L 6(7)	21(24)	9(12)	12(12)	3(3)	11(11)	
M 4(7)	16(27)	3(10)	13(17)	3(4)	12(16)	
H 9	26	16	10	2	5	

By comparing columns 6 and 2, the cards used in end clusters can be seen as a proportion of total E card use. This comparison reveals that the most successful learners use by far the smallest proportion of the total cards in end clusters. And by referring to column 5 in relation to the total number of subjects in the group (column 1), we

can also see that a smaller proportion of learners in H group use this strategy. Also, one of the two who do have such a cluster, S29:H has four earlier (integrated) uses and only two cards in her end cluster. A comparison of columns 2 and 3 shows the proportion of E cards which are integrated into the Grammar Block, i.e. interspersed between D cards throughout the block. Again the H learners have a clearly different pattern of use, as do the Special Cases, with three out of the four learners integrating their use of E cards.

These figures show that the most successful rules-based learners prefer to use Semantics cards integrated into their grammar learning, whereas the less successful ones are more likely to use Semantics cards in a cluster at the end of a block of grammar learning.

One can argue that the learners who cluster their use of Semantics cards at the end of their Grammar block are influenced by the position of the cards on the table, and are working through the columns from left to right. Nevertheless, the fact remains that this card configuration, whether the learner is working from left to right or not, is not indicative of success.

With regard to purposes, we can see from Table 9.PI and the small summary table⁽ⁱⁱⁱ⁾ below that Semantics cards are mainly used for Learning(L), with less than one third being put to other uses.

<u>Rank Group</u>	<u>Cards used:</u>	<u>Learning</u>	<u>Revision</u>	<u>Other</u> ⁽ⁱⁱⁱ⁾
L (7Ss)		18	3	3
M (7Ss)		16	4	7
H (9Ss)		18	0	8

Only two learners, S5:L and S3:M, have used Semantics cards for Revision, with the cards in a cluster at the end of the block. This purpose is used by fewer subjects than any other purpose.

(iii)
The table above shows that the more successful learners (M and H) are more likely than L learners to use Semantics cards for a purposes other than learning or revision. And that no H learners have chosen to use them for revision.

In general, there is one conjunction of features in these data which suggests a pattern. The clear tendency of the most successful learners to integrate their use of Semantics cards into their Grammar block, coincides in these learners with the slight tendency to use more varied purposes, excluding revision. This combination could suggest a greater ability/desire on the part of these subjects to make use of more general information, and hence a greater ability/desire to draw rules together into a system of information.

In addition, many of the uses by the H learners and Special Cases are where a topic is being followed up across card sets (see Table 9.II), e.g. S29:H follows up the gru/stil distinction by turning D11-E2-E3, and later the concept of number with D6-E5. This type of activity appears to be more widespread among the H learners than in the other groups. Understandably, as they make greater use of integrated E cards. The usual order is from D card to E card, i.e. from specific rule to general explanation. This suggests a strategy for attempting understanding (refer Ch.2, p.26), and implies that this type of attempt is symptomatic of successful learning, especially in rules-based learners.

Summary: Table 9.PI Purposes for Use - Block Use

In summarizing the findings from Table 9.PI, (Purposes for Use - Block use), there are two points to be made.

Firstly, analysis of Purposes for Use reveals that there are individual differences among Rules-based learners. And that these appear to be variations in preferences, or choices, with regard to the appropriacy for the task of a rule-formulation or a rule-assimilation approach to

grammar learning.

Secondly, apart from these individual differences, there are some tendencies to be discerned in terms of both Purposes for Use, and use of the two card sets. It is of interest to speculate about these tendencies, but it must be pointed out that they are slight, and that there are also considerable individual differences between the learners in any one rank group. The tendencies are as follows:

1) Learners in H group show a slightly greater use of Hypothesis Checking and Focussed Learning than other learners.

2) Very few learners, and no H learners, use cards for Revision.

3) H learners prefer to integrate their use of Semantics cards into their Grammar block, while other learners are equally likely to use these cards in a cluster at the end of the block. More successful learners (M and H) are also more likely to use E cards for a variety of purposes (excluding Revision).

Taking points 1) and 3) together, we find that the most successful learners alternate their learning between specific rules and more general descriptions of semantico-grammatical areas, often seeking information on the same topic from the different card sets. Taken together with their slight tendency to more HC and FL, this would suggest an approach to learning which aims towards a deeper understanding of the rules and a desire to integrate them into larger systematic areas of knowledge, together with a greater ability to make use of more general information in the pursuit of these aims.

Taking points 2) and 3) together, we can see some implications for less successful strategies. Firstly, most learners regard Revision at this stage as a waste of time, which it probably is. Secondly, it appears that using general semantico-grammatical information about different areas of grammar at the end of a grammar

learning period is not as beneficial as interspersing it at relevant points in relation to the learning of more specific grammar rules.

On the basis of the summary above, it is possible to begin to make some tentative suggestions with regard to the use of grammar materials in foreign language learning.

For learners who prefer to base their grammar learning on the presentation of rules, it would seem that more successful learning is likely to result from the presentation of these rules in the context of larger semantically based areas of the grammatical system. The reason for this could possibly be that, by enabling the learner to integrate each rule into an information hierarchy or network, this form of presentation engenders deeper understanding. The resulting ability to make analogies should lead to more economical learning.

A second point is that the use of grammar material for revision of rules before the rules have been put into practice, is most likely to be a waste of time and effort. Concomitantly, the use of grammar material for revision at all, does not appear to be a strategy that learners adopt if given free rein, and is therefore probably inadvisable.

TABLE 9.P1a: Purposes for Use - Integrated Use with Grammar Blocks

Description: This table shows the position and Purpose for Use of all Grammar cards turned outside Grammar blocks by those learners with a Grammar block. Thus, it deals with the same learners as Table 9.PI. Cards from other sets which are used in relation to grammar are given in brackets and coded for purpose. Any Grammar card used for reference within a sequence of other cards is circled. Semantics (E) cards are coded, and the total number of cards used is given at the right hand margin.

Analysis: Of the total of 23 learners (inclusive of Special Cases), 7 use Grammar cards within a block only. The remaining 16, turn between 1 and 8 additional cards, before or after the block (pre-block/post-block), singly for reference, or in a cluster as (part of) a checking phase at the end of the task.

<u>Integrated uses</u>		<u>(iv)</u>	
	<u>Pre-block</u>	<u>Post-block</u>	
No. of		Reference	Cluster
subjects	5	13	7
No.of cards	11	20	20

PRE-BLOCK USE: The 5 subjects who have a pre-block use are following up leads from the initial cards they turn. Only with S14:M have I included a grammar card turned in an orientation phase. She looks at an Examples card to "get an idea of what the language looks like", then makes a hypothesis about question forms and checks it with E1 (Questioning), before continuing with Dictionary cards. Very few Grammar cards are turned for orientation, and other orientation uses have been excluded as no learning appears to be taking place, and the cards turned are not selected with that intention.

8 of the 11 cards used pre-block are for Learning, which is to be expected given the position of the cards. S14:M, however, uses 3 for Hypothesis Checking. She changes

strategy after the third HC card, and starts a block following the layout rather than selecting cards, at the same time changing to learning rather than HC. This change in strategy suggests that her pre-block use is rather different from that of other learners, and that she may have initially intended to use a rule-formulation approach similar to that of Ss35:L, 6:H, etc., mentioned in the discussion of individual differences (p.226), or even an Examples-based approach with Integrated use of the Grammar cards. It is interesting that she switches to an apparently completely opposed strategy (see discussion p.255ff), and may reflect a decision that, in terms of cognitive effort, a non-selective use of numerous cards for rule-assimilation is likely to be more profitable.

For the sake of completeness, I should mention that in some cases it was difficult to decide quite where a block of Grammar learning began. Often the learner states his intention of starting grammar learning, but occasionally there is a 'drift' from orientation or vocabulary learning to grammar learning, via a Direct Reference Transition (see Table 9.II, Vol.2, p.64). Where this is the case, if the learner continues learning thereafter, I have regarded the first reference as the start of the block. The uncertain initiations of Grammar blocks are shown by a dotted vertical line in Table 9.PI: S35:L, S8:L. It is possible that these two subjects should be added to the five with pre-block integrated use.

The very few instances of pre-block use suggest that learners are conscious of a strategy and decide to go into a grammar learning phase, either directly, or after an orientation or vocabulary learning phase. Once they start grammar learning, they continue in an orderly way for a period of time, before they move to a new aspect of learning (i.e. vocabulary) or a new activity phase (e.g. practice).

POST-BLOCK USE: Reference uses are limited in number to between one and three cards per subject. They are for

Recognition Checking (11 cards), or Learning (8 cards), with one instance of Focussed Learning, and D cards are most often used, as could be expected.

Post-block Reference Use by Purpose: no. of cards (V)

	RC	L	FL	Tot.	D	E
L	1	1	1	3	2	1
M	5	3	0	8	6	2
H	5	4	0	9	7	2
Tot.	11	8	1	20	15	5

It is a both predictable and sensible use to refer to the grammar for help in solving problems encountered when working with Examples or the Translation Dictionary. And the purposes used are what could be expected of this kind of reference activity. Most references are made after looking at an Example or a Dictionary card. But there are several instances where a learner looks up a card in advance of working with related examples, e.g. S20:H, who looks at the grammar of negative responses (D4) before proceeding to use the Examples card for negative responses (F12), (see Table of Card Turnings).

The feature to note here is the low use of reference cards by L group (3 cards), in contrast to M and H groups (8 and 9 cards). When we look at the number of subjects making post-block reference use of Grammar cards, we see that only 13 out of the 23 subjects with Grammar blocks use them in this way. However, 6 of these are in H group and 5 in M group. So reference use is more widespread among the more successful learners.

In contrast, it is in the lower rank groups that slightly more Clustered use of Grammar cards occurs, i.e. more than one Grammar card, possibly used together with other cards, in a final checking or revision phase. Of 7 subjects, 3 are in L group, 2 in M, and 2 in H. (With one of these, S7:H, the two checking cards she uses, E4 + D4, are not in fact final, but occur at the end of her learning and practice and before she begins testing - see

Table of Card Turnings). The difference in uses between the groups can be seen below/^(vi)in the summary from Table 9.P1a.

<u>Post-block Uses by No. of Subjects</u>			(Vi)
Rank group	Reference	Clustered	
L(7Ss)	2	3	
M(7Ss)	5	2	
H(9Ss)	6	2	

In clustered use the purposes are as follows:

<u>Post-block Clustered Use by Purpose: no. of cards</u>									(vii)
	RC	R	CC	L	FL	Tot.	D	E	
L	2	4	2	0	1	9	7	2	
M	5	0	0	1	0	6	2	4	
H	4	0	0	1	0	5	4	1	
Tot.	11	4	2	2	1	20	13	7	

This focus on Checking and Revision is to be expected, given the function of these card clusters at the end of the task. Though there is in fact only one subject, S8:L who uses Revision. Again the overall ratio of D to E cards is as expected, but in M group E cards are preferred. It is not possible to explain this discrepancy.

Summary: Table 9.P1a Purposes for Use - Integrated Use with Grammar Blocks

To summarize with regard to purpose, Table 9.P1a shows that the main purpose with post-block use is Recognition Checking, whereas with pre-block use it is Learning. These purposes are to be expected given the position of these uses.

In more general terms, the most important observation from these data is that using grammars for reference appears to be an activity undertaken by more successful learners. This suggests that the ability to make this type of reference is advantageous to learning, and that less successful learners perhaps have a rather narrow

conception of the utilization of grammars. The implication is that learners should be both trained and encouraged to use grammars for reference purposes when pursuing activities such as practice or self-testing with examples of the language.

A second observation is that a final checking or revision phase using grammar is used slightly more by less successful learners, which suggests that it is not an activity beneficial to learning, at least for learners whose basic approach is rules-based.

TABLE 9.PII: Purposes for Use - Integrated Use Only

Description: In Table 9.PII the subjects who make Integrated use only of Grammar cards are listed. The Grammar cards used are shown and coded for purpose. In addition a general profile of the card turning sequence is given. Some cards from other sets are shown in brackets, coding indicates all other cards used in relation to grammar learning. Dots indicate interspersed use of other cards. D and E cards are coded, and the number of D and E cards, and the total number of Grammar cards used by each learner are shown on the right.

Analysis: From this table, we can see that the highest number of cards used by one learner is 11, S21:L, with six of the ten subjects using 8 or fewer Grammar cards. This is a low average number of cards (7.5) in comparison with the average for learners with blocks (14.5). There is also a relatively high proportion of Semantics cards, (40% as opposed to 29% for block learners), with some subjects using more E than D cards.

With regard to the Semantics cards, it should be noted that their use is integrated throughout the learning, and that all the Examples-based learners except S30:H use some E cards at or near the beginning of their learning. In comparison, for block learners the feature of integration of E cards occurs more amongst the most successful, who are therefore also less likely to

concentrate their use at the end of a Grammar block. The block learners classed as Special Cases are also more likely to have this integrated pattern of E card use.

Why Integrated learners use a higher proportion of Semantics cards is a matter for speculation, and will be discussed in the next section, Summary and Discussion of Purposes for Use, p.241ff, in conjunction with the other special features of E card use mentioned above.

The majority of Grammar(D+E) cards are used early in the task, the typical pattern being a learning phase where Grammar cards are used interspersed with other cards, mainly Examples, followed by a practice or testing phase using further Examples cards. Some learners, notably S21:L, S24:H, S27:H, use Grammar cards also for an initial impetus, and S21:L later has a group of 5 Grammar cards which could constitute a small block.

As with Block use, the most common purpose is Learning, with Grammar cards used for support in the learning from Examples, presumably where the subjects' hypothesis making fails. What is of most interest here is that the proportion of cards used for learning as opposed to other purposes decreases radically as the learners become more successful. The percentage of cards used for learning in each rank group is as follows:

L - 90% M - 60.7% H - 53.8%

This is in contrast to subjects with blocks, whose percentages are in a narrow range, but with the opposite tendency:

L - 68% M - 69.1% H - 73.7%

This suggests that for Integrated Use learners, uses other than learning are important for success.

Very few cards are used for Checking. There are only 8 (possibly 9) instances by 5 learners, 3 of whom are in H group, the others in M group. The pattern of checking uses by these learners is quite different from that of learners with blocks. For block learners, the most

general uses of cards for checking are:

- 1) in a cluster during a final checking phase at the end of the task, or
- 2) for reference while pursuing activities other than grammar learning.

Here, only one subject, S30:H, uses a Grammar card at the end of the task in a checking/revision phase, and one subject, S31:M, uses a card for reference during testing with Examples cards. The remaining six cards, four of which are for completion checking, are used at the end of the learning phase before the initiation of another type of activity.

From this it would seem that the Integrated learners, instead of checking using Grammar cards, are more likely to rely on systematic practice or testing with Examples and Dictionary sets to ensure that they have fully grasped the necessary grammatical rules.

There are no instances of Revision at all, which backs up the contention that using the grammar for Revision is not seen as a useful activity by the majority of the learners.

With regard to Focussed Learning(FL) and Hypothesis Checking(HC), again there are few instances:

Tot.no.		Tot. cards	<u>FL</u>		<u>HC</u>		<u>(viii)</u>
<u>Subjects</u>			<u>D</u>	<u>E</u>	<u>D</u>	<u>E</u>	
L	3	21	0	0	0	2	
M	4	28	4	2	1(1)	1	
H	3	26	1	0	5	0	

(Figure in brackets = uncertain classification)

Although the figures are small, there is a slight tendency for subjects in H group to use more hypothesis checking, all three subjects turn cards for this purpose. This pattern was also seen in the learners with Block use of Grammar cards (see table/⁽ⁱ⁾p.225). In M group there are more instances of focussed learning, but as most of these

are by one learner, S11:M, there are no implications for general strategies.

But here as well as with the block learners, we find that the FL and HC behaviour gives evidence of individual differences, especially if other cards which are used for these purposes are also taken into account.

Apart from the more widespread use of hypothesis checking among H learners, Table 9.PII shows that S33:L and S22:M are both using HC and FL throughout their learning. Both these learners are post-graduate students, as are the three H learners. It is possible that, as S33:L and S22:M are not native speakers of English, they may have been at a disadvantage in some ways.

To summarize, if we accept the argument above, it is possible to make the tentative generalization that successful Examples-based learning with Integrated use of Grammar cards is best achieved if the learner indulges in conscious hypothesis making and checking of rules, and that more experienced learners are more likely to adopt this strategy (the only other post-graduate is S31:M, the top scorer in M group).

The other feature of these data which could provide support of a more general kind for this generalization, is that increased specificity and variety of purpose is symptomatic of increasingly successful learning, as shown above by the decreasing percentage of cards used for learning as one moves from less to more successful learners. This in turn suggests a more conscious and purposeful strategy with regard to card use.

9.3.2 Summary and Discussion of Purposes for Use

9.3.2 A: Number, Position and Type of Grammar Card Use

First, to recapitulate the most general quantitative features:

- 1 Learners with Blocks generally use more Grammar cards than those with Integrated use only:

Average with Block : 14.7 cards

Average Integr. only: 7.5 cards

- 2 Learners with Integrated use only tend to use a larger proportion of Semantics cards:

Integr. only : 40% are E cards

With Block : 29% are E cards

The first point is, I think, easy to explain and seems to be a natural consequence of the different approaches to learning. The second is more interesting and warrants discussion.

re Point 1 : Learners who make Integrated use of Grammar cards in their learning process are using them mostly for reference when their own hypothesis making as to rules, or their understanding, fails. They are using Examples cards instead of Grammar cards in order to learn the grammatical system. It is therefore natural that they use fewer Grammar cards.

re Point 2 : It would seem that the Semantics cards, give the kind of support that the Integrated use learners require. They present more general information about the grammatical system, and it may be the case that a general indication of the types of meaning the language expresses and how these affect the grammatical structure, provides these learners with the kind of basic schema they need, onto which they can graft their own rules and observations.

These cards are perhaps being used as organizers in Ausubel's definition. Ausubel (1968:137) suggests that what he calls advance organizers have three beneficial

effects on meaningful learning. First:

"they explicitly draw upon and mobilize whatever relevant anchoring concepts are already established in the learners' cognitive structure."

With this task, the anchoring concepts would be those relevant ones of the native (English) language, evoked by the semantic area given, e.g. number, negation, etc..

Second:

"advance organizers at an appropriate level of inclusiveness, by making subsumption under specifically relevant propositions possible, provide optimal anchorage."

Hence, by giving more general information than the rules on the Grammar (D) cards, Semantics cards would provide the possibility for learners to incorporate their new knowledge (subsume ideas) more easily into their existing knowledge structures.

And third, advance organizers should improve the possibility of the learner understanding, instead of having to burden his memory with rote memorization of details, because "a sufficient number of key anchoring ideas" are made available for the subsumption of new information.

A fourth aspect could be mentioned in this context. The Semantics cards not only mobilize anchoring ideas, they focus the learner on precisely those areas of grammar and meaning which constitute the contrastive differences between the Novish language and English. One may debate whether this might provoke interference from English in the learning process, which would nullify the beneficial effect of evoking the anchoring ideas. There is no way to examine this given the present data.

A final point to be made with regard to the concept of advance organizers, is the possibility that only the more linguistically sophisticated subjects would be able to benefit from them (see Ausubel, 1968:137 footnote).

The concepts of anchoring ideas and advance organizers, seem to me to provide a useful potential explanation for the way in which Integrated learners are using Semantics cards, of why they have a greater use of these cards than Block learners, and also of some other features of the data with regard to Semantics cards.

By drawing attention to relevant general areas of grammar (anchoring ideas), such as questioning, negation, etc., the Semantics cards may encourage the learner to question the data he is using (Examples), and help him to formulate queries as to grammatical form, in contrast to the form in the native language. Moreover, the level of generality of the rules on the Semantics cards, could help the learner to draw together into rules his detailed observations from examples, and this would help him to remember. A learner who prefers not to use the Grammar for learning, could in this way find a considerable amount of support by turning only a few cards, and this may be what the Integrated learners are doing.

One feature of organizers is that, to be effective in organizing the learning, they need to be used in 'advance' (before or in the initial stages of learning). It is necessary to see if this feature finds support in the data, before the suggestion that Semantics cards may be functioning as organizers can be regarded as having any empirical reality.

We have observed that all but one of the Integrated only learners use some E cards at or near the beginning of the task (p.237). In addition, we have seen that the use of E cards integrated into rather than clustered at the end of a Grammar block, is a feature shown by the most successful learners (p.228f), and also 3 out of 4 of the Special Cases, who integrate E card use early in their blocks. And that these learners often follow up topics across the card sets (p.230). This suggests that Semantics cards, are useful both in the initial stages of the task, and if used individually in relation to areas

of grammar, and that they are least useful at the end of learning. This profile would also fit the use of organizers, and therefore supports the suggestion that Semantics cards may be functioning in this way.

One further problem, particularly with regard to Integrated Use learners, is Ausubel's suggestion that possibly only more sophisticated learners can make use of advance organizers. For learners with blocks this contention is supported by the data, in that it is the H learners who integrate their use of E cards into their Grammar block. However, for the Special Cases and the Integrated Use only learners, their position of use would indicate that Semantics cards are being used as organizers by learners in all groups, but particularly in M group.

A possible explanation derives from the fact that the basic strategy of Examples-based learning is the attempt to formulate rules oneself rather than assimilate rules one is presented with. This suggests a desire/ability to draw upon one's own resources (past experience, knowledge structures). Therefore, to seek out general information and rules as an aid both in activating relevant knowledge and in integrating the results of one's own observations, would seem a natural strategy within an Examples-based approach. As most Uncategorized learners show some features of Examples-based learning, the anomaly of the Special Cases would also be covered by this argument.

The range of success of these learners would then suggest that learners vary in their ability to make optimal use of Semantics cards as organizers, which is a variation on Ausubel's original suggestion. And/or that the H learners, who show less early use of E cards and more use of D cards, have adapted their Examples-based strategy in the direction of rules learning in the light of the needs of the task.

9.3.2 B: Purposes for Use

Turning more specifically to a summary of Purposes for Use, I shall discuss each purpose in turn.

LEARNING: As could be expected, the majority of the cards used are for this purpose (p.238). There is, however, one interesting feature in the data. For Integrated Use learners, the percentage of cards used for learning decreases radically as the learners become more successful. This indicates that when less grammar is used, it is important to make a careful selection with a specific purpose in mind.

FOCUSSED LEARNING AND HYPOTHESIS CHECKING : These two purposes have been taken together, as they probably overlap to a certain extent.

It is these purposes which seem both to be symptomatic of success generally, and to reveal the greatest individual differences in strategy shown in these purpose data.

For subjects, both with and without blocks, there is a tendency to more widespread use of hypothesis checking and focussed learning in group H (p.225, p.239). The conclusion to be drawn is that the better learners have a greater tendency to consciously formulate hypotheses they then check, and that this is possibly an indication of an attempt at greater understanding of the language system.

The picture is confused somewhat by the fact that some learners appear to have a strategy where HC and FL are used extensively, and that not all these learners are in H group. Of learners in other groups, it is particularly, S35:L and S1:M (Block Use), and S33:L and S22:M (Integr. Use only), who use these purposes in the early grammar learning stages of the task.

It is worth noting that S35, S33, and S22 are all post-graduates, and are not native speakers of English.

In general, post-graduate students (subjects with numbers 22-35) are more successful than undergraduates. But the fact that while using a strategy which should apparently be successful (more specified aims in card turning and use of HC and FL, see pp.226, 240 above), these subjects are less successful, could be a result of the fact that they are non-native speakers, as Novish is based on English, and the task is in English. Nevertheless, there is evidence that S22:M (Spanish native speaker) does draw upon Spanish anchoring ideas when, for example, he investigates 'Questioning' (E1), with a view to finding out about question marks.

Learners with an HC/FL strategy also have a tendency to use fewer cards, which fits in with the pattern mentioned above, of fewer cards when purposes are more specified.

In the discussion on p.226ff, I have suggested that the individual differences in strategy with regard to HC/FL use for Rules-based learners, could be the result not of a strategy preference, but of a strategic decision to invest effort in rule-formulation. To this possibility must be added the more general observation that a certain amount of rule-formulation and hypothesis checking activity appears to indicate better learning, whether or not the learner uses this as a major strategy.

CHECKING : Recognition Checking and Completion Checking have been dealt with together, as the very few instances of CC show that this is not a purpose which has any particular significance for learning strategies. There are only 10 clear instances of CC in the data, 7 of these using Semantics cards, of which 6 are by H learners. These figures are too small to warrant separate analysis. Though, as this use of Semantics cards at the end of the grammar learning period is only made by the most successful learners, it suggests that if a learner wishes to make sure that the whole grammar area has been covered, using more general grammatical information would seem sensible.

In general there are few instances of checking in the data. And, as is natural, cards are used in this way either at the end of Grammar learning, at the end of the task in a final checking/revision phase, or for reference, while using examples during a practice or testing phase.

Checking is used more by Block learners than Integrated Use learners, who, understandably, as they prefer using Examples, presumably use these to check their knowledge.

There is one feature of interest with regard to checking. Neither Integrated Use learners nor more successful Block learners are so likely as less successful Block learners to have a final cluster of Grammar cards used for checking at the end of the task. In no group, however, is this a popular strategy.

In summary, the use of Grammar cards for checking is limited, and this suggests that if learners check, they prefer to use other types of cards. Another observation one can make is that to have a final checking phase using grammar is not shown by these data to be a useful strategy.

There is, however, a more important feature of the data to be noted; the use of single Grammar cards for reference is a trait shown by the more successful Block learners (p.235f). The more successful the learner, the more likely he is to use cards for reference, both for checking and learning, while working with other types of cards (e.g. Examples).

On the basis of the observations concerning checking as a purpose for using grammar, one can suggest the following:

- that grammar, if used for checking purposes, should be used as support while working with other types of material.
- that the ability to use grammars for reference is a useful, and possibly necessary, skill for successful foreign language learning.

The paucity of reference instances in the data for block learners (used by only 13 out of 23 subjects), may reflect the limited scope of the task, or it may reflect subjects' lack of training in using grammars in this way.

REVISION : The data show clearly that using grammar for revision is not regarded as profitable by the learners, and, as the Dictionary and Examples analyses show, they prefer to use other types of material for this purpose.

Those learners who do revise (only Block learners) use Semantics cards in a cluster at the end of their Grammar block, and this is not a strategy used by the most successful learners.

Again we see that a cluster of Grammar cards used for a purpose other than learning does not appear to be beneficial or popular. In addition, the suggestion that general information is best used as advance organizers is supported here. For we find that whether the purpose is revision or learning, the attempt to summarize or draw together one's knowledge using Semantics cards at the end of a learning period, appears to have no beneficial effect.

9.3.3 Analysis of Transition Types

In this, the second half of the Grammar card analysis, we shall look at Transition Types, the reasons why learners select particular cards when they do (see pp.206,214ff for definition.) The analysis proceeds in the same order as the analysis of Purposes for Use, beginning with the learners who have Block use of Grammar cards (Tables 9.II and 9.IIa), moving on to learners with Integrated use only (Table 9.III), and rounding off with a summary and discussion.

The codes used in the tables are as follows:

- L = Layout transition (Syllabus-based)
- S = Syllabus transition (" ")
- D(R) = Direct Reference transition (Reference-based)
- G(R) = General Reference transition (" ")

TABLE 9.II: Transition Types - Block Use

Description: The table shows the 23 learners with Block use of Grammar cards, including the 4 Special Cases (see p.222 for description). Grammar cards are shown coded for Transition Type, interspersed cards from other sets are shown in brackets with transition coding if used for grammar purposes. A question mark indicates inability to code. Where a particular grammar topic is being followed up across several cards, this is shown by a curly bracket with the topic noted below. If there is uncertainty as to where a block begins/ends, this is indicated by a vertical dotted line. Semantics(E) cards are coded. The total number of cards used is given at the right hand margin.

In the analysis, I shall first look briefly at some quantitative features of the data, and then move to a description of card selection strategies.

Table 9.II Analysis: Quantitative Features

I felt it might be of interest to look at the proportions of cards used in the different groups for different types of transition. However, in order to make the data across the groups comparable, I found it necessary to exclude two learners in M group S14:M and S18:M. These subjects use layout transitions as the organizing principle of their Grammar blocks. This distinctive individual strategy means that, in terms of proportions of different types of transitions, they are not comparable to the rest of the subjects, and that including them in the totals heavily skews the results. Thus, the following figures are based on 21 of the 23 learners with Grammar blocks.

The summary table^(ix) below gives the percentage of total Grammar cards used with each transition type for each group:

		<u>Syllabus-based</u>			<u>Reference-based</u>		
<u>Group</u>	<u>% cards used</u>	<u>S</u>	<u>L</u>	<u>Tot.</u>	<u>DR</u>	<u>GR</u>	<u>Tot.</u>
L (7Ss)		41.9	4.6	46.5	39.5	14	53.5
M (5Ss)		35	5	40	51.7	8.3	60
H (9Ss)		39	0	39	40	21	61

These figures show a surprisingly stable ratio across the groups between the two major transition types. The only comment one could make, comparing L group with M and H groups, is that possibly a higher proportion of Reference-based transitions is an advantage.

In the assignation of instances of use to transition types, the few uses of cards in a cluster at the end of a block for activities other than learning, i.e. for revision or checking, have been coded mostly as Syllabus transitions. One could argue that such uses should be categorized as general reference. But, given the new phase of activity, which constitutes a syllabus change in terms of an activity syllabus, it seems to me that the learner must be deciding within this phase what aspects of his content syllabus need to be revised/checked. He is

therefore organizing a kind of 'mini' content syllabus.

As most of these final syllabus cards are in L group, the finding above, that a higher proportion of cards used for reference is apparently a more successful strategy, is partly a reflection of this particular clustered use of Grammar cards. There should, therefore, perhaps be an addition to the suggestion that a smaller proportion of syllabus cards is advantageous. Namely, that those syllabus cards that are used, are best interspersed throughout the content learning rather than clustered at the end of the block reflecting a new activity.

When looking at the sub-types of transition, we see that Layout transitions(L) are not used by any learner in H group. But having excluded Ss14 and 18, the total number of layout transitions used is so small that it is not possible to generalize from the figures.

Secondly, we see differences between the groups with regard to the proportions of Direct(DR) and General Reference(GR) transitions, with H group using proportionately more GR than the other groups. At the same time, looking at Table 9.II, we see that in this group there is a tendency for learners using fewer Grammar cards in their block to have more GR transitions (e.g. S7:H, S25:H, S13:H).

Apparently the most successful learners have a greater tendency than the others not to follow up queries immediately. This would suggest that certain problems, perhaps those less central to the structural item the learner is most concerned with, are shelved for a while. This is possibly in the hope that the answer will be forthcoming in the course of looking at other cards, or it may be that the learner prefers to attempt to formulate a hypothesis with regard to the rule, and only looks up the relevant card if a satisfactory hypothesis is not found, or to check a hypothesis. Comparison with Table 9.PI shows that, for H learners, many general

reference transitions are for focussed learning or hypothesis checking.

Either case suggests that these learners prefer to follow up one aspect of the grammar at a time. Also, that possibly they are grading structures, either in terms of complexity, or in terms of importance/ centrality in the grammatical system, and leaving for later reference those items they feel are either derived from more basic structures, or less important.

Examples of the former are where Qualified Positive Responses (a complex derived structure) are followed up using general reference transitions near the end of the block. In contrast, the gru/stil distinction as the topic of GR transitions occurs early in a block. After turning a few cards the learners become aware that this is a crucial and exotic basic distinction in the grammar, at which point they seek information, perhaps after unsuccessful attempts at hypothesis making. It is not possible to assess whether subjects leave some topics for later reference because they judge them as unimportant.

In summary, it seems that this use of general reference transitions may be part of a general approach involving rule-formulation, that it is successful, and also efficient, in that learners who use more general reference transitions generally turn fewer cards.

Another approach to quantitative analysis is to count the number of sequential Reference-based versus Syllabus-based transitions for each learner, and to investigate any pattern difference between the groups.

The table below ^(x)/ shows these data, with the number of Grammar cards used in sequence for reference-based transitions in ordinary type, and for syllabus-based transitions underlined. A figure preceded by an apostrophe indicates uncertainty as to reference or

syllabus-based. Dots show that there are interspersed cards for those learners with two blocks.

SEQUENCES OF REFERENCE-BASED AND SYLLABUS-BASED TRANSITIONS IN GRAMMAR BLOCKS (X)

Subject No.	Sequences
	<u>L GROUP</u>
15*	<u>1</u> (2) <u>1</u> (2) 1 <u>1</u> 3 2 1 <u>1</u> (1) 1 (2)
17	4 2 <u>1</u> 1 1 '1 2 <u>3</u> 2 (two blocks)
2	1 (1) (1) 1 1 (2) 1 1 1
12	1 (7) +4
5	4 (5) '1 4
35	1 <u>1</u> 3 2 (1) '1 2
8	3 <u>1</u> 1 1 3 2 2

	<u>M GROUP</u>
1	<u>1</u> 2 <u>1</u> (1) 2 2 2 1 1 (1) 1
14	<u>1</u> 2 (2) (layout)
28*U	(1) (2) (4) 1 1 (2) 4 (two blocks)
32*U	3 1 2 2
18	4 1 10 1 1 (layout)
3	1 (4) 1 1 1 3 2 (4) +3 +1 +1
4*U	(1) (2) (1) (2) (1) 1 3 1 1

	<u>H GROUP</u>
6	(1) (4) 3 2 '1 (3)
10	1 (5) 1 2 '1
20	1 2 1 '1 (6) '1
7 U	(1) (5) 1 '1 1
25	1 2 1 (7)
29	1 (5) 2 2 2 1 2 2 2
26	4 2 4 1 '1 2
34	1 1 '1 2 1 1 '2 6 (two blocks)
13	1 2 3 (5)

- KEY underlined figure - syllabus-based sequence
 ordinary type figure - reference-based sequence
- * - Special cases
U - Uncategorized learner
+ - layout order
() - cards other than Grammar cards
' - uncertainty as to reference or syllabus-based
: - possible alternative beginning/end of block

The patterns that emerge primarily reveal considerable individual differences, there is however one feature which shows a difference between the rank groups. Sequences of reference transitions consisting of 4 cards or more are circled in the table. (X) Such sequences occur most often in H group:

No. of Ss with Sequences of Reference-based Transitions

	L(7Ss)	M(7Ss)	H(9Ss)
4 or more cards	3	3	7
5 or more cards	2	0	6

When sequences of 5 or more cards are taken, the difference is even greater between H group and the other two groups.

There is a reversed but weaker tendency if one takes sequences of 4 or more syllabus-based transitions across groups. The figures are so small however, that it is unwise to attempt to generalize.

These figures show that as well as having a higher proportion of reference cards, more successful learners are likely to persist for longer in following up leads, before moving on to a new syllabus item.

In summary, the observations from these quantitative data suggest the following:

1) a higher proportion of reference uses, and syllabus uses interspersed throughout the learning as opposed to clustered at the end for a different activity, appear to be advantageous to learning

2) general reference may indicate more effective use of the cards as a result of hypothesis making activity and grading of items to be learned

3) persistence in following up leads from cards, rather than slavishly following a syllabus may be advantageous.

Table 9.II Analysis: Card Selection Strategies

A more interesting aspect of these data is that the investigation of transition types reveals how the learners approach the task of organizing a grammar syllabus for themselves. This has already been hinted at in the description of transition types in Section 9.2.1C

(p.214ff). Here, I shall expand on and exemplify the syllabus strategies which can be seen, first looking at Layout transitions and then Syllabus transitions.

Layout Transitions: Of the 23 subjects, there are only two who use the Grammar card layout consistently as the basis for organization of their grammar learning, S14:M and S18:M. Two other learners, S12:L and S3:M, use the layout of the Semantics cards to organize their use of these cards at the end of the Grammar block.

As mentioned before, following the layout of the cards is common with the use of Examples, both for grammar learning and other activities, and with Dictionary cards. But the obviously unsystematic nature of the Grammar card layout (see p.196-7), has presumably, as was the intention, prevented the majority of the learners from using this strategy with Grammar cards, where it is the least common ordering.

Given that the Grammar cards are not laid out according to a syllabus, following the layout would seem to be an uneconomical way of approaching learning from these cards. It might also suggest lack of confidence in foreign language learning, possibly rooted in inexperience, resulting in a tendency to rely on the 'authority' of the teacher.

Looking at the background of the four learners mentioned above, we see that 3 of the 4 are science undergraduates (S3:M - arts undergraduate). Also 3 of the 4 have only one foreign language, described for example as "school French" (see learner profiles, Appendix 4A). The fourth, S12:L, is Malaysian with experience in both Malay and Tamil as second/third languages.

Combinations of these characteristics (undergraduate, science major, little FL experience) could lend support to the lack of confidence hypothesis.

If we look more closely at these subjects, we find that S12:L, after having looked at 8 D cards, changes to layout transitions with the E cards, with the commentary, "Thought it better to stick to some kind of order". She seems to have been unable to organize a syllabus herself, as all previous transitions are references, only her first card choice being of the syllabus type.

S14:M has a long introductory phase, like S12:L, before deciding to use the Grammar cards. She first selects D5, comments that it doesn't make sense, then says "better start from the top, assume in order", and proceeds to turn all the D cards in layout order. This subject, however, makes several comments during the grammar learning which show hypothesis making activity and considerable curiosity, not features one would expect from an insecure learner.

For S18:M layout order is a general strategy. She goes through all the card sets in this way.

S3:M, layout order for E cards at the end of her Grammar block, is using them "to find concepts behind rules and reinforce", which suggests a switch to revision rather than a change in syllabus strategy.

From these profiles there is little evidence to support the lacking confidence hypothesis, except for S12:L. S3:M doesn't use layout as a general transition strategy, and has apparently switched from learning to revision. The most usual strategy with revision is to take ordered material and work through it (e.g. with the Examples cards), this learner is treating the unordered but small E set in this way. S18:M has clearly chosen to follow this strategy, possibly considering it to represent the cognitively least strainful way of approaching the task (see discussion p.226ff). S14:M appears to be unable to organize her own content syllabus and decides to rely on the given order. This may suggest insecurity in organizing language learning. But her hypothesis making

activity suggests that she is able to create links between the cards where relevant, and could point to her being able to make use of a layout strategy in a way similar to S18:M. The rest of her card turning also suggests an inability to organize her learning in a systematic way.

As a strategy for transition between cards in a grammar learning block, layout is neither popular nor particularly successful. Discounting S3:M, S18:M has the highest score, with 37 out of 53 on the test. The use of layout order for the Grammar cards appears to be a choice made either as part of a deliberate general strategy, or because, as a result of lack of experience in foreign language learning, the learner prefers to rely on the 'teacher' to provide the ordering of syllabus items. However, the other rules-based learners with the same minimal foreign language experience, have been even less successful in the test (S15:L, S17:L - second year science undergraduates), except S20:H who as a fourth year maths student is a more experienced learner as such.

This suggests that for the less experienced learners with little foreign language learning experience, the choice of following the layout of the grammar cards (and perhaps all cards) was a good one. And that, for such learners, it was better to invest effort in reading numerous cards and in trying to integrate the unsystematized information gained, than in selecting cards and trying to organize their own syllabus. Thus, a recognition of their own limitations, which we could call lack of confidence, seems to have led them to the optimal strategy.

In more general terms, the data support the contention that learners need experience in the area of learning in question, or at least general experience in independent learning, before they are able to successfully complete a learning task in which they themselves have to select and organize the information available.

(xi)

Syllabus Transitions: In the Table/ below, all Syllabus transition cards have been listed in the order in which they occur in the data for each learner, including cards other than Grammar cards, which are shown in brackets. (Please note that these cards are not a series of successive turnings.)

(xi)

SYLLABUS-BASED TRANSITIONS IN BLOCKS: CARDS USED

Subject No.	Cards
<u>L GROUP</u>	
15*	D8 D4 D3 D7 D1 'E1 (F1) ; (F6 F7)
17	D1 D2 D4 D3 E1 E4 E5..... ; 'D1 'D11 'D5 (two blocks)
2	D2 D3 D5
12	D1 +E1 E5 E4 E3 +layout to end
5	D1 D2 D3 D4 'D5 'E4 'E1 'E3
35	D1 D2 D7
8	D1 D2 D3 D10
<u>M GROUP</u>	
1	D1 E1 (F1) D3 D7 D8 ; (F11) 'E3
14	D5 D1 -> layout
28*U	(F3) ; D1.....E5 E1 E4 'E3 (two blocks)
32*U	(F5 F16 F14) D1 D3 D5
18	D1 -> layout
3	D1 D2 D3 D4 +'E1 'E5 'E2 'E4 +layout to end
4*U	(F4) E1 'D10
<u>H GROUP</u>	
6	D1 D2 D3
10	D1 E4 E1
20	D11 D3
7 U	(F1) D1
25	E1 D4
29	D1 D2 D3 D4 D5 D7 D8 'E1 'E4
26	D1 D2 D3 D4 D5 D6 D7 D10
34	D1 D10.....D2 D3 D4 D5 D7 'E1 (two blocks)
13	D1 D2 D3 D4

KEY

- * = Special cases
- U = Uncategorized Learner
- () = Cards other than Grammar cards
- ' = this card is used for Checking or Revision
- ; = possible alternative beginning/end of block

From this table we see that the majority of subjects organize their Grammar blocks with a number of syllabus transitions, the commonest order of these being D1-D2-D3-D4-D5, or some of these cards in this order. These cards all show the heading 'Word Order' which distinguishes them as a set, and they cover the following

structures:

D1 - Basic W.O.	D2 - Statements
D3 - Questions	D4 - Positive and negative
D5 - Qualified positive response	responses

They are also in this order in the layout, though they are not adjacent. These features of the card design and layout have probably been influential, at least in some cases, in the learners' order of card selection. The other most frequently occurring cards are:

E1(Questioning), E4(Negation) and D7(Short Answers).

The D1 - D5 pattern is most frequent and most consistent in H group, with only S3:M and S5:L as consistent exponents in the other groups. This suggests that the H learners have been more successful in discovering the regularity in the layout of the cards, and in using it as the basis of their syllabus.

Apart from the use of D1 - D5 in order, the most striking feature of these data is the variation in the number of syllabus transitions, with learners choosing between 2 and 10 cards as syllabus cards.

If we compare the three rank groups, we find that in H group, 4 subjects have few (1-3) and 'atypical' syllabus choices, S10, S20, S7, and S25, the only other subject with this type of pattern is S4:M.

Looking more closely at these syllabus cards, we see that S10 uses Basic Word Order, Negation and Questioning, S20 uses Verbs gru/stil, and Questions, S7 uses Statements (Examples card), and Basic Word Order, S25 uses Questioning and Positive/Negative Responses, S4 uses Negative Response (Examples card), Questioning and Verb mane, which is for checking.

Note that all these cards relate to basic general structures and concepts needed to learn the language, with the exception perhaps of S4's choice of Negative Response, which is somewhat more limited in scope. This

shows that these learners are selecting carefully and using basic structures and general concepts as focal points in the organization of their learning.

Other subjects with between 1 and 3 syllabus transitions show a D1-5 type pattern, S6:H, S2:L, and S35:L who varies this with the sequence D1-D2-D7.

Moving to those learners with a large number of syllabus transitions (7 and over), we see that the three learners in H group, S29, S26, and S34, all follow the D1-5 order initially. In M group, Ss14 and 18 follow the layout of the cards, and S3 uses D1-4 followed by the Semantics cards in layout order for revision. In L group S5 uses D1-5 followed by E cards for revision, and S17 uses D1-4 (D3 and D4 switched), followed by three E cards. Thus all these learners are using the word order set (traditional structural simple->complex syllabus) as the basis of their syllabus, except for those who use the layout.

The last learner with a large number of syllabus transitions is S15:L, the learner with the lowest score (5 out of 53). Neither her choice of syllabus cards nor their ordering show the usual patterns seen above.

The remaining subjects, those with an intermediate number (4-6) of syllabus transitions, show greater variation in their choices.

In H group, S13 uses the D1-5 type pattern. In M group, S1 starts with basic cards D1, F1 and E1 (Questioning), moves to D3 (Questions) and then to two cards on the short forms of responses. S28 looks at "Question and Positive answer (F3) and Basic Word Order in the first block, and the E cards in the second. These learners both appear to be using basic structures and general concepts, but S1's syllabus selections are not as restricted to basic general concepts as those of the learners with very few syllabus cards; and S28 does not intersperse general concepts (cyclical process), but uses them at the end of the learning. He also appears to be using inclusiveness

as a criterion in his first (F card) syllabus choice. S32:M initiates an Examples-based approach with 3 F cards using complex structures, then switches to a Grammar block using the D1-5 ordering (simple->complex).

Finally in L group, S12 turns Basic Word Order, and at the end looks at E cards in layout order. S8 is the only remaining learner, and she uses D1, D2, D3 followed by the verb card for mane to check. So we have one learner who uses basic structure and general concepts (like S28:M), and one who follows the standard D1-5 type order.

In summary, this analysis of the actual cards chosen for syllabus transitions in grammar blocks leads to several general comments. Firstly, it seems from the ordering of the syllabus cards, that the criterion for ordering a syllabus for many of the learners is a complexity concept, like the traditional structural syllabus, which they are presumably familiar with. The alternative is an idea of general->specific cycles, more specific items being referred to but not forming the framework of the syllabus, plus inclusiveness in S28:M's case. Secondly, the learners vary considerably in how many cards are used for syllabus transitions, but, setting aside syllabuses based on layout transitions, there seem to be three general strategies:

- 1 A high proportion of syllabus transitions using the Word Order cards in sequence as the basis for the syllabus (simple->complex, gradual progression)
- 2 Several syllabus transitions, with the Word Order cards in sequence comprising the syllabus (either type)
- 3 Very few syllabus transitions, the syllabus made up of D and E cards giving basic structures and general concepts (general->specific, cyclical process)

Only 5 learners deviate from these general strategies: S1:M, S28:M, S32:M, S4:M and S15:L. Of these learners, S15:L is the only one who does not appear to be using any criterion for ordering her syllabus. Both S28:M and S4:M (Uncategorized learners) begin with an Examples card,

then move to a basic Grammar card, with S28 following up with a second block of semantics cards. S1:M progresses from more general basic structures to more limited complex ones. In addition, S32:M (also Uncategorized), while following a complexity criterion in her Grammar block, appears to start by using selected Examples cards as described in the discussion of Integrated Use learners (Strategy 2, pp.269f).

It is the most successful learners who make the most clear and consistent use of the strategies mentioned above. Learners in M group tend to show either the use of layout transitions or deviations from the general strategies. And the least successful learners are most likely to make inconsistent use of the Word Order card sequence, possibly followed by a series of E cards.

As a postscript to this section, I would like to give some further examples of learners' commentaries that indicate a conscious syllabus strategy, as an addition to those given in Section 9.2.1C (p.214ff).

S1:M indicates a syllabus concept when she uses D3 - "Want to look at questions" and later follows up with "Short answers first" - D7. Similarly S25:H studies questions first, starting with E1, and then moves to D4 - "Word order positive and negative responses to get an overall idea of the area's structures, since it is a structural test." Here we see the learner being both goal-oriented, following a structural ordering, and operating with a concept of generality in his syllabus choices. S5:L is also following the same scheme: "After learning statement forms, questions come next in my schema for language learning" - D3. "After questions come answers, this one would seem to be the simplest form" - D4.

Commentaries such as these occur frequently in the data and indicate that the learners are not blindly using the Word Order cards in the order in which they occur, but that the concept of a structural syllabus with the

sequence statement->question->response is commonly used, with negation being placed after statement or in relation to response. Although this is a traditional order, one can also argue that the sequences positive->negative and question->response are both psychologically and pragmatically logical.

A further indication of the learners' adherence to a syllabus comes in the instances where the subject determinedly follows his syllabus avoiding 'distractions' from other cards. Curiosity appears to be in conflict with what the learner considers the sensible or 'logical' progression through the task.

S5:L again supplies an example of this. Having used four syllabus cards and followed up two direct references, she writes "Basic structure covered, now go back to unexplained variations in language as yet accepted without being explained." A clear example is provided by S7:H who writes "Want to look at qualified positive responses, but will start with basic word order," after which she turns D1, and similarly S35:L who writes near the beginning of the task "Want to see some examples, but word order seems to be important," after which he turns D1 and then continues to turn grammar cards. Commentaries indicating this type of self-imposed discipline occur occasionally throughout the data, and provide an interesting insight into the learners' thought processes.

To summarize, on the basis of these data, it seems reasonable to maintain that the subjects are using a syllabus to organize their grammar learning. Secondly, to organize this syllabus, all but one of these learners appear to be using either progression from simple to complex, or basic/general concepts with reference to more specific rules, often in a cyclical pattern. The one subject who has a fairly high proportion of syllabus transitions, yet does not follow either of these organizational criteria, S15:L, is the least successful and has apparently failed completely in her efforts to learn the language.

Reference-based Transitions: The features of use of reference-based transitions which are of interest with regard to Grammar blocks, have already been mentioned in the quantitative analysis at the beginning of this analysis section (pp.251ff). There, it was noted that there seems to be a slight tendency for the more successful learners to use more general reference transitions, and also that learners with a greater tendency to use this type of reference transition also tend to turn fewer Grammar cards in their block. This would suggest that these learners are using a different learning strategy possibly using more hypothesis making and checking (see discussion p.251).

Generally speaking, the interest of this type of transition lies in the insight it can give into micro-strategies of learning, the types of things learners do, rather than general learning strategies. The description of these uses is in section 9.2.1C (pp.217f), where transition types are introduced and defined. Otherwise, the main analytical importance of reference-based transitions lies in the fact that they are not syllabus-based transitions, they therefore provide a quantifiable background to the analysis of syllabus-based transitions.

TABLE 9.TIA: Transition Types - Integrated Use with Grammar Blocks

Description: Table 9.TIa shows the same 23 learners as Table 9.TI. Pre and post-block uses of Grammar cards have been labelled and coded for transition type, and Grammar (D) cards and Semantics (E) cards are also coded. Where cards from other sets are used for grammar learning/reference, these have been included in brackets with transition coding above. Curly brackets indicate where several cards are used in pursuit of one topic. The total of cards used is shown at the right-hand margin.

Analysis

The analysis of transition types for use of integrated Grammar cards by block learners reveals little about strategies.

Table 9.11a shows that the transitions are either Syllabus or Direct Reference, with three instances of General Reference. Direct reference would be what one could expect, and 30 of the 52 instances fall into this category. All but 4 of the 19 syllabus transitions occur at the end of the task for final checking or revision. Briefly, the reason why these have been categorized as syllabus transitions is that a new activity phase invokes the need to organize a new 'mini' syllabus (discussion p.250). The use of such revision/checking phases has been discussed in the analysis of purposes for use.

The ways in which learners use Grammar cards for reference, while pursuing activities with cards from other sets, were described in section 9.2.1C (pp.217f). There is however one way which has been omitted. I had some difficulty in deciding whether some of the instances in these data could be called syllabus or direct reference transitions. This is the type of use where a learner looks up a Grammar rule before he turns a related Examples card (p.235). I have in fact coded these as direct reference, where it is clear that the learner is working his way through an ordered sequence of Examples cards. He presumably looks at the front of the next Examples card, turns the Grammar card for help, and only then actually turns the Examples card. The three instances of this all occur in H group.

The one instance of a syllabus transition in a position where one would expect reference is with S2:L. As this card is turned after she has used the A set, before she begins to use a series of Examples cards and does not relate to the following card, I could not categorize it as a reference transition, although the learner has this commentary with the following card "Use of D8".

This brief description of Table 9.TIa functions as an addendum to the analysis of purposes for use of integrated cards by block learners. In this position of use, it is difficult to distinguish transition type from purpose, and the analysis has in fact been integrated into the discussion of Table 9.PIa (pp.233ff), as looking at transition types alone has no implications for learning strategies.

TABLE 9.TII: Transition Types - Integrated Use Only

Description: All uses of Grammar cards by these 10 learners are coded for transition type, other cards are given in brackets with the coding above if they are used for grammar learning. Curly brackets linking cards show where a topic is being pursued, and the topic is also given. D and E cards are coded, and the total of cards used is shown at the right-hand margin.

Analysis

The summary below, from Table 9.TII, gives the number of Grammar cards turned with transition type:

<u>Group &</u>		<u>Transition Type</u>								
<u>No. of Ss</u>		<u>Syllabus</u>			<u>Direct Ref.</u>			<u>General Ref.</u>		
		D	E	Tot	D	E	Tot	D	E	Tot
L	3	5	2	7	7	6	13	0	1	1
M	4	2	1	3	11	5	16	4	5	9
H	3	4	7	11	10	3	13	2	0	2

Given the small number of subjects and instances of card use, it is only possible to make very tentative observations from these data. There is one feature which could be construed as showing a difference between the rank groups. This is the relatively high proportion of General Reference transitions shown in M group and their correspondingly low proportion of Syllabus transitions using Grammar cards. There is also a slightly raised tendency for learners in H group to have Syllabus transitions, particularly with Semantics cards, and also

for these learners on average to use more Grammar cards.

These observations would indicate that the H learners have perhaps a slight tendency to mix Examples-based and Rules-based learning, whereas the M learners are more 'pure' exponents of Examples-based learning. This suggestion will be discussed after a more detailed analysis.

The pattern of use of D and E cards in Table 9.III also shows a difference between the M and H learners. M learners tend to use only Semantics cards for reference early in the task, as does S33:L, whereas the other learners in both L and H groups use both D and E cards, and often have E cards somewhat later and as syllabus transitions.

In order to try to draw together these observations, I shall first take a closer look at the way these learners organize a syllabus, and then investigate their use of reference-based transitions to Grammar cards.

Syllabus-based Transitions

With the Integrated Use Only learners, it is necessary to draw the use of cards other than Grammar cards into the analysis of transition types. Because, in the grammar learning phase of the task, these learners make considerable use of the other card sets to organize their learning and initiate or make reference to grammar topics, their grammar ^rlearning syllabus is not dependent on the use of Grammar cards, as is the case with block learners.

Of the block learners (see Table of Syllabus-based Transitions in Blocks/^(xi) p.258 above), four do use single Examples cards for syllabus organization near the beginning of their blocks (note that all are Uncategorized learners). One, S32:M, whose block is at the end of the task, starts by using an Examples-based approach with three syllabus Examples cards before switching to a Grammar block. But the Integrated use only learners (all

Examples-based except S21:L) all use a number of Examples cards for syllabus-based transitions, with Grammar cards more likely to be used for reference.

This pattern of use is the kernal of the difference between Examples-based and Rules-based learning.

The table below ^(xii) presents a list of the cards chosen as syllabus-based transitions with the Grammar cards underlined. With regard to Examples (F) cards especially, there is sometimes doubt as to whether a series of cards is for grammar learning or not, these cards are shown in brackets. Cards used for checking near the end of learning are also indicated. F cards which form a pair (Feg card + related Fp card) have been linked by a line.

SYLLABUS CARDS USED BY INTEGRATED USE ONLY LEARNERS ^(Xii)

Subject	Cards
no.	<u>L Group</u>
16E	F1 F5 <u>E3</u>
33E	F1 F2 <u>E1</u> F3 F4 F5 F6
21U	<u>D1</u> (<u>D2</u>) <u>D3</u> F6 <u>D4</u> <u>D5</u>
	<u>M Group</u>
9E	F1 F2 F3 F4 F5 F6 F7 F8
22E	<u>F5</u> <u>F13</u> <u>F12</u> <u>C6</u> <u>F4</u> F14(<u>E3</u>) ' <u>D1</u> ' <u>F16</u> ' <u>F8</u>
11E	<u>F11</u> <u>F3</u> F4 F10 <u>D1</u>
31E	F12 F16 (perhaps other F cards) F1 F2
	<u>H Group</u>
24E	<u>E2</u> <u>D2</u> <u>E4</u> F11 (F12 - 16) ' <u>E3</u> ' <u>E5</u>
27E	C6 F1 F3 F5 <u>D7</u>
30E	<u>D1</u> <u>D3</u> F10 F14 F16 F13 F4 <u>E3</u> ' <u>E1</u> ' <u>E4</u>

KEY nn - Grammar card
 () - uncertain syllabus use
 'n - for checking
 - pair of F cards (Feg + Fp)

This table ^(xii) shows clearly that these learners (except S21:L) use Examples cards to organize their syllabus, and that some of these are in layout order. S33:L and S9:M

consistently follow the F card layout as their syllabus (see Analysis of Examples, Chapter 8, p.186), for discussion of these learners).

Some other learners, particularly Ss22:M, 11:M, and 31:M, do not follow the layout, but using F cards they pick one or two structures upon which they concentrate at the beginning of learning (see also Table of Card Turnings).

Two H learners have a checking phase in which they use E cards for completion checking, and these account for the slightly larger proportion of syllabus transitions in this group. However, these two subjects also use more Grammar card syllabus transitions in addition to their Examples card ones than the other learners (S21:L excepted).

These observations and the table above^(xii) show that in the main the Integrated use learners build up an Examples-based syllabus with a fairly large number of syllabus transitions. In addition, it appears that the strategies are not purely individual. Three strategies can be distinguished in these data:

- 1) Serialistic following of a syllabus based entirely on examples, where the syllabus order is given by the material used, i.e. the layout of the Examples cards, (S33:L and S9:M).
- 2) A syllabus based entirely on examples, where the learner selects initially one or two structures (often complex, inclusive, ones), and concentrates on gleaning as much information as possible from these before moving on to further structures (S22:M, S11:M, S31:M).
- 3) A syllabus with an brief initial grammar impetus using basic structures and general rules, followed by the use of examples which may or may not be in the order given by the material (S24:H and S30:H).

The remaining three subjects seem to have individual approaches. While S27:H has only one syllabus transition

with a Grammar card, she does use several Grammar cards for reference at the beginning of the task (see Table 9.III). This is a pattern of Grammar card turning similar to that of the learners with Strategy 3. Her strategy is therefore a hybrid between Strategies 2 and 3. S21:L relies on grammar cards to organize her syllabus in an simple->complex order similar to that shown by block learners. And S16:L uses so few cards in toto and with no apparent pattern, so that it is not possible to distinguish any strategy (he is unsuccessful, with the second lowest score of 17 out of 53).

re Strategy 1: The fact that the Strategy 1 learners (layout order, examples syllabus) are less successful than those using Strategy 2 (initial concentration on one or two structures, examples syllabus), suggests that slavish following of the given syllabus is not an efficient way of using discovery learning in this task. There is evidence that neither of these learners complete their learning (see p.172, Analysis of Examples), and the arguments suggesting that for some Rules-based learners following the layout may be an optimal strategy (see p.257) do not obtain here.

re Strategy 2: The initial concentration on few (inclusive) structures suggests a strategy of exhaustive hypothesis making and testing, an attempt to squeeze these structures dry. From the Purposes for Use data, there is only evidence that S22:M is using continuous hypothesis making and checking with both Grammar and Examples cards, however the other Examples-based learners all have hypothesis making using the Examples cards (see Tables 8.4 & 8.5, Vol.2). Thus hypothesis making, which is a necessary part of discovery learning, is not enough to indicate success. It must therefore be the types of hypotheses and the manner in which they are linked into a system which is decisive. The greater success of Strategy 2, with its initial concentration on few structures, would support the suggestion that the attempt to understand, to integrate learned items into a system, and

thereby to enable systematic analogies, is a more efficient and effective way of learning.

re Strategy 3: The Strategy 3 learners (initial grammar impetus, followed by examples syllabus), who are the most successful, are possibly adapting a preference for discovery learning through examples to the demands of the task, which is after all a grammar learning one. This adaptation may reflect a strategic decision along the lines discussed in the analysis of Purposes with block use (pp.226ff). Here, a strategy of using examples is judged as being too time-consuming and possibly needing too much cognitive effort. So a compromise is reached between a preference for discovery learning and a judgement of a higher return for effort invested, by the initial use of the grammar, possibly as advance organizers (see pp.241ff).

The discussion above is of course hypothetical, but it is an attempt to explain both the differences in the strategies and the reasons for their variable success. Of course a first stage in further investigation would be to establish whether, in fact, what we see here are general rather than individual strategies. Though the numbers are small, the strategies seen do not seem to be individual, and with a larger group of subjects it would be possible to establish whether these patterns represent coincidences, or whether in fact it is a matter of more general strategies.

Reference-based Transitions: The learners vary considerably in how much they use the Grammar for reference. Some use the Translation Dictionary (B set) extensively for this purpose, e.g. S9:M, S31:M, especially at the beginning of the task, and the cards turned show that grammatical function words are being sought. (This feature is also present in 3 of the 4 Special Case block learners - S28:M, S32:M and S4:M - see Table of Card Turnings.) However there is no proportional relationship between few Grammar references and many Dictionary

references. Again, however, this type of activity predominates in M group.

All the learners use some Grammar cards for reference, with the majority used early in the task, and as references from Examples rather than other Grammar cards. It is not possible to establish the existence of patterns other than the general one already mentioned (above p.266), that reference-based transitions are a higher proportion of Grammar card uses for M learners, and that also the syllabus Strategy 2 learners in this group (S22:M, S11:M, S31:M), in contrast to the other learners, make some use of General Reference transitions.

These features support further the suggestion that these learners have an Examples-based strategy somewhat different from the others, especially taken in conjunction with their early use of E cards for reference, which could indicate their use as advance organizers. Looking at Table 9.III, we can see that it is the learners using Syllabus Strategies 1 and 2 (S33:L plus the 4 :M subjects), who have early reference use exclusively of Semantics cards.

These observations from the reference-based transition data for Integrated use only learners can serve as a support for the hypothesized differences in syllabus strategy described in the preceding analysis of syllabus-based transitions. And in conjunction with the observations regarding syllabus-based transitions, they also raise questions as to the optimal use of grammars for learners using an Examples-based learning approach. This matter will be taken up in the next section, Summary and Discussion of Transition Types Analysis.

9.3.4 Summary and Discussion of Transition Types Analysis (Tables 9.II, 9.IIa, 9.III)

Firstly, the detailed analysis of transition types describes the way in which the subjects have approached the problem of organizing their content syllabus in this learning task. The data for Block Use learners (23 subjects) are large enough to provide empirical support for the strategies suggested, whereas the data for Integrated Use learners (10 subjects), being smaller, can only support very tentative suggestions of syllabus strategies.

In addition, the transition type data provide an indication of the way in which learners with different approaches use grammar for reference purposes.

9.3.4 A Content Syllabus Organization 'Given' Syllabus

Taking this aspect first, the data suggest that for less experienced learners favouring a Rules-based approach, it may be an optimal strategy to follow a given syllabus even though this is only semi-organized. This frees them of the cognitive effort involved in selection and organization of items, which would presumably be considerable for such learners. The cognitive capacity thus freed may be used for hypothesis making and attempted understanding of the material, though it is equally possible for it to be used for rote-learning. These data do not provide sufficient information to judge the quality of the learning.

In contrast, for any learner favouring an Examples-based approach, such a strategy, even with a fully organized syllabus, seems less advisable at least in the context of a task where time is limited. It may lead to serialistic learning with its prevalent 'pathology' of improvidence (failure to make valid analogies), thus increasing the time needed for the task and possibly restricting the learning to a surface level where understanding is not attained.

Selected Syllabus

For Rules-based learners who select information and form their own content syllabus, it seems that a concept of gradual progression from simple to complex, or of cyclical procedure from general to specific, is chosen for the organization of the material. When strategies for organization of syllabus (pp.261f) are taken in conjunction with number and position of references to grammar(p.253), we find that certain approaches have been successful.

i) It seems that an organization relying on use of few general concepts (p.259, p.261 - Strategy 3), with extensive use of reference material to follow up queries raised (p.253 - sequences of reference based transitions), is only used by successful learners.

ii) An equally successful strategy is where many concepts organized in a progression of complexity are used (p.261 - Strategy 1), complemented by regular use of follow-up grammar references (p.254). This strategy is also used by less successful learners, but it appears that the success of the strategy relies on its consistent use.

Adaptations and mixtures of both syllabus organization strategies are seen in the data, but are generally less successful.

Hence, it seems that consistency in approach is important to success, but that the choice between the two strategies is not. Both these approaches are used by competent independent learners with a preference for Rules-based learning.

On moving to the Examples-based learners, we find that, again taking syllabus organization in conjunction with reference use, there are two apparent strategies for learners who organize their own content syllabus.

Firstly, a learner may use a syllabus based completely on examples, which, unlike the concepts chosen by Rules-based learners, are not chosen using a criterion of

progression from simple to complex, or general to specific, but an adaptation of the latter, using a criterion of inclusiveness (Strategy 2, p.269). The first examples are used to extract as much information as possible about the grammatical system as a whole, after which further examples are used, possibly in the order given by the material. At the same time, where grammar references are made, these are most likely to be using general grammatical concepts, for detail a dictionary is preferred. It can be seen that for this type of learner grammar materials play a small role in the syllabus organization.

The second distinguishable content syllabus for learners who prefer discovery learning based on examples, represents, apparently, an adaptation of this preference to the more obvious requirements of the task. These learners use grammar initially to provide some general concepts or basic grammatical structures, before moving to use of selected examples following the general organization of the example material available (Strategy 3, p.269). There is also greater initial use of reference to grammar than with the strategy described above, but not necessarily to general concepts.

Interestingly, it is the second approach which is used by the most successful Examples-based learners. The least successful use neither strategy.

The fact that the adaptation of the purely examples-based approach, by incorporation of an initial general or basic grammar input, enables the learner to complete the task more successfully, suggests that this task (or the material provided) is less suited to the use of discovery learning based on examples, than to learning based on the presentation of rules.

Four of the Uncategorized learners, S21:L, S28:M, S32:M and S4:M, are in the middle range of success (scores between 34 and 39 out of 53 on the test), the fifth, S7:H, scores higher (43). Their syllabuses tend to be

based more on grammar rules than on examples, so it seems that their approach relies on rules, but with an adaptation towards discovery learning using examples. This strategy does not appear to be as successful as the alternative adaptation of the Examples-based approach (mentioned above - strategy 3). It is however very difficult to generalize, as there are other idiosyncracies in these learners' approaches to the task.

In summary, the transition type data with regard to content syllabus organization suggest the following:

Learners do have preferences as to approach, some organizing their learning using examples, others preferring to use a set of rules.

If Rules-based learning is used, a consistent strategy is more likely to lead to success. This consistent strategy may be of a serial type, where a learner moves gradually through a syllabus organized from simple to complex, or it may be holistic, in that the learner takes general concepts for his syllabus, and refers to grammar for support in his hypothesis making and checking of more specific rules.

If Examples-based learning is used, a consistent serial syllabus strategy (simple->complex) is likely to be time-consuming, and may lead to improvidence. A holistic strategy, concentrating on initial inclusive examples is more successful (less time-consuming) and probably less likely to lead to improvidence.

An Examples-based syllabus adapted by initial input of basic structures or general concepts is as successful as a consistent Rules-based approach.

These observations indicate that the learning task itself may set up requirements as to an ideal learning approach, and that learners with a preference for a different approach are more likely to be successful if they can adapt their preference to these requirements.

In addition, the feature of consistency is apparently important. Learners able to select a particular organizational strategy and carry it through, are likely to be more successful. The extreme lack of success of S15:L and S16:L shows that a strategy is necessary, and the fact that the learners in the top group have the most consistent Rules-based strategies supports this. However, consistency is not necessarily a sufficient substitute for adaptability if the preferred approach is not the ideal one for the material to be learned (see p.275).

9.3.4 B Reference

The analysis of reference use of grammar shows that in general it is important for learners to be able and willing to use grammars in this way.

It shows that, especially for learners with a holistic approach, following up references is an important aspect of their learning strategy.

For Examples-based learners and other learners who use a lot of hypothesis making and checking, reference to general grammatical concepts is important, as is General Reference rather than Direct Reference.

It also appears that the use of general grammatical concepts throughout a learning phase, and also General Reference are features of more successful Rules-based learning.

9.3.4 C Concluding Remarks

In the summary above I have sought to expose the skeleton of the learners' strategies in organizing grammar learning and using grammar materials. I must reiterate that my remarks are tentative, but that the tendencies in the data do provide enough support to refute the null hypothesis that learners will show no systematic differences in learning strategy. These tendencies also provide sufficient information to furnish hypothesised differences in strategy which could be tested by further research.

CHAPTER 10: THE IMPLICATIONS OF THE ANALYSIS

10.0 Introduction

In this chapter, I shall seek to draw together and put into perspective the various observations made in the analysis of the card sets, by following two lines of thought.

First, I shall look at general learning strategies and approaches to the task (macro/mesostrategies), and discuss my findings in relation to the various concepts and strategy types introduced throughout this exposition, but particularly in Chapter 2.

Second, I shall discuss learners' selection and use of different types of language learning material (meso/microstrategies).

In both parts of this discussion, I shall make tentative suggestions as to implications for foreign language teaching. They are tentative because the nature and scope of the task, and the data produced, do not allow firm conclusions. Further research will be necessary to show whether my findings are generally valid. In the third and final part of this chapter, I shall outline some possibilities in this respect.

Nevertheless I would like to point out that many of the observations from my data are supported by common sense and by informal observation.

10.1 General Foreign Language Learning Strategies (macro/mesostrategies)

10.1.0 Introduction

Here, I shall discuss the findings regarding general strategies of foreign language learning (FLL) from four different perspectives, and conclude by listing the

implications for foreign language teaching (FLT) as I see them. The topics are as follows:

10.1.1 Planning the learning

10.1.2 Typical differences in learning approach

10.1.3 Quality of learning

10.1.4 Success in the task

10.1.5 Implications for FLT

10.1.1 Planning the Learning

To start with the most general observation, the data show clearly that in an independent learning task a planned approach is necessary.

That this task is an FLL one may or may not be relevant, as it seems that the ability to plan (carry out a planned learning procedure) in this task is probably dependent not only on FLL experience, though this helps, but on learning experience in general. The more mature (and presumably experienced) graduate learners had a general advantage over their undergraduate counterparts. This suggests that experience in academic learning, which should entail a considerable proportion of independent learning activity, weighed heavily in the balance. It is difficult to generalize without a larger sample of less linguistically experienced and trained learners, but what evidence there is in the data supports this contention (see Ch.4.1, p.61).

To return to the idea of a planned approach, the analysis shows that organization, especially in terms of learning activity (methods), is essential. Ss15:L, 16:L and 17:L, the learners with very low scores, show almost no evidence of organization and conscious planning in their learning. The most successful learners show goal-oriented and highly organized behaviour, both in terms of a content syllabus and an activity syllabus (see summaries in Ch.8, pp.177ff & pp.192ff; Ch.9, pp.262 & 277).

That planning is necessary is a very general and commonsense observation with no particular relevance to FLT specifically. Every teacher knows that content and activities must be planned, and that learners usually rebel if the structure of their course is not sufficiently clear. The only implication is at higher levels of FLL/FLT, where independent learning does occur. In this situation, if he is to learn, the learner must be helped to develop the ability to plan the organization of both activities and learning content.

To expand on the general observation above, we must inquire further into the organization involved. As mentioned, it is apparently not only the content of learning, but also the activities engaged in, that need to be organized and planned.

Activity Sullabus

A clear feature of the data is the use of phases of activity, which can most generally be described as orientation -> learning -> reinforcement (see Ch.8.0, p.144 for details). This sequence is general, and as stated before, the sequencing of phases is based on commonsense, and is possibly a product of conventional teaching practice. It is not the ordering of the phases, but the fact that a clear phase strategy seems essential, which leads me to emphasize this feature (e.g. Ch.8, pp.177 & 192). In the activity of the least successful learners structure is least apparent. It seems that their phases are not sufficiently internally consistent (neither organized, nor in some cases long enough, e.g. Ch.8, p.177 & 191ff; Ch.9, pp.274/6). In addition, a consistent and extended period of reinforcement at the end of the task is lacking, and this phase of activity appears to be necessary (Ch.6.4.3/4, esp. pp.126 & 130; Ch.8, pp.177 & 191ff).

In this context, I should mention also variation in activity. The analysis of Context card use shows that some learners indulge in a period of 'relaxation'

(Ch.7, p.138 - 'diversive exploration'), and the analysis of the use of Dictionary card sets shows that change in activity is apparently appreciated (see Ch.6.4.4/5, esp. pp.126. & 130). Again, we appear to have confirmation of an established maxim, viz. that in teaching (learning), variety is necessary for retaining interest and attention.

Clearly delineated phases of activity (phases which, incidentally, are not necessarily coextensive with use of certain types of material), variation in activity, plus the general sequencing of phases, may be prerequisites for any successful learning. On the other hand, they may be partly a reflection of the skill aspect of language learning, and therefore, in terms of academic learning, a special feature dependent on the learning content. In particular, the necessity for a final extended reinforcement phase would appear to be content-dependent.

That the phase strategy is general, and not dependent on individual differences, is attested to by the similarity of phase-organization in both Examples-based, Uncategorized, and Rules-based learners. That it is (at least partly) independent of type of material used, is shown by the fact that both block and integrated use is made of Grammar and Examples, and by the variety of purposes shown for Examples and Dictionary use; though of course certain types of material are preferred for some activities (e.g. practice - Examples; revision - Examples & Dictionaries).

Content Syllabus

The data also show that organization of learning content is necessary. This feature is more recognizable than the need for clearly delineated phases of activity in an activity syllabus, as it is well-known that learners want organized content. The need for content organization is independent of learner type, and it is theoretically immaterial who organizes the content syllabus, but there

must be an organizing principle. Generalizing, we can say that the principles seen in the data are either gradual progression: simple -> complex; or a cyclical procedure: general -> specific, where only general items (superordinate concepts or central rules/examples) form the actual syllabus, a variation of this being a progression: inclusive -> detailed, where the first syllabus items are superordinate concepts or complex (inclusive) examples (favoured by Examples-based learners)(Ch.9, pp.263).

In this connection, however, we do find one, possibly task-determined, deviation from the general principle that organization is necessary, in that the given disorganized grammar 'syllabus' (Grammar cards: lay-out order) followed by two of the Rules-based learners is not notably unsuccessful. In contrast, consistent use of the given simple->complex organized syllabus (Examples cards) seems to lead to improvident learning, at least for Examples-based learners (Ch.8, pp. 186ff; Ch.9, pp.269-70). Individual differences in experience, and in the way learners use the material, may play a role in this (Ch.9, pp.256-7), in addition to factors in the task design.

Nevertheless, we may say that in general, consistent principled organization of content is inherently necessary, as shown by the fact that the least consistent and clear organization is shown by the four least successful learners (Ch.9, pp.260-2, 270, 276-7), but also, and perhaps more significantly, by the fact that the other learners show distinguishable - though varying - patterns of syllabus organization, and the greater the clarity of the pattern the greater the likelihood of success.

Differences between learners in the choice of which content syllabus organization to use, represent, I think, a complex interaction between various features of the task, and the learning strategy preferences which are discussed in the next section.

10.1.2 Typical Differences in Learning Approach

The data show two major approaches to learning. These approaches are probably to a large extent content-determined and therefore cannot be generalized beyond FLL. I have called these two approaches Rules-based and Examples-based learning to indicate that they are materials-dependent. In brief, these categories refer to a learner's preference for basing the learning phase of the task either on the use of Grammar or on the use of Examples. The majority of the subjects show a Rules-based preference (19 subjects), while 9 show an Examples-based preference. The remaining 5 do not show any clear preference (the Uncategorized learners). These five learners are either idiosyncratic in their approach (e.g. S28:M), or show a mixture of approaches or switches in approach (e.g. S7:H, S32:M).

The categorization is based on clear evidence from card-turning behaviour, reasons for turning cards, and differences in learners' note-making (Ch.8.1; 8.2.1C, pp.159ff). And the relevant question, of course, is whether this distinction corresponds to any of the strategy differences described in Chapter 2.

If we start with Marton and Säljö's deep-level vs. surface-level processing difference (Ch.2.2.3, pp.16ff), we see immediately that this is a distinction in terms of the quality of academic learning, which mine is not. There is no way to judge whether it is related to my distinction, though various qualitative indications in my data, with regard to possible attempts at understanding (Pask's definition - see p.26) by learners of different types, would suggest that it is not (see below, 10.1.3).

Pask's holist/serialist strategy distinction (p.22) (and his distinction between comprehension and operation learning styles, p.24), although obviously not equivalent to the Rules/Examples-based difference, seems more relevant. Yet, though step-by-step (serialist) and

top-down (holist) strategies appear to be present in the data, they cut across my categorization.

For instance, the Examples-based learners S33:L and S9:M use a serialist strategy (Ch.8, pp.186-7), whereas more successful Examples-based learners all appear to use a more holistic approach with a general->specific (inclusive->detailed) syllabus organization (Ch.9, pp.269-70, 274).

Among Rules-based learners the difference is not so evident. But one could suggest that learners who work consistently through the grammar cards, using a simple->complex ordering (e.g. S26:H - see Ch.9, p.260, summary - p.261, and Strategy 1 - p.276), or following the layout (e.g. S18:M - ibidem), may be displaying an operation learning tendency. While those who use fewer Grammar cards, with a general->specific syllabus content organization, may be displaying a comprehension learning preference (e.g. S10:H - Ch.9, pp.259-60, and Strategy 3 - p.261; summary - p.276). The Rules-based subjects who use my Strategy 2 (p. 261) are not clearly of one or the other type, and with Uncategorized learners it is not possible to judge, owing to their inconsistent or idiosyncratic strategies.

In summary, it seems generally possible to distinguish a comprehension/operation learner difference on the basis of the data, though the difference is not the same as the more obvious materials-based Examples/Rules-based difference.

As for Pask's suggestion of versatile learners (learners who can adapt their strategy or switch strategy in accordance with the requirements of the task, the most successful Examples-based learners do show an adaptation, not between comprehension and operation learning, but from Examples-based learning in the direction of Rules-based learning (Ch.9, pp.269 & 271 - Strategy 3, and p.276). This suggests that Rules-based learning is

more suitable for the task. Whether other learners can switch (or have switched) strategy is obviously not known.

One last point with regard to Pask's categorization of strategies is whether, as suggested in Ch.7, pp.140f, use of the Contextual Information cards is symptomatic of a redundant holist strategy. However, no relationship is apparent between my categories, or the suggested division of the subjects into operation and comprehension learners, and use of the Contextual cards. The only general observation is that the subjects who use many Contextual cards also tend to turn many cards in toto. This might indicate some type of 'redundancy', but what kind is impossible to say.

If we turn now to the more general concepts of deductive (reception) vs. inductive (discovery) learning, the data show a difference between learners which is strongly related to my categories. It is not, however, completely the same, though I have at times felt tempted to regard it as such.

Examples-based learners appear to be using an inductive procedure, unless some of them are rote-learning, which would result in a complete lack of any attempt to formulate rules. Rules-based learners, on the other hand, do not always use deductive learning, though this is the general tendency. Three individuals show evidence of considerable hypothesis making and checking activity, rule-formulation rather than rule-assimilation (Ch.9, p.226), which implies an inductive learning process. One of these learners (S10:H) also shows a clear tendency towards a comprehension learning syllabus strategy (see above). The two others (S35:L and S6:H) use syllabus Strategy 2 (p.261), which is indeterminate between comprehension and operation learning. But one could suggest that their greater rule-formulation activity is indicative of a more holistic approach to learning.

Once again, then, we see evidence of the difficulty of making clear categorizations along any dimension. Moreover the categories set up differ, depending on the investigator's predominant interest. Categorizing learners into types according to one dimension will seldom produce the same result in another dimension.

My Rules-based and Examples-based categories are set up with an eye to the use made of types of language teaching material. The other categories are set up on different bases and produce different learner groupings. However, the general inductive/deductive distinction does appear to relate strongly to my dimension, which, considering that it is usually regarded as equivalent to discovery/reception learning, a categorization born of teaching methods, is hardly surprising.

Finally, I would like to take up a more general discussion started in Chapter 9 (pp.226-8). It could be suggested that the Examples-based and Rules-based approaches, because of their content-relatedness, should be regarded as mesostrategies (see Ch.2, p.15: Biggs) rather than macrostrategies, and that perhaps the general phase strategy is more deserving of the latter designation.

A macrostrategy, as defined by Biggs, is the way in which a learner orders and relates data (see p.15), and is most akin to a learning style. Selection of data is not mentioned, but I would suggest that this is also a major feature of learning strategy which is intimately related to, and possibly superordinate to, the way data are ordered and related.

In the data, the design of the activity syllabus can be seen as a generally used macrostrategy, but within this no salient variations in preference were found. The way in which a learner organizes his content syllabus, however, seems to be open to preference-dependent variation. Which materials are selected, and the way concepts are selected, ordered, and related, are all

features which vary between Examples and Rules-based learners, with Uncategorized learners showing a blend. This suggests that possibly the Examples and Rules-based preferences, despite their apparent content-relatedness, either are macrostrategies, or are derived from macrostrategies, which are dependent on learner style differences. Consequently, they would not be likely to be amenable to change by training. If this is the case, this strategic difference has considerable implications for FLT (see 10.1.5 below).

But also within the major categories (Rules/Examples-based learning/serialist/holist biases), differences in syllabus content, selection and organization are seen (see above Ch.9.3.4, p.273ff). Such differences could indicate an adaptation of a macrostrategy to the demands of the task. As argued in Chapter 9 (pp. 226-8) the actual form a strategy takes may well be affected by psychological factors of the kind Bruner et al. suggest (1956:112), i.e. the learner is concerned to optimize the effect of the effort expended, and reduce cognitive strain. Possibly, it is the strategy adaptations that result from this kind of consideration, that can be called mesostrategies. Mesostrategies, then, would be determined both by the learner's interpretation of the demands of the task, and by his macrostrategy preference. This preference determination would in turn implicate the lower level strategies also as important factors in the design of FLT materials and methods.

10.1.3 Quality of Learning

Another possible investigative approach would be (like Marton and Säljö, see Ch.2, pp.16ff) to look at the relationship between strategy and quality of learning. Qualitative concepts, such as deep/surface-level processing (Marton and Säljö), understanding (Pask, see Ch.2, p.26), and rote and meaningful learning (Ausubel, see Ch.2, pp.17-18) have been introduced and used on occasion. However, given the skills-oriented nature of language learning, it is not possible to make judgements as to the quality of the learning, which involves cognitive processes not directly observable in learner behaviour in this task/test.

In certain contexts I have suggested that some learners may be seeking to understand (Pask's definition, p.26), but there is no means of checking the validity of this interpretation. The indications I have used as the basis for this suggestion are: some uses of general grammatical information (Semantics cards, see Ch.9, pp.230-1, 241ff), and background information (Contextual cards, see Ch.7, pp.140-1); some types of use of hypothesis checking and focussed learning (Ch.9, pp.226-7); and what I have called 'opportunistic' use of cards (Ch.8, pp.181ff).

What all these indications have in common is an apparent interest in linking aspects of the grammar into a general system (i.e. seeing the relationship between rules, and their scope and limitations), and also, in some cases, a desire for explanation of the concepts. While the test can show no proof of understanding on the part of the subjects, these indications would suggest that the learner is seeking understanding, or at least attempting meaningful learning. The definition of meaningful learning (that the learner seeks to link concepts into his existing knowledge structures in a non-arbitrary fashion) is more easily satisfied than that of understanding, and there are many indications in the data that learners are behaving in a manner consistent with this

definition, and not indulging in rote-learning (arbitrary memorization), e.g. see Ch.9, p.215; Ch.7, p.136.

As for deep/surface-level processing, again the test is not designed to measure this. Yet as this distinction has much in common with the meaningful/rote distinction, I think we can say that at least some learners appear to work at a deep level where this is relevant (see argument re the skill aspect of FLL, Ch.2, p.19-20).

Hence, as to the quality of learning in this task, while certain indications suggest attempts at understanding, and others most definitely support a meaningful learning interpretation, no firm judgments are possible. In addition, I feel bound to emphasize again, that in language learning, certain skill aspects are possibly best learned in a 'rote' fashion, by practice and a process of automation. Which to a certain extent invalidates qualitative judgments based on the types of evaluation criteria discussed above.

10.1.4 Success in the Task

In the previous three sections, I have been outlining and discussing the major strategies and strategy differences seen in the data, without focussing on the evaluation of them. This is nevertheless necessary, as I find it evident that, at least in this grammar learning task, strategy differences do have a profound effect on outcomes.

Before looking at success in relation to my findings regarding learning strategy, it is interesting to make a brief comparison with the general 'good learner' strategies suggested by Stern, and Rubin, (Appendix 2A, Vol.2, p.1), and at Naiman et. al.'s reorganization of these (Ch.2, p.32). This comparison shows that some of their strategies are confirmed by my findings, while others are either too general to be relevant, or relate to other aspects of language learning.

Stern's Strategies 1, 2, 4, possibly parts of 5, and to a certain extent 7, appear to be confirmed. These are concatenated in Naiman et al.'s strategies, and seem to relate to their Strategies 1 and 2 (see p.32) and, in part, number 5. Stern's list is more precise, and includes one of the features I have found to be important, namely planning (Strategy 4 - 'technical know-how about how to tackle a language'; and, in number 5 - 'planning'), whereas Naiman et al. are not explicit in this respect. In addition, there is one of Rubin's suggested strategies (Appendix 2A), which appears to be important, and which is not made explicit in either of the other strategy lists. That is her Strategy 1: 'willing and accurate guesser'. (See below 10.2.1 & 4, for my suggestions with regard to this.)

Therefore, I would say that in general, where the aspect of language learning is of relevance in relation to the limited aims of my task, their suggested strategies appear to be confirmed by my data, and none are drawn

into doubt. Yet I would suggest that Naiman et al.'s strategies are too general to be of use as far as teaching is concerned, and, finally, that no one list is complete.

I shall now move on to look at the general features shown by my data in relation to success.

Relationship between Success and Planning

Looking at the way in which a learner plans his learning procedure (10.1.1), it becomes clear that: in general - planned organization of learning is essential; and more specifically - planning and organization of both the activities to be engaged in and the content are necessary.

Learners who show little or no organization are strikingly unsuccessful. Those who show a particular planned sequence of activities are successful, as long as each activity is pursued for a period of time, particularly the final reinforcement activity. Those who show a principled organization of content in their learning period are successful, and the more consistently they follow the principle the more successful they are.

Closer inspection of the sequence of activity phases reveals that an initial brief orientation phase is not detrimental, and is possibly advisable for less experienced (language) learners, who have to find out how to go about the task (see re Stern - Strategy 4 above). Prolonged orientation, however, seems to indicate inability to decide on a plan.

Note that S13:H and S34:H, the two top scorers, both use some cards before their grammar block (see Table of Card Turnings). S34:H has been shown to be using orientation (C-cards), while S13:H has not, though this may have been an orientation phase (cards from various sets). Both these learners are scientists, which could suggest that their lack of specifically linguistic experience has to

be compensated for by a brief initial period of search in order to set up a learning plan. Other successful learners proceed immediately with an organized sequence of learning activities (see Table 6.1, Vol.2, p.51). Moderately successful learners more often have a protracted orientation phase, suggesting the need for a longer period to plan their learning procedure. The least successful eschew orientation, which suggests that they plunge into learning, without having a ready-made plan available, and without realizing the necessity of planning.

As for the learning phase, it seems that consistency (i.e. sticking to an organizational principle) is the key. Whether the principle chosen for organizing content is simple->complex or general->specific (inclusive->detailed) does not appear to affect outcomes, but a choice between self-selected and given syllabus interacts with learner strategy preference (Examples/Rules-based) to produce differential success (see above p.281, & below this section).

As for other phases, an extended reinforcement phase seems to be necessary, and lack of it correlates with lack of success. The use of practice, exposure, and medial checking phases do not appear to affect the outcome, and are presumably more dependent on learning preferences and experience.

In this discussion, I have obviously been generalizing, and it might appear that there are cases which show that such generalizations are unjustified. There are, for example, some less successful learners, e.g. S8:L and S1:M, who generally conform to a card turning pattern similar to that of the most successful learners (see Table of Card Turnings). But closer scrutiny reveals salient differences, e.g. S8:L does not use her Examples block with the intention of reinforcement, nor is her card selection consistent (see Tables 8.2, 8.3, Vol.2, pp.57-8); and S1:M does not follow a consistent content

organization in her grammar block (see Ch.9, p.260, and Table p.258).

There are other learners who do not conform to general patterns of approach (Uncategorized learners), or depart from typical card use patterns (e.g. S30:H, who is Examples-based). Nevertheless these learners' success is related to their general behaviour in terms of organized activity and content syllabuses (e.g. Ch.9, p.259, esp. S7:H, S4:M - Uncategorized learners; Table 8.3, Vol.2, p.58 re S21:L, S28:M, non-reinforcement F-block purpose; Ch.8, pp.191f; Ch.9, p.269 re S30:H).

These examples show that my generalizations can stand up to investigation. More particularly, they show that my analytic categories enable me to explain relative failure much more precisely and constructively than by a simple reference to 'difference in language learning aptitude/experience'.

Relationship between Success and Preferred Strategy

If we take preferred learning strategy (10.1.2) we see a more complex relationship with success. The questions to ask are whether certain strategies are more successful, and to what extent this is determined by the form and content of the task.

Starting with the macrostrategy difference between Examples and Rules-based learners, we see (Table of Card Turnings) that the majority of H-group learners are Rules-based, and that a larger proportion of M-group learners are Examples-based. However the L-group learners are again mostly Rules-based. In addition, the Examples-based learners in H-group are those who show an adaptation of their strategy towards deductive learning.

This suggests that in this task, which is grammar learning, a Rules-based approach is more suitable. It does not imply, however, that for language learning in general a Rules-based approach is an advantage.

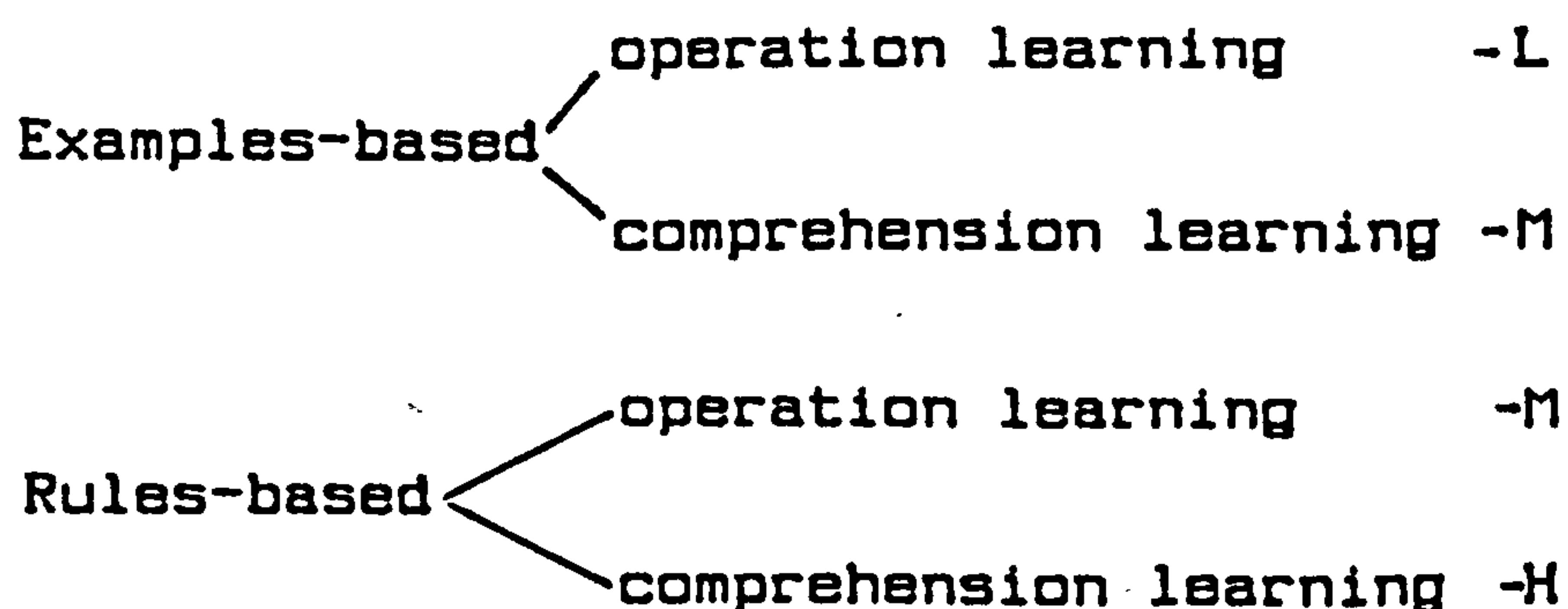
On closer inspection of the Examples-based learners, we find that the different operation learning/comprehension learning biases are apparently related to success. The serialist strategy shown by S33:L and S9:M is less successful than the more holist strategy shown by other Examples-based learners. Despite their use of consistent organization of both content and activity, they are not particularly successful, as their strategy is too time-consuming (Ch.8, p.186ff). Moreover, it would seem that serial organization of the type these two learners use, where activities are regularly switched (learn+practice or learn+reinforce), does not lead to success. (Incidentally, this provides further support for the argument that organization of learning into longer periods of the same activity is necessary.)

It would seem, then, that for learners with a preference for Examples-based learning, at least in FL grammar learning, serial learning of the type demonstrated by S33:L and S9:M is to be avoided. Firstly, it may lead to improvidence (see Ch.2, pp.24-5), and as a result be too time-consuming (and possibly produce learning which is not meaningful). Secondly, it may lead to an inadvisable organization of activities. By analogy, though no cases are seen in the data, it is possible that for Rules-based learners also, such serial learning would be inadvisable for the same reasons.

For Rules-based learners, success is apparently related to an approach which makes use of general grammatical information and superordinate concepts at various points during the grammar learning phase (Ch.9, pp.231 & 241ff). This suggests that learners need to have access to and to use this type of information as well as specific rules. The use of such information may help learners to obtain an overall picture of the grammatical system (understanding?), and may possibly also be used to provide advance organizers (see Ch.9, p.241: Ausubel).

For Rules-based learners with a comprehension learning (holistic) bias, use of general information would by definition be part of their macrostrategy, whereas for those with an operation learning preference (serialistic), one can suggest that reference to general information might serve to avert the danger of improvidence, with its negative implications for quantity and quality of learning. This would explain why those learners who appear to have a serialist approach (simple->complex content syllabus and many syllabus transitions - Ch.9, pp.260ff), and who do intersperse the use of general information, seem to have an advantage. However, none of the learners with an organized content syllabus who do not use interspersed general information, have made the error of also segmenting their activities in the way S33:L and S9:M have done.

Summarizing the above, I tentatively conclude that in this task (I can make no more general claims other than, perhaps, to suggest a general relevance to grammar learning), learners do show strategy preferences as follows:



L (low) M (middle) H (high) levels of success

These appear to be ordered as shown in terms of success.

I would also emphasize that if we regard Examples-based and Rules-based preferences as manifestations of macrostrategies, which there is evidence for (especially in that there are fairly successful learners who

determinedly pursue a thoroughly Examples-based strategy (e.g. S31:M) in a task which would appear by its nature to invite a Rules-based strategy), it is not possible to dismiss them as a minor problem for FL teaching and materials. Macrostrategies probably reflect cognitive style, and are therefore difficult to alter.

As far as operation/comprehension learning biases are concerned, it would seem possible to train learners to avoid the pathological tendencies of improvidence and globetrotting. (The latter is the holist pathology, see Ch.2, p.25. No examples are clear in the data, though S16:L might be such a case. The nature of the task: small pieces of information on cards, and fewer general cards than specific rules cards, may have precluded the emergence of a 'globetrotter'.) Some training possibilities might be, for example: training in analogy making, and in the use of general grammatical information for serialists; training in content and activity planning, and in close inspection of more specific rules, or perhaps error analysis, for holists. Also planning of teaching content and activity which took these potential problems into account could probably help.

However, with regard to the strategy differences in general, primarily the Examples-based and Rules-based preferences, but also operation/comprehension learning biases, it would seem advisable to investigate them further, with a view to discovering what aspects of FLL lend themselves to certain strategies, and to designing materials which allow for learner preferences and aim at giving each learner the possibility of learning with maximum efficiency in his preferred manner.

10.1.5 Implications for FLT

As a conclusion to this section, I shall look generally at the implications of the discussions of Planning, Strategies and Success for foreign language teaching. More specific implications will be discussed in section 10.2 (below), where I look at the use of the different types of learning materials.

In the foregoing discussions I have made occasional mention of FLT. Here I shall summarize the implications, as I see them, in relation to the general design of teaching materials and their use.

Firstly, and most generally, learning materials clearly need to be organized according to some criterion which is apparent to the learner. This may present problems if one thinks of the organization of functional syllabuses, but is a traditional feature of structural syllabuses. Even situational syllabuses offer an apparent and apparently acceptable (to the learner) organization, though in terms of the language system they may be disorganized. The data suggest, however, an alternative to the usual interpretation of structural organization as simple->complex. Organization of grammatical concepts from general to specific, or inclusive to detailed, of which the semantico-grammatical (notional) syllabus is a possible example, appears to be used by a number of the learners (especially Examples-based).

Also the use of general concepts by more successful Rules-based learners, would suggest that the presentation of higher 'nodes' in any system is an aid to learning, and possibly necessary. More successful learning is likely to result when the learner has access to a certain amount of explanation, and can see how items relate to a whole.

Incorporation of this feature of generality would not seem difficult when using grammatically based syllabuses,

but with functional material, it is more difficult to find a way of systematizing concepts and of generalizing. However, the acceptability of a functional syllabus (both to the learner, and in general pedagogical terms) would seem dependent on the possibility of finding a means of organizing functional concepts and rules. And in the light of my findings, this organization would need to be flexible, preferably allowing for both simple->complex progression and general (inclusive)-> specific relations between concepts (see Arndt and Ryan, 1986, for one suggestion for principled organization of a functional syllabus).

Therefore in general, regardless of the type of syllabus used, it would seem advisable to present the learner, either initially or periodically, with general (inclusive) concepts to which he can link the more specific rules (items) he learns. The position and prominence of such concepts in the content syllabus, and their manner of presentation, would (ideally) vary depending on learner strategy preference. For example, general concepts would be the dominant items in a cyclic general->specific syllabus using presentation through examples (for Examples-based learners with a comprehension learning bias); they would be used as periodic reference and extension material for Rules-based learners with an operation learning bias.

Turning to teaching methods, it is necessary to take the activity syllabus into account. In this respect teaching tradition follows the learner's inclinations (or did it in fact form them?). The key points are that there should be periodic variation in type of materials used, and in activity, but that no period should be too brief. These are already maxims of teaching. But in addition, we see that a prolonged period of reinforcement, using examples, appears to be necessary. This may be a reflection of the skills aspect of FLL, and may also relate to the form of the test in this task. However, the tendency is so general in the data that it seems safe to suggest that

consistent, organized and comprehensive reinforcement, using examples which embody all the rules learned, is important. I will further hazard the suggestion that this applies regardless of what systematic aspect of language one is dealing with.

Moving to more specific features, if we take learners' strategy preferences into account, the implications of the analysis lead to suggestions which run counter to usual teaching practice, unlike many of the more general suggestions above.

If one assumes that in any group there will be learners with Examples-based and Rules-based strategy preferences, possibly with varying operation and comprehension learning biases, the organization of teaching and the choice of materials become considerably more complex than when a single 'best' strategy is pursued by the teacher.

The implication of such a situation is that information should be presented to the learner in at least two ways - as rules and as key examples for analysis - and that work with examples should not be restricted to practice or exposure, as is normally the case, but that learners should be given the opportunity of pursuing problem-solving activity with examples, to lead to the conscious induction of rules. Furthermore, in terms of content, the rules and examples chosen for presentation would also have to include and embody more inclusive superordinate concepts.

This may sound complicated but could, I think, be fairly easily achieved through careful materials design. With regard to exercises for instance, any 'batch' of exercises for practice of a particular part of the language system, could contain: for Rules-based learners, exercises in analogy-making and exposure of links between specific and general aspects of the system being dealt with, making clear use of rules; and for Examples-based learners, problem-solving exercises building up to

induction and formulation of both general and specific rules. All such exercises could be based either on texts or on examples. Both types of exercises would need to be added to the usual practice with examples which is often aimed at automatization.

All such materials could be presented in parallel, with learners being given a choice between pairs or groups of exercises. Alternatively it might be possible to use at least some of the same exercises, but taken in a different order.

In paedagogic grammars and other grammar presentation material, flexibility could be achieved by parallel presentation of rules and of carefully sequenced, and possibly analysed, series of examples.

This sketch of the possibilities shows, I think, that taking into account learner preferences of the type distinguished in the analysis would be feasible both in terms of the presentation of systematic areas of language to the learner by the teacher, and in the learning and practice activities which the learner undertakes alone. Accomplishment of this would rely, however, on re-thinking both the types of exercise given to learners, and the design of grammar presentation materials.

10.2 Use of Language Materials

10.2.0 Introduction

This section is concerned with the implications for language teaching materials (and methods) of the findings regarding the way learners use different types of material. Some implications have already been outlined in the course of the analysis; here I shall expand on these and draw them together. The section is organized as follows:

10.2.1 Use of Dictionaries

10.2.2 Use of Background Information

10.2.3 Use of Examples

10.2.4 Use of Grammar

Comments regarding purposes for use of these different types of material will be included in each sub-section.

10.2.1 Use of Dictionaries

In the task, two distinct uses of dictionaries are evident: individual card use for reference, and set use, which is comparable to use of word-lists. As these in fact imply two different types of learning material, I shall look at them separately.

Reference Use (Individual Dictionary Cards)

With regard to the normal use of dictionaries for reference, several points are taken up in the summary in Chapter 6 (6.2.6, pp.100f). The most important of these relates to the quality of reference uses. There is apparently a difference in dictionary reference between less and more successful learners, especially Rules-based learners. It seems that less successful learners over-use the dictionary, in that they translate or check items, even when this would seem to be unnecessary. This confirms my own, and surely many other teachers',

experience of learners who cling to the dictionary with a kind of religious fervour, lacking the confidence or nerve to make guesses, and to use their problem-solving ability to work out the meaning of a word from contextual clues.

The coincidence of this type of dictionary use and lack of success, suggests that it is important to attempt to train learners in discriminating use of dictionaries, for checking and especially with regard to translation. This could be achieved by training in using contextual clues and in informed guessing.

Given personality differences with regard to risk-taking, there is of course a difference in the extent to which any learner can be persuaded to take risks (make guesses). But my own experience suggests that even the most safety-conscious learner can be persuaded to relinquish the dictionary, if he is given a method for using contextual clues.

Secondly, we see a difference in the quantity of reference uses between Examples and Rules-based learners. The former, and others using some of this type of learning (Uncategorized learners), make greater reference use. Given the nature of the task (beginners' level) and the nature of Examples-based learning, extensive use of dictionaries is natural. It is apparent, however, that these learners are using the dictionary as an aid to both vocabulary and structure learning (cf. their extensive reference to function words in the translation dictionary - B set). Reference use tails off quickly as learners become familiar with the basic structures (see Table 6.1, Vol.2, p.51: E+U learners), when they switch to use of the A-set (Pictures), or make only occasional reference to nouns rather than function words in the translation dictionary.

There is also a hint of the possible qualitative difference between more/less successful learners

described above, in S9:M, the serialist learner who continues to make dictionary reference longer than most other Examples-based learners. One could suggest that the improvidence he shows in his general syllabus organization is also demonstrated in his use of dictionaries. His lack of analogy-making on the structural front is duplicated on the lexical front in a lack of guessing (guesses would be based on the similarity between Novish and English vocabulary).

In addition, we see that the most successful Examples-based or Uncategorized learners make almost no reference use of the dictionaries. The adaptation of their strategy in the direction of Rules-based learning may be partly responsible, yet the restricted use of dictionary reference by these learners especially, may support the suggestion that a guessing (risk-taking) strategy is a feature of successful language learning.

In terms of teaching, these observations imply that for Examples-based learners, or learners who make some use of Examples-based learning (here Uncategorized), extra training in judicious use of dictionaries would be advisable. Firstly, to avoid over-use and encourage guessing, as for all learners, but secondly, to help them make optimal use of dictionaries as an aid to structure induction as well as for vocabulary learning.

Finally, the use of individual dictionary cards in an orientation phase is not great, nor, I believe, of great importance (see discussion Ch.6, pp.98ff). Which may lead to the conclusion that for initial orientation in a language task, word lists would be preferable to dictionaries (see below).

Word-lists (Use of Dictionary Sets)

Moving to the word-list (Set) use of dictionaries, we see a quite different pattern in the data, the greatest use of sets being made by the most successful learners (Table 6.2, Vol.2, p.52). I have divided the uses by purpose

into orientation, learning, and reinforcement, of which reinforcement is the major use, and accounts for the greatest number of set uses by H-group learners.

As stated in the summary (Ch.6.3.3, pp.106ff), orientation and learning uses of word-lists would not seem generally advisable, but they could be appropriate for some learners.

Orientation by means of a list of words with translation equivalents and grammatical designations (Set B), could provide a useful introduction for a less confident learner, if he has the time for it; while initial learning of a word-list would only be advisable if the learner has a particularly good memory. The learning of words out of context, however, would never seem particularly advisable beyond beginners' level. Learning use of word-lists in the middle of a learning period - possibly to provide a change in activity, and a more general view of the language as a preparation for the use of text - could be a reasonable thing to do (see Table 6.2, Vol.2, p.52: H-group learners). But in that case the learning becomes less of a memorization task, and could perhaps be more accurately described as an attempt to gain an overview of learning content (semantic and syntactic), which would imply a kind of orientation, and also perhaps a (holistic?) desire to know the general 'shape' and limits of the area to be learned.

It is difficult to see what implications this might have for teaching. One could suggest perhaps the possibility of using word-lists as orientation or preparation for the reading of texts, especially to give the less confident students a sense of security, and to discourage too much dictionary reference while reading. Some learners (those with a holistic tendency?) might also benefit from having a list to look over, to give them an idea of what the text is about in general. These are possibilities, but it should probably be left to the individual learner whether he cares to make use of such a word-list or not.

The final use of word-lists was for reinforcement, which activity I have subdivided into revision, testing, and checking. The analysis of these uses is fairly complex and difficult to summarize, but certain tendencies can be seen (for a discussion, see Ch.6.4.3, pp.120ff; 6.4.5, pp.129f).

With regard to purposes, checking and testing account for 16 of the 23 uses, and revision seems inadvisable, as it is used very little by the most successful learners. Most revision uses occur with the B set and tend to be part of a combination, where the learner appears to base his whole reinforcement phase on the dictionary set use, and then only checking and testing items which, presumably as a result of his viewing of the B set, he realizes need further reinforcement. The alternative is for the learner to use the noun word-list (Set A) as the first element in a checking/testing phase, continuing with a comprehensive checking or testing of structure and vocabulary by using Examples. The latter procedure is that favoured by the most successful learners.

The generalization we can make from this pattern is that many learners appear to want an organized (and comprehensive) period of reinforcement of both vocabulary and structure. (The limited nature of the task may have influenced this decision, as it is possible to obtain a comprehensive review of the whole learning content). In addition, vocabulary is reviewed or tested before structure (using examples), showing possibly an idea of building up by stages, taking less complex material first.

Another feature present in the data is that the learners use sets generally as a boundary between rules learning/induction and other activities (usually with examples). This gives additional support to the suggestion that a period of different type activity provides welcome variation in a learning procedure.

As far as teaching material and practice is concerned, features of word-list use for reinforcement have particular implications for preparation for tests/examinations.

Apparently a review of vocabulary - checking or testing - is for many learners a desirable precursor to further reinforcement using examples/text, though of course this may be the case only at beginners' level. Nevertheless at a more advanced level, one could imagine that the availability of word-lists with texts might enable the learner to effectivize his reinforcement. Looking the words over first might enable him to read the text more fluently, and to concentrate on features other than vocabulary at this second stage of his reinforcement. A second possibility is that where language production is concerned, a period of reinforcement using a vocabulary list followed by examples of salient structures using the same vocabulary, might provide a good basis for subsequent production of text in a test situation.

In summary, the most obvious feature emerging from the data is the more successful learners' desire for a well-organized and comprehensive reinforcement phase, in which both word-lists and examples are used. In teaching terms this points to the need for well-organized and comprehensive summaries of areas of learning, which the learner can use for this purpose. Summaries are not unknown, of course, as testing preparation, but the point here is that the summary is to take the form, not of rules explanation, but of word-lists and related exemplificatory exercises.

One final comment about revision: the pattern which comprises comprehensive word-list revision followed by selective checking and testing, is less successful than the other reinforcement pattern discussed above. If my definition of revision (which is otherwise the vaguest and most general of these three concepts) coincides with the learners' understanding of the word, and if my

categorization of instances is correct, then the use of word-lists for 'revision' does not appear to represent a wise deployment of effort. It could be that a revision process (see Ch.6.4.1, pp.111ff for definition) is too passive/ receptive in nature, and that effective 'revision' is really a checking and self-testing procedure. This might suggest that learners should generally be taught active methods of revising for exams, based on the processes of checking and testing as I have defined them (ibidem).

10.2.2 Use of Background Information

Given the form and aim of this learning task, the learners' use of the Contextual Information cards appears to be somewhat of an anomaly. First, the learners know that this is an invented micro-language; second, it is made quite clear to them that they are to learn grammar; and third, they know that the information on these cards is unnecessary. Nevertheless the cards are used, and quite extensively by some learners. This leads me to conclude that this type of information is of interest at least to some learners, regardless of how irrelevant it seems to be to the task.

The analysis of learners' use of this information shows no correlation with Examples or Rules-based strategy preferences, but there is evidence of a slight link to success. None of the most successful learners make indiscriminate use of the whole set, whereas this does occur among the other learners, and especially among those whose total number of cards is large (evidence of a tendency towards redundancy perhaps, as suggested above, p.285).

Any attempt at explanation of the use of these cards is particularly tentative, as the fact that they were dealing with an invented language may in some cases have dissuaded learners from using the material, whereas in

others it may have aroused extra curiosity. Nevertheless, I shall take up one or two points mentioned in the conclusion to the C card analysis (Ch.7, pp.140f) and in the discussion of curiosity which precedes it (pp.137ff).

Specifically, no supporting evidence can be found for the suggestion that specific choice of contextual cards is symptomatic of a holist tendency (i.e. there is no correlation of C card use with use of many general information (Semantics) cards in a grammar block, or, especially, with general->specific organization of content.) Nor is the use of contextual information in order to find answers to specific questions restricted to learners who show indications of attempts at 'understanding' in their use of other cards. However, this evidence (or perhaps lack of it) does not invalidate the suggestion that such use of the C cards may indicate such an attempt.

Altogether, the use of background information may have something to contribute even to grammar learning. Firstly, as described in the discussion of curiosity (pp.137ff), it would seem that this kind of 'irrelevant' information may be useful to the learner in his search for variation in activity, and specifically for 'diversion' (diversive exploration/curiosity, see Ch.7, pp.138f). The fairly widespread use of cards in this manner (see Table 7.1, Vol.2, p.54: curiosity) shows that there is no direct relationship between success and the desire for diversion, though the more successful learners restrict the time they take with this activity. It would therefore seem to be a purely individual matter, though the learner does need to bear the time factor in mind.

The implication of this for teaching is again to support traditional practice. Teachers would generally agree that learners need to 'play' at times. However the use of tidbits of cultural information for this purpose is less traditional, and might present an interesting, and possibly motivating, option.

Secondly, apart from diversion, some learners, mostly less successful (less confident or experienced) ones, use the cards for orientation and to gain general background information (one kind of specific exploration/curiosity, see Ch.7, p.138), or to answer specific questions (also specific exploration/curiosity, *ibid.*). Such uses have similar yet different implications.

General use would suggest that for some learners a general introduction to a language (orientation) through its cultural background may be helpful/desirable. Particularly if the introduction contains aspects of the culture which have a (Whorfian) bearing on the general syntactic and lexical structure of the language.

The widespread use of C-cards to search for specific information (see Table 7.1: specific use, especially C6), suggests that many learners wish to use cultural information of general relevance to the language, to aid them in obtaining explanation, overview, and possibly understanding of general features of the language. This use of contextual information may aid efficient learning: for instance, as help in analogy-making (e.g. the learners who check a hypothesis about similarity between Novish and English vocabulary); or, as orientation in a specific area, which can help to delimit the task; or, as a means of satisfying a need for general explanations by means of which more specific items (rules or words) can be fitted into a system.

These various motivations and linguistically relevant uses of background information imply that sociolinguistic and cultural-linguistic concepts might be usefully introduced into teaching, in addition to the types of cultural information normally offered to learners; this holds especially for adults at beginner's level, but could be generally applicable.

In summary, there is no clear evidence that use of contextual information is an advantage for learners, in

that the most successful learners make sparing use of it. But the very fact that so many learners use it at all (given its general irrelevance and superfluity in terms of the task set), leads me to believe that contextual information serves a useful function, indirectly perhaps, in relation to: 1) motivation (curiosity is a symptom of arousal and motivation); and 2) efficiency of learning (superordinate linking and systematization of concepts).

10.2.3 Use of Examples

Here we turn to a less tentative and more important aspect of the analysis, which could have far-reaching implications for FLT, namely the quantity and the quality of examples use in relation to teaching.

The data show that learners use examples for many purposes, yet that generally the manner of use falls into one of two categories. First, a focussed use, where the learner selects a single example for concentrated work, often in response to a particular need (Integrated Use); second, a more global use of many examples over a period of time (Block Use).

The latter type is related to the learner's activity syllabus, whereas the former is related to his content syllabus and especially to his strategy preference.

Block Use

Taking the more general feature first, the use of sets of examples in an activity syllabus (phase strategy), reflects common teaching practice, and has been discussed in previous sections (10.1.1/5, pp.280, 298-9; see also conclusion to Ch.8, pp.177f). The skills nature of language learning necessitates, for most learners, extensive experience of examples of the language, of the use of the rules. In the data, individuals vary as to how much experience they wish for, but successful learning is related to comprehensive use of examples during extended

periods, preferably of the same activity, and especially for testing and checking. Other uses are practice, exposure and revision, but testing and checking appear to be decisive for success, regardless of strategy preference (for definitions of these activities with Examples cards, see Ch.8.2.2, pp.162ff).

Quantity of examples obviously plays a role in this experience factor, but the data suggest that the 'quality' of the examples is more important when it comes to reinforcement uses (revision, testing, and checking).

The most successful learners' pattern of reinforcement activity using Examples, suggests that an organized and comprehensive set of examples is needed, especially in preparation for a test of structures (grammar). In the course of learning, repeated exposure/practice may be useful for some learners (see Table 8.3, Vol.2, p.58), but as reinforcement, a set of examples which covers the area of grammar in an organized fashion appears to be useful. The use of such material is not general teaching practice, where perhaps the tendency with regard to examples is to regard quantity as more important than quality. The idea of presenting learners with exercises, using comprehensive and organized sets of examples (the organizational principle would appear to be immaterial, as long as it is made clear), would seem quite practicable, and would appear to be a much more satisfactory and profitable way of preparing for tests than revision using grammar material (see next section), or disorganized practice using examples.

In order to prepare for text production generally, rather than just grammar testing, it seems to me that exercises using a set of relevant selected and sequenced structural examples, in conjunction with word lists (see 10.2.1 above, p.306, for suggestions), could well be an effective means of training.

Integrated Use

This use of examples is far more complex, and has implications which relate more to the learning of rules than to skill acquisition. As we have seen, integrated use of examples for learning the grammar, and especially as the basis of content syllabus organization (see Ch.9, p.268), is the decisive feature by which we can distinguish Rules and Examples-based learning preferences. I have looked in some detail at the implications of this feature (see above 10.1.5); here I have two additional comments to make.

First, I wish to emphasize that Examples-based learners need to organize carefully the activities they undertake when using examples (Ch.8, p.193). All learners need to organize their activity syllabus as sustained periods of the same activity, but Examples-based learners may - because of the wide variety of purposes for which examples can be used - be tempted to switch activity too often, and so impair the effectiveness of their learning. A materials designer might also fall into this trap. So, to my suggestions as to exercises suitable for Examples-based grammar learning (see above 10.1.5), I shall add the rider that elements of practice (or checking, etc.) should not be included in an exercise intended for learning grammatical structure. Practice, and other uses of examples and texts, should be clearly separated from rule induction, in distinct periods of activity.

My second comment concerns quality vs. quantity. As suggested above, quantity is perhaps important with some purposes for the use of examples, mainly practice or exposure (both stabilizing information in memory - see Ch.8.2.2, p.164f); whereas quality appears to be just as, if not more, important in extended testing and checking periods, and probably also revision (see my comment above 10.2.1, pp.306-7).

But as far as grammar induction is concerned, the quality and organization of examples (whether presented as sets

of sentences or selected text passages) is necessarily all-important.

We have seen in the data a tendency for Examples-based learners to start by concentrating on general or inclusive examples, moving only later to more specific ones (eg. S31:M, S22:M, S11:M). The implication would be that this particular type of content organization should be preferred in the design of Examples-based grammar learning materials. However, the needs of serialist learners (like S9:M & S33:L), and the danger of the typical serialist and holist pathologies, would suggest that items be grouped for presentation in batches with exemplification of both superordinate and partial rules.

These could be presented in such a way that learners could work either with the overall concepts, or the more detailed ones first, proceeding - and this is necessary if pathological behaviour is to be avoided - to the other type of concept to complete the learning. Thus, all examples would be covered by each learner, but in an order determined by the learner's serialist or holist bias.

To conclude, it seems to me that the findings in the data, and their implications as sketched above, would argue for a thorough overhaul of our thinking in respect of the way in which examples are used in foreign language teaching, both in grammar presentation material and exercise material.

10.2.4 Use of Grammar

One would assume that in a grammar learning task grammar material would be the most relevant. Yet, as we have seen, dictionaries, and examples in particular, have important roles to play. Nevertheless the assumption is borne out by my analysis, at least as far the majority of the subjects is concerned, in that they prefer a Rules-based learning strategy. The evidence of this is found in their use of the Grammar cards (Sets D & E), of which they use more than the other learners; but the more salient feature of their strategy is their use of grammar to organize a content syllabus.

As with Examples use, we can distinguish two manners in which the material is used. First, Integrated Use, where grammar is used for reference, i.e. for help while pursuing activities other than grammar learning, or, with Examples-based learning in particular, to check hypotheses or learn isolated items during grammar learning using examples. And second, Block Use, where grammar is used in sustained periods of grammar learning activity with grammar cards. Within such blocks, grammar is also referred to (reference-based transitions), but as we shall see in the following discussion, these different contexts for referring to grammar material, tend to have somewhat differing implications for the design of such material.

Integrated Use

Taking integrated reference use first, the data show that for learners who use blocks of grammar material (i.e. the Rules-based learners and four out of the five Uncategorized learners), reference outside the block is restricted, though more successful learners (M & H groups) tend to show more instances of such reference than the least successful, who are more likely to look at a small cluster of grammar cards for revision (or checking) at the end of the task (pp.236f - Table 9PIa: Summary). As mentioned in the summary (ibidem), this suggests that

using grammar for reference is advantageous, and that using it for revising or more extended checking is not. For these purposes it seems that examples are more useful (see 10.2.3 above.)

The implication for teaching is that learners should be trained in using grammars for on-the-spot reference (in the same way as they use dictionaries) while engaged in practice or other activities with examples or texts. Only, in this connection, they need to be encouraged to use the material rather than discouraged from over-using it as was the case with dictionaries. It may in fact be mainly a matter of broadening learners' conception of the possible uses of expository grammar material. In addition, they should possibly be dissuaded from using grammars for revision, and be supplied instead with suitably organized sets of examples for this purpose (above 10.2.3).

Reference use is also made by Examples-based learners (and the remaining Uncategorized learner), i.e. the learners who make Integrated Use of D/E cards and have no block of work with grammar material. The profile (and implications) of these learners' use of grammar is somewhat different from that of the reference use described above, of which there appear to be few instances with these learners; their use is more varied in terms of purpose, and of the type of grammar information referred to.

On the whole, these learners use grammar exclusively for reference (except two H group learners, who also look at two or three grammar cards initially for learning, rather than as references initiated by other types of learning material, and S21:L - Uncategorized). In contrast to the Rules-based (block use) learners, they do not use it for ordering their content syllabus (see Table p.268), or to provide the basis for their grammar learning, for which they use examples. (They use few Grammar cards in general, see Table 8.0, Vol.2, p.55). This constitutes

one of the most significant differences between Examples and Rules-based learners.

Also with regard to purpose, Examples-based learners' use of grammar differs from other learners' reference use. They refer to the grammar mainly for learning, and also for hypothesis-checking (especially the more successful subjects), whereas other learners' reference uses (outside blocks) are mostly for recognition checking and some learning (see Table p.235, & pp.238f).

This difference reflects the difference in overall approach, as Examples-based learners mostly use grammar reference in the learning phase of the task, as opposed to during practice or reinforcement periods, as is the case with Rules-based learners.

One final feature of relevance to the discussion of implications for teaching is the type of grammar material Examples-based learners refer to. They use a higher proportion of general grammatical information (Semantics cards) than most other learners do, in either their concentrated grammar learning or when making references; they also use this information at an early stage in their grammar learning (see pp.241ff).

As far as teaching is concerned, this profile of Examples-based learners' reference use of grammar has implications over and above the methodological one of training and encouragement in reference use of grammars, though that may very well apply to these learners too. It implies that in order to accommodate the preference of Examples-based learners for reference to this type of information, pedagogic grammars need to be well-endowed with descriptions of superordinate rules, and explanations concerning general areas of grammar, and that such general rules and explanations should be clearly marked as such to enable easy access. This suggestion should be added to that made in 10.1.5 about parallel presentation of rules and (analysed) sequences of examples.

Block Use

The second major use (Block Use) of grammar is as material for learning the language system. Here we are talking only about Rules-based learning: firstly, the way in which grammar items are selected and organized to form a content syllabus; and secondly, the purposes for which grammar material is used.

Two main features of the data are: a) the principle the learner selects for organizing grammar learning content (e.g. simple->complex); and b) the use of general grammatical information. The implications of both of these have already been discussed (10.1.5), together with suggestions as to how teaching can be adapted to accommodate learner preferences.

However, one further feature with regard to these learners' purposes in using grammar cards could have implications for grammar teaching. It seems that for these learners also a certain amount of hypothesis-checking and focussed learning activity (which of course imply hypothesis-making) is indicative of greater success, and, possibly, in some cases more efficient learning (p.245f). (See Ch.9, pp.208-9 for definitions of these activities.)

Consequently, it could be suggested that some kind of training in hypothesis-making would be a worthwhile investment. Exactly how this could be accomplished is difficult to specify, but the use of exercises of the type suggested as suitable for Examples-based learners (see above, 10.1.5) is a possibility. Here, in fact, one can perhaps glimpse a more general principle, for the idea of training in hypothesis-making with regard to grammatical rules would appear to have much in common with the training in guessing suggested for vocabulary (see above, 10.2.1).

Finally, it must be noted that within any grammar block, i.e. during the period of concentrated rules learning

based on grammar material, learners also refer to the grammar (reference-based transitions). In other words, they follow up leads and seek answers to questions raised by the rules on the grammar cards and their associated examples, by 'looking up' further items in the grammar. In the analysis, such use is mainly of importance as it provides a background to the learners' choice of syllabus items (syllabus-based transitions), which reveals the organization chosen for the content syllabus.

The evidence from this reference use, however, does support a generalization: It seems that the more learners follow up leads from syllabus items, especially learners with a holist bias, the more successful they tend to be (see Table^(x) and discussion, Ch.9, p.253-4); and also that this type of reference to general information seems to relate to success.

Altogether this implies that apart from encouragement to make reference to grammar while pursuing other activities, learners should also be encouraged and trained to formulate and follow up queries, even while they are learning grammar. As a result, in grammar presentation material this would suggest that references to both more general and to specific rules should be given, clearly marked according to type. For pedagogic grammar, one could suggest that the usual extensive cross-referencing be accompanied by an indication of the level of generality of the rule referred to. In respect of training, specific training in the use of this added feature in the reference grammar would be needed.

For further suggestions of how to accommodate learner preferences in grammar materials, see 10.1.4-5.

10.3 Conclusion and Perspectives

10.3.0 Introduction

In conclusion I shall make a few remarks on the merits of my method, and further discuss briefly two assumptions that have been made in this research and in the suggestions made on the basis of the findings.

10.3.1 The Method

With regard to research method, I am fully aware of the objections that can be raised against exploring general styles and strategies on the basis of an experiment with such a limited number of subjects. The method places a heavy burden of interpretation on the researcher, and, as I have stated passim, generalizations and conclusions can only be tentative. However, I found that my wish to study learner behaviour in depth left me no alternative.

On the other hand, it seems to me that the method has proved its value, in that I have been able to establish a number of categories and terms for learner behaviour, whose explanatory power enables me to account for patterns in the data which initially seemed arbitrary. More importantly perhaps, the categories I have found and the concepts I have been able to define for the data (such as Rules/Examples-based; orientation, learning, reinforcement; activity/content syllabus; integrated/block use) seem intuitively applicable also beyond the data (indeed a few of them are commonsensical enough to have been applied already, though possibly not so stringently defined). Thus I hope that my study has been able to do what an in-depth study should: provide new perspectives, and new categories, which may be used in further research, whether in qualitative in-depth studies or quantitative statistical studies.

Nevertheless the method could, obviously, be tightened and refined in several ways, in particular so as to ensure greater homogeneity and precision in the data. Various adaptations have already been suggested, which would encourage the production of a more similar quantity

and quality of commentaries across learners (e.g. consistent use of tape-recorder, see p.72), and would take into account the time factor in learners' use of information (p.73). Such changes would presumably produce more data from each learner, and more consistent data in general, which would solve some problems of analysis.

In addition, more precise instructions as to the manner in which learners could comment, and as to what aspects of their activity one was interested in, might produce more consistent and informative commentaries (always bearing in mind, of course, that overzealous instructions can bias the data).

10.3.2 Assumptions

With regard to the assumptions made, the first is that learning an invented micro-language is directly comparable to a foreign language learning task. The second assumption is that matching teaching to learner strategy preference is beneficial in foreign language learning (as Pask has shown it to be with other learning content, see pp.22-3).

Further research is needed in order to test the validity of these fundamental assumptions, on which are based both my establishment of types of FLL strategy and, in consequence, my interpretation of their implications and their possible implementations in FLI. The following types of research could be suggested, in which the same or a similar method could be employed.

To test the assumption that my task is foreign language learning, and to see whether my findings can be replicated (particularly with regard to macrostrategy difference, but also to the importance and form of the activity syllabus, the organization of content syllabuses, and the types of activity engaged in), one could design a grammar learning task using natural language, presumably at post-beginners' or intermediate level, with subjects controlled for level of previous knowledge. This would

require, I believe, a carefully selected vocabulary and a complex but limited grammatical area. It is further possible that 'real' material could be used, for instance FL->L1 and L1->FL translation dictionaries, short texts, and cultural information.

Only at a later stage, when strategy types and biases have been confirmed, and when aspects of general learning organization (activity syllabus) and learners' micro-strategies with regard to activity types have been clarified, could one progress to the testing of the second assumption.

This would entail an experimental design similar to Pask's, in which subjects are first typed according to preferences and then placed in matched and mismatched learning conditions, using specially selected and organized materials.

Finally, the generality of my learner types could be tested by attempting research in areas of language learning other than grammar. The use, for instance, of a task design like mine in a task to train listening comprehension is both feasible and practicable, even though two aspects, at least, would present some difficulty, viz. controlling learners' previous knowledge and testing their achievement.

10.3.3 Concluding Remark

On the whole my suggestions for further research seem to me to be fairly uncontroversial. I have to admit, however, that they are not, as far as I am concerned, the most important perspective in my research. In conclusion, then, I will make so bold as to suggest that the results of my study could be immediately tried out in practical methods and materials design. However tentative my generalizations are theoretically, I feel sufficient confidence in them to let them affect my own practice. All the more so because I strongly believe that in order to develop this field of pedagogy it is of paramount importance to switch between theory and practice.

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