

UNIVERSITY OF CAPE TOWN

FACULTY OF EDUCATION

**TOWARDS AN UNDERSTANDING OF ESL
STUDENTS' APPROACHES TO LEARNING:**

**a study of conceptions of learning, perceptions of
situational demands, learning approaches and learning
outcomes.**

**A dissertation presented in fulfilment
of the requirements for the degree of**

DOCTOR OF PHILOSOPHY

by

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ABSTRACT

TOWARDS AN UNDERSTANDING OF ESL (English as a Second Language) STUDENTS' APPROACHES TO LEARNING:

a study of conceptions of learning, perceptions of situational demands, learning approaches and learning outcomes.

An hypothesised relationship between levels of proficiency in English of ESL students and the approaches to learning which they adopt, in situations in which English is the language of instruction, is the focus of this study. An attempt was made to identify the extent to which students, who are required to learn in a second language, adopt undesirable approaches to learning as a consequence of linguistic or cultural factors. Such students appear to adopt reproductive strategies to pass examinations and retain only isolated pieces of information for practical application. In a sense, they graduate but remain unqualified.

Quantitative responses of 307 students, relating to their contextualised perceptions of the demands of the learning situation, were gathered and analysed using a learning approach categorisation procedure. Qualitative responses of 120 students, relating to their descriptions of the context and content of learning, were gathered in semi-structured interviews to supplement and enrich the quantitative data collected. Levels of proficiency in the language of instruction were measured using integrative tests of comprehension of spoken discourse and written texts presented in actual lecture situations. Students were given the opportunity to rate the lectures and reading material from which they were expected to learn and self-esteem was measured as a construct considered likely to affect perceptions of the demands of the learning situation.

Concurrently with the above, a group of students from each of 3 year groups was taught a new topic over a short series of lectures and tested for understanding in the language of instruction. Balanced groups, from each of the 3 year groups, were taught the same topic and tested for understanding in the mother-tongue. This procedure was subsequently replicated with a second topic of similar complexity, across all three year groups, with languages switched. Critical aspects of the teaching/learning situation were kept constant.

These procedures provided compelling evidence, after analysis of quantitative and qualitative data, of a relationship between proficiency in the language of instruction and the ways in which students engage in learning tasks. Difficulty with the language of instruction appears to increase the demands of the learning situation and the likelihood of adopting reproducing strategies, which are not normally associated with success in terms of learning outcomes.

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CHAPTER 1

INTRODUCTION

In this chapter the reasons for the study being undertaken are given as well as statements of the central hypothesis and research objective. This is followed by a delineation of the context of the investigation and an outline of the research questions. A brief glossary of key terms used throughout the study is included.

1.1 STATEMENT OF THE PROBLEM AND JUSTIFICATION FOR THE STUDY

With responsibility for facilitating the learning of students for whom English was a second language, the author perceived the possibility of there being an association between levels of proficiency of students in English and the ways in which they engaged in learning, in situations in which English was the language of instruction.

The term 'proficiency' is taken here to mean the dynamic process whereby an individual is able to put to appropriate use the more static, absolute concept, level of competence in the language of instruction that the individual has at the time. This is a clarification of the distinction between proficiency and competence put forward by Taylor (1988:166) and which is supported by Dommissie and Young (1990:297), who argue that the ability to select the correct linguistic features required to carry out communicative tasks is intuitively and traditionally associated with proficiency. Chomsky also refers to linguistic competence as the speaker-hearer's knowledge of the language and

proficiency as the actual use of it in concrete situations (1970:184). He explains that, as one learns a language, one acquires a system of rules that relate sound and meaning in a specific way. A certain level of competence is thus acquired and is put to use in understanding and producing the language, at a certain level of proficiency.

Expressed differently, the ability of students, for whom English was a second language (ESL students), to comprehend lectures and lecture materials presented in English and the 'orchestrations to learning' which they adopted, appeared to be related. 'To comprehend' in this context refers to both the receptive (input) and productive (output) aspects of language competence and proficiency, demonstrated by students while, and after, experiencing spoken discourse and written texts (Oller, 1979). Reasonable levels of competence and proficiency, among other things, are prerequisites to comprehension, which provides for the receptive, and enables the productive, aspects of communication.

Williams and Snipper (1990) point out that the term 'communicative competence', coined by Hymes (1972), helps one to expand upon the meaning of proficiency, which encompasses the processing of language in the four skills of listening, speaking, reading and writing. Communicative competence is related to a far wider range of linguistic skills and refers to an individual's pragmatic awareness of what constitutes appropriate language use in specific social-communicative situations. Yalden (1987) explains that, according to Bachman and Palmer's (1982) theoretical scheme of communicative competence, it includes grammatical (morphology and syntax), pragmatic (vocabulary, cohesion and organisation) and sociolinguistic competencies (register, nativeness and non-literal language). This suggests that a measure of one or more of the communicative skills that proficiency includes (listening, speaking, reading and writing) is not a measure of communicative competence but simply of those skills required in a specific communicative setting. As Williams and Snipper go on to explain, assessing an individual's level of communicative competence is not as straightforward. One is faced with having to identify the most appropriate measure for the specific situation; in this case, a

measure of comprehension of academic discourse, which is restrictive and limited in nature.

As already indicated, in the context of the present study, two skills prerequisite for students attending lectures, if they are to gain any benefit from attendance, are the ability to comprehend the spoken messages presented and the ability to read and comprehend written texts. A measure of these skills constitutes a measure of language proficiency, primarily, while also measuring some aspects of communicative competence as well as the individual's capacity to demonstrate in writing, such comprehension.

In this study, the term 'orchestration to learning' refers to the self-reported and context-specific study behaviour of an individual learner. The concept is defined as the manifestation of the coalescence of an individual learner's qualitative perceptions of the learning context and the learning approach adopted within that perceived context (Meyer, 1991; Meyer *et al.*, 1992).

Students, in general, enter university with different interests, expectations, motives (Maslow, 1970; Marton and Säljö, 1976), levels of self-esteem (Cooley, 1902; Sullivan, 1953; Festinger, 1954; Shaver, 1975; Shavelson, *et al.*, 1976; Mboya, 1993), previous knowledge, learning styles (Ausubel, *et al.*, 1978), and, in the case of ESL students, varying abilities to comprehend material presented in English (Stevens, 1971; Zepp, 1981; Bilbow, 1989). ESL students may even have different conceptions of learning, knowledge and understanding, as a consequence of cultural influences (Bilbow, 1989; Kember and Gow, 1990). All of these differences, in their own unique combinations, interact insidiously and unremittingly with the university environment and the demands of the learning situation (Entwistle and Ramsden, 1983). Students' perceptions of course and examination demands, teaching styles, content material (Ramsden, 1988), departmental ethos and administrative style, even the architectural design and furnishings (Perry, 1970), have an influence on students and the way in which they engage their learning tasks. Students who find the situation threatening because of difficulties with the language of instruction, for instance, or those unable to see the relevance of the content material (Ausubel,

et al., 1978), may be more likely to rely on regurgitating seemingly unrelated pieces of information in a somewhat detached fashion than to orchestrate their approaches to learning in a way that leads to interpretation, construction and abstraction of meaning.

On the basis of these research conclusions, the relationship between instruction in a second language, individual orchestrations to learning and learning outcome is the focus of this study. An attempt was made to identify the extent to which ESL students adopt undesirable orchestrations to learning and the extent to which this is associated with linguistic factors, in situations in which English is the language of instruction. The thesis is that when a student's level of proficiency in the language of instruction is low, the perceived pressures of the learning situation are increased. This increases the demands of the situation and is likely to lead to a change in the learning strategies adopted by the student. For instance, in cases in which linguistic difficulty is experienced, a student is likely to rely substantially on strategies such as memorisation to pass examinations, retaining only isolated pieces of information for practical application. In a sense, such students graduate but remain unqualified.

As Entwistle and Ramsden (1983) point out, a sizeable proportion of a country's wealth flows into university education and many of the students who graduate will eventually occupy powerful and prestigious positions in society. In developing African countries, the context of this study, where a certificate of graduation earns social exaltation, the importance of having the skills that graduation implies cannot be over-stated.

1.2 THE CENTRAL HYPOTHESIS AND OBJECTIVE OF THE RESEARCH

It seems reasonable to assume that level of proficiency in the language of instruction, among other things, in interaction with the university environment, predisposes students to perceive their world of learning in uniquely different

ways. This predisposition, in turn, has an influence on the way in which individuals engage in learning.

As Bowers (1987:73) states, educational theorists and classroom teachers cannot be excused from understanding the role that language plays in transmitting the conceptual maps that enable the construction of reality by the student. Ausubel (1974) explains that when a student incorporates a potentially meaningful statement within his or her cognitive structure it becomes actually meaningful.

Meaningful reception learning occurs as potentially meaningful material enters the cognitive field and interacts with and is appropriately subsumed under a relevant and more inclusive conceptual system. The very fact that such material is subsumable in non-arbitrary, substantive fashion accounts for its potential meaningfulness and makes possible the emergence of phenomenological meaning. If it were not subsumable it would form discrete and relatively isolated traces. (Ausubel, 1964:229)

A student whose first language is not English may experience difficulty in simply decoding and keeping up with the presentation of the content of the lecture, without comprehending the meanings intended. The central hypothesis of the research reported on in this study is that level of proficiency in the language of instruction is related to the quality of learning orchestration adopted. That is in the sense that a low level of proficiency would serve to exacerbate the orchestration, whatever the individual's perceptions of the situational demands might otherwise have been. This gives rise to the main objective, which was to put such a hypothesis to the test. It was necessary, therefore, to measure the levels of proficiency of individuals and to establish the nature of their orchestrations to learning.

It is important to state at this point that a 'student-in- deficit' model is not what was intended here. Some subject areas and assessment procedures demand and even reward regurgitation of course content, at least to some extent. In addition, some students who actually understand the material to be learned also rely on memorisation to pass examinations. Furthermore, the degree to which an individual comprehends spoken discourse and written texts presented in a second language is also determined by the ability of the lecturer to present the

content in a way that is unambiguous, informative, relevant and appropriate for the students' linguistic and cognitive capabilities. In view of this, students were given the opportunity to appraise the spoken discourse and written texts presented, in terms of their comprehensibility. This also served to provide supplementary data concerning students with low levels of proficiency in English, as did the measure of learning outcomes; issues to be discussed in subsequent chapters. Examination of a student's responses to individual items in the lecture rating inventory (which is presented in Appendix B) gave an indication of his or her level of proficiency in the language of instruction, in that specific areas of difficulty were made evident. The nature of a student's linguistic expression in responses to questions in the measure of learning outcomes also provided evidence of a student's level of proficiency in English.

1.3 CONTEXT OF THE INVESTIGATION

At the University of Malawi, English is the language of instruction, whilst Chichewa is the national language. In the Faculty of Education, the lecture format is the most commonly adopted method of presentation of course content and student groups are typically large. A majority of students are non-contributive, unquestioning writers of lecture-notes who, in terms of examination pass rates, are successful learners. As such they provided a context within which to test the main hypothesis.

The author observed in Malawi that female students, in particular, frequently enter university education with under-nourished self-concepts and feelings of inadequacy. On frequent occasions students associated gender with performance, particularly in mathematics and the sciences. For example, a female student, in discussion with the author, made the remark that, "Mathematics is more difficult for girls." It appears that this is largely the result of culture-bound, sex-role stereotyping and is likely to adversely effect learning outcomes. Mboya (1993) strongly supported this view in personal

communication with the author. The issue is discussed in Chapter 3, in support of the administration of a self-esteem inventory.

1.4 THE RESEARCH QUESTIONS

The research questions which follow seek quantitative as well as qualitative data to provide an indication of the extent to which an association exists between proficiency in English and orchestration to learning. It is hypothesised that the extent to which individuals are able to comprehend spoken discourse and written texts presented in English modifies their perceptions of their learning environment and the orchestrations to learning which they adopt.

This leads to the formulation of the following questions:

- (1) What are the attainment levels of ESL students in their comprehension of spoken discourse and understanding of written texts presented in English?
- (2) How do these students experience the context and content of learning?
- (3) How do these students rate the comprehensibility of spoken discourse and written texts presented in lectures?
- (4) What levels of self-esteem are demonstrated by these students?
- (5) What are the learning outcomes associated with these attainment levels, descriptions, ratings and levels of self-esteem?

1.5 CONCEPTS AND TERMS USED

Although concepts are defined in appropriate sections throughout the text, key concepts and terms used are defined briefly as follows in the order in which they first appear in the text:

English as a Second Language (ESL) students:

those university students for whom English, the language of instruction, is a second language. All subjects of the present study are indigenous Black Malawians, whose first language (mother-tongue) is Chichewa.

Proficiency in the Language of Instruction:

the dynamic process whereby an individual is able to put to effective use, in specific context-embedded academic tasks, the more static, absolute concept, competence in the language of instruction.

An orchestration to learning: self-reported and context-specific study behaviour, which is the manifestation of the coalescence of an individual learner's qualitative perceptions of certain key elements of the learning context and the learning approach adopted within that perceived context.

A desirable (meaning) orchestration: an approach to learning associated with deep and holistic perceptions of the learning environment and a

conscious, intrinsically motivated intention to extract personal meaning from what is being learned.

An undesirable (reproducing) orchestration: is associated with an impoverished perception of the learning environment, disorganised study methods, external motivational influences (such as fear of failure) and an over reliance on memorization. The main intention of the learner is to aggregate rather than transform information.

CHAPTER 2

THEORETICAL BACKGROUND TO THE STUDY

LITERATURE REVIEW - PART 1

INTRODUCTION

The purpose of this chapter is to provide a theoretical background to the present study. Investigation should begin with a theoretical system which serves to restrict and to reduce the comprehensiveness of all the possible facts about the subjects of the study that could be considered. There are so many things to which attention could be turned, all of which can be viewed from numerous different perspectives, and this sets before the researcher a vast multiplicity of alternatives from which to select those facts that are important, significant and relevant to the study.

By means of theory, concepts can be elaborated and organised into a framework for the description and analysis of those characteristics that the researcher sees in the subjects. Theory can provide for the systematic collection and classification of data, enabling the researcher to see any relationships and uniformities that exist, making it possible to compare these with existing collected knowledge. As Byrne (1977:85) states, "Application of theory to concerns of daily life is made through techniques supplied by the technology that flows out of the theory."

2.1. CONTRASTING ORCHESTRATIONS TO LEARNING

As previously stated, the term 'orchestration to learning' refers to the self-reported and context-specific study behaviour of an individual learner. The concept is defined as the manifestation of the coalescence of an individual learner's qualitative perceptions of the learning context and the learning approach adopted within that perceived context (Meyer, 1991; Meyer, *et al.*, 1992). As such, the composite nature of an individual's orchestration to learning is idiosyncratic and unique.

The idiosyncratic nature of perception becomes apparent when one considers that it is not only the product of stimulus determinants but also of personal, experiential, motivational, emotional and social factors as well. According to Bruner (1974), the perceiver selectively gathers information about an object or situation, forms perceptual hypotheses about it and may even distort the input before categorising it in terms of some personal classification system.

Despite the uniqueness of an individual's orchestration to learning, empirical research has identified many qualitatively different orchestrations, three of which very broadly typify distinctive categories of orchestration. Each of these is "...inextricably intertwined..." with the learner's perceptions of the learning context (Meyer, 1991:307).

A 'meaning' orchestration is characterised by a rich, holistic perception of the learning context, a deep approach, relating ideas, use of evidence, intrinsic motivation and comprehension learning (Meyer, *et al.*, 1990:74). The main intention of the learner is to understand what is learned, to relate and distinguish new ideas and previous knowledge, to relate concepts to everyday experience and to relate and distinguish evidence and argument. Research has also indicated that such a desirable orchestration should, theoretically, lead to success (Meyer, *et al.*, 1990:75), thereby demonstrating a link between such learning orchestrations and learning outcome.

A 'reproducing' orchestration, on the other hand, involves an impoverished perception of the learning context, a surface approach, syllabus-boundness, fear of failure, disorganised study methods, extrinsic motivation and negative attitudes (Meyer, *et al.*, 1990:74). The main intention of the learner is to complete the task requirements and to memorize information and procedures for assessment, without distinguishing principles from evidence, concepts from facts, new information from old. This type of orchestration is considered undesirable and places the student, theoretically, 'at risk'.

Whilst there is a degree of stability of orchestration across situations which are similarly perceived by the learner, the fundamental distinction between these two approaches may be interpreted slightly differently in different academic disciplines. The sciences, for instance, require more of an emphasis on detail and procedure than do the humanities and might demand an element of memorisation (Meyer, *et al.*, 1990:76). This could be incorrectly interpreted as a manifestation of a surface approach.

In addition to these categorisations, Meyer (1994) provides an illuminating description of a strategic orchestration, which has appeared in the literature (Ramsden, 1979; Entwistle, 1981; Biggs, 1987.) and is sometimes referred to as an achieving approach. It is described as "...a hybridised form of study behaviour...characterised by an intention to succeed academically, a competitive motivation and an eclectic appropriation of whatever other processes are perceived to be necessary for this purpose.". Although, as Meyer (1994:6) makes clear, it "...does not generally manifest itself in a pure form at an individual level", such an orchestration appears to incorporate both deep and surface strategies which most successfully marry effort to the reward system as perceived by the student.

The present study is largely an investigation of the perceptions of individuals and their responses to situations perceived. It is therefore important to record what has so far been established, by other investigators in earlier studies, in

terms of the behavioural patterns and tendencies of individuals, as a consequence of their perceptions.

2.2 CONTRASTING PERCEPTIONS OF THE DEMANDS OF THE LEARNING SITUATION

The association between an individual's perceptions of the demands of a learning situation and the way in which the learning task is engaged was identified by the phenomenographic research of Marton and Säljö (1976). This research methodology "...derives context-dependent categorisations of the learning process from students' own descriptions of their experiences of learning." (Laurillard, 1986:167). There is no attempt to explain learning in terms of pre-existing cognitive theory or to make inferences about the performance of the student in terms of individual differences in ability. The focus is on the student's subjective description of his or her relation to the learning task.

According to Ramsden (1988:20), "(A)n approach to learning is not something that is 'inside' a student but between the student and the task... It has both personal and situational elements but cannot be meaningfully reduced to the sum of both sets." Ramsden (1988), like Säljö (1979), refers to this as a relational view of learning, which focuses, from the point of view of the student, on the relation between the student and what he or she is required to learn, as well as the context in which it is learned. It is concerned with exploring students' perceptions of subject matter and of situational requirements and how these might be changed to foster more desirable approaches to studying.

2.2.1 Student Conceptions of Learning

According to Bowers (1987), an educator's task involves, amongst other things, helping students acquire the concepts necessary for understanding and exercising

critical judgement. Similarly, Giroux (1981) maintains that students should be able to generate meaning, a frame of reference, and be able to develop their self-determining powers through an ability to perform a critical reading of reality. The knowledge so generated should not be regarded as the acquisition of a body of information, but as an active force that is used by the learner to make sense of his or her world. However, the provision of a set of experiences for learners may be nothing much more than the implantation of a constant universe of truth, while learning becomes the passive imitation of objective structures (Jenks, 1977). At the core of the act of knowing is a questioning attitude and ever-increasing sets of relationships. These can only develop from learning which involves not only the generation of meaning but reflection on the process of thinking itself.

"Questions that teach students how specific structures of thought are both used and embodied in particular types of world views ... must be translated into viable (educational) practices ... it is then that students will be able to use knowledge as part of a self-determining process."

The findings of an interview study conducted by Säljö (1979), however, suggest that students differ, for one reason or another, in their views of what learning involves and may see it as one or more of the following:

- 1) a quantitative increase in knowledge
- 2) memorisation
- 3) acquisition and application of knowledge and skills
- 4) abstraction of meaning
- 5) an interpretive process aimed at understanding reality.

Research to date (Van Rossum and Schenk, 1984; Marton, 1988; Meyer and Muller, 1990) has indicated that students who differ in their conceptions of learning also differ in the study processes they adopt. Although a deep conceptualisation of learning does not necessarily accompany a deep approach to learning, since the qualities of the situation may make the learner focus on its demand characteristics, there is, nevertheless, a strong association between perceptions of, and approaches to, learning (Van Rossum and Schenk, 1984;

Marton, 1988:72), as shown in Table 2.2.1. In other words "... qualitatively different categories (of perceptions of learning contexts) are associated at an individual level with qualitatively different study orientations." (Meyer and Muller, 1990a:46).

Conception of learning	Approach to learning		No. of students
	Surface approach	Deep approach	
1. Increase in knowledge	6	0	6
2. Memorisation	19	4	23
3. Acquisition and utilisation of facts	8	7	15
4. Abstraction of meaning	1	12	13
5. Understanding reality	1	12	13
	35	35	70

Table 2.2.1 Association between conceptions of learning and approaches to learning (van Rossum and Schenk, 1984:78)

Deep and surface categories of perceptions have been found to be associated with meaning and reproducing study orientations respectively. Consequently, since surface learners conceive of knowledge as 'things to learn', they look for factual information to memorise. As Säljö (1982:185) points out, if statements are not reduced to factual information, they are regarded as points of view and largely ignored.

Ramsden (1988:14) cites some compelling evidence of students who were able to meet behavioural objectives and yet, as a consequence of a reproducing approach to studying, were unable to answer simple questions about the implications of the fundamental principles involved. Lockhead (1985), in Ramsden (1988), is quoted as stating that 80-90% of U.S. college students do not really understand ninth-grade algebra but are able to correctly manipulate the symbols involved. Hounsell (1984) cites successful history students who had highly resistant misunderstandings of what the subject is really about and economics students who believed that price is determined by production costs. McDermott (1984:31) found, as part of her study, that students who did well in

examinations were often incapable of demonstrating a qualitative understanding by applying the concepts involved to real examples.

Each individual student is influenced by the learning context in a uniquely different way. Whilst some learners have the lecture itself as the object of attention, which varies in intensity as the discourse proceeds, others are more concerned with its meaning, with seeing relationships and drawing conclusions. In other words, they see learning as something they do, rather than as something that happens to them and they confront the discourse actively. According to Dahlgren and Marton (1978:25), the differences in the foci of attention of learners covary with the differences between passive and active attitudes to learning. Marton (1976:32) refers to this deeper approach as non-verbatim learning and he found a very close relationship between level of processing and level of outcome. Students who appeared to be aware that the subject they were studying was part of the reality of their everyday lives, rather than as something quite separate, achieved greater success both quantitatively and qualitatively in examinations. As agents of their own learning, "...they utilize their capacity for logical thinking in order to construct knowledge" (Marton, 1976:37).

Following this line of investigation, Marton (Marton and Säljö, 1976a) studied the ways in which students went about the reading of academic articles. The intention was to relate qualitative differences in what students had learned to their approach to the task. Articles were appropriately difficult and presented a clear argument supported by evidence. Students were questioned afterwards to discover what they remembered of the text, how they had interpreted the instruction to read the article, what they had expected to get from it, whether or not they had experienced anxiety and what their normal approach to studying was. Some students described a deep approach. "They started with the intention of understanding the meaning of the article, questioned the author's arguments, and related them both to previous knowledge and to personal experience, and tried to determine the extent to which the author's conclusions seemed to be justified by the evidence presented." Other students adopted a surface approach and tended to be conscious of the conditions of the learning

experiment and to be anxious about them. "Their intention was to memorise those parts of the article which they considered to be important in view of the types of questions they anticipated afterwards. Their focus of attention was thus limited to the specific facts or pieces of disconnected information which was rote learned." (Entwistle, 1981:77). As Ramsden (1988:23) explains, these students failed to understand the main point of the text for the startlingly simple reason that they were not looking for it. For such learners, "...texts (are) a flat landscape of facts to be remembered, rather than an area dotted with salient features representing principles or arguments around which stretched plains of evidence."

It should be reiterated at this point that some learners perceive memorisation to be an appropriate learning strategy even when they do understand the material to be learned. Previous learning experiences, for instance, may have encouraged the adoption of reproductive strategies. Ramsden, *et al.*, (1989) provide evidence of this, cited in Section 2.3.4 of this chapter. Furthermore, some learners simply do not have the skills required to pick out the main points of spoken discourse or written texts. They have possibly never been taught to do so and, consequently, have to rely on a reproductive approach.

2.2.2 Student Perceptions of Assessment Procedures

It has been suggested that students' perceptions of the demands of the learning environment, particularly the system of assessment, contribute to their adoption of a particular approach to studying. It also seems reasonable to assume that learners' conceptions of what a lecture is about will vary in depth. Some will be far closer to what the lecturer intended to express than others. 'What' is learned is, therefore, far more important than 'how much', in terms of unaltered pieces of knowledge. As has been pointed out, the phenomenographic research of Marton and Säljö (1976) found that learners who adopt a surface approach to learning concentrate on the discourse itself, on subsequent achievement requirements and attempt to memorise the content rather than try to understand

it. However, these students are able to succeed in examinations, since these are frequently quantitative rather than qualitative measures of learning. A number of questions are constructed in order to cover the content of a course and from the answers we conclude how much has been retained. As Marton (Marton and Säljö, 1976b) makes abundantly clear, this assumes that learning can be equated with regurgitation of course content and described as the sum of a number of independent pieces of knowledge.

Entwistle (1981:80) cites Säljö's (Marton and Säljö, 1976b) finding that a student's approach to learning is influenced by the type of questions anticipated. In Säljö's study, two comparable groups of students were given three passages of prose to read. After each of the first two passages, one group was asked questions designed to encourage a deep approach and the other was asked purely factual questions. After the third passage, both groups were asked the same 'deep' and 'surface' questions. Säljö found that students who had read the first passage using a deep approach but who came to anticipate surface questions, adopted a surface approach, whilst those who began by using a surface approach but came to anticipate deep questions found it difficult to fully adopt a deep approach. They were able to summarise the authors argument but did not examine it actively or in detail. The findings appear to indicate that it is easier to induce a surface approach than a deep one and that it is possible that students anticipate surface questions in examinations.

According to Dalgren (1978:11), who demonstrated that examination results frequently over-estimate student understanding, even complex problems "....seem to be solved by application of memorized algorithmic procedures."

Zubir¹ drew the attention of the author to an editorial comment in the New Straits Times of Malaysia (18-4-1990): "(a)n intelligence harnessed to obtaining distinctions in examinations is not necessarily attended by maturity, creativity and adaptability to novel situations. In fact, a student can get on quite well with

1 Zubir. R. (1990), Faculty of Education, University of Malaya, 59100 Kuala Lumpur, Malaysia. (*Personal communication*)

a mere facility in memorising information without a great need to understand or apply what is learned."

2.2.3 Student Perceptions of the Learning Environment

The comment of a student in a study by Perry (1970:61) throws light on yet a further possible inducement to the adoption of a reproducing orientation, particularly among first year students. "When I went to my first lecture, what the man said was just like God's word...I believed it because he was a professor...and this was a respected position." And according to a student in one of Entwistle's (1981:72) studies, "University confronts the student with a rigid intellectual authority: a body of teachers, with a far greater degree of knowledge and expertise, challenges and intimidates." It is not surprising if students like these are non-contributive and unquestioning and, as Entwistle (1981:73) points out, they are often confused by lecturers demands to adopt a relativistic stance, to interpret, to question, to criticise and to draw their own conclusions. They may see this as some kind of artificial, academic game and adopt the view that anyone's opinion is as worthy as anyone else's, not realising the necessity for evidence in the presentation of a line of argument.

This may only be true of students in the early stages of their first year. Once they begin to see their lecturers as ordinary people and become accustomed to what is expected of them, they may well adopt a more interactive approach. On the other hand, Kember and Gow (1990) found that achieving and deep approach scores of students in Hong Kong, using the Study Processes Questionnaire constructed by Biggs (1978), decreased as courses progressed. As learners began to experience heavier workloads, didactic teaching styles, lack of intrinsic motivation and to anticipate surface assessment demands, so they began to adopt reproducing study orientations. Furthermore, lecturers appeared to believe that students adopt predominantly reproductive approaches. They 'facilitated' their learning and assessed them accordingly. "Their expectations (were) fulfilled when the students adopt(ed) reproductive strategies to complete the surface level tasks." (Kember and Gow, 1990:14). Watkins

and Regmi (1990), using the same instrument, found that as students in Nepal progress through the educational system, their approaches to learning also tend to become more surface level and less deep and achieving.

2.2.4. Summary

The research referred to in this chapter has demonstrated that students adopt distinctive approaches to learning, broadly characterised as either deep or surface orientations. The concept of 'orchestration' depends largely on student conceptions of learning and perceptions of situational factors, such as the system of assessment, in interaction with individual differences. The outcome of learning is either quantitative, in that it is largely a quantity of recalled information, in the case of surface learning, or qualitative, enabling the learner to apply principles which have been understood, when a deep orientation prevails.

In all probability there are other influences bearing upon the adoption of an individual's study orchestration. One of the more significant of these is likely to be the individual learner's habitual mode of information processing. This may well impinge, to some extent, upon the way in which a student engages learning tasks, despite the nature, scope and complexity of the material to be learned, as well as other demands of the learning situation.

2.2.5 Individual differences in cognitive functioning

Both deep and surface processes involve retrieval from memory, which itself depends on the learner's coding process. This determines where incoming information is stored and where it can subsequently be found. Models of human memory generally describe three memory systems: a sensory register, which holds incoming perceptions briefly; a short-term memory, which can hold limited amounts of information for short periods; a long-term storage system,

which stores episodes of experience on the one hand and relates and stores concepts, giving them meaning, on the other. Entwistle and Ramsden (1983) explain that information can be stored in the short-term memory for longer periods as a result of rehearsal (i.e. rote memorisation) and can become a more permanent 'memory trace', probably in the episodic long-term memory. This is surface processing of information. Deep processing involves an assessment and categorisation process in the short-term memory before being stored in the semantic long-term memory, providing a 'data base' of interconnected concepts and ideas.

A learner's habitual mode of information processing is referred to as cognitive style, which may or may not be modified to suit task and situational requirements. According to Ausubel, *et al.* (1978:203), cognitive style refers to self-consistent and enduring individual differences in cognitive organisation and functioning. The literature presents a number of different descriptions of cognitive functioning, most of which express the notion of two poles having contrary qualities, analogous to the deep and surface description. Dahlgren and Marton (1978:26) cite Wertheimer (1945), who contrasted 'productive thinking' and 'learning by drill'; one of his students, Katona (1949), who studied the effects of 'organising and memorising'; Goldman (1972) who distinguished between 'logical' and 'concrete-mnemonic' and Biggs (1976) between 'reproductive' and 'transformational' strategies. 'Holist' and 'serialist' learners are described by Pask (1976). 'Holists' adopt a global approach with a wide focus of attention, enabling them to concentrate on a number of sub-topics at once and develop an overall picture as a guide to learning right from the start. Their learning process involves the use of illustrations, examples, analogies and anecdotes in building up an idiosyncratic understanding of concepts. 'Serialists', on the other hand, concentrate on separate aspects of the learning task in a step-by-step progression from one hypothesis to the next, beginning with a narrow focus, concentrating on detail and only forming an overall picture of what is being learned considerably later. According to Entwistle (1992), extreme 'holists' are impulsive in their use of evidence and tend to jump to unjustified conclusions, while extreme 'serialists' are often too cautious and fail to see significant relationships.

Similar to the contrast between 'holist' and 'serialist' approaches, 'comprehension' learning involves building complete descriptions of what is known, whereas 'operation' learning focuses on mastery of procedural detail. A 'field-dependent' style accepts the totality of impressions whilst a 'field-independent' style involves analysing and structuring incoming information. The cautious, analytical, reflective style versus the more impulsive approach also implies important differences in information processing strategies. Ausubel, *et al.* (1978:204) describe the tendency for individuals to be 'generalizers' or 'particularisers' or to be somewhere in between these extremes. They quote Schwartz (1957) in stating that "...generalizers tend to approach potentially meaningful material with a meaningful learning set to utilize information in supporting a decision, while particularisers tend to approach potentially meaningful material with a rote learning set..."

As already mentioned, there is a qualitative difference between meaning and reproductive approaches to learning. Material learned and retained meaningfully can be related to ideas already a part of the learners cognitive structure, facilitating the recognition and understanding of significant relationships. This leads to long-term retention, since the new material becomes an integral part of a particular ideational system (i.e. an organised hierarchy of related concepts) within the cognitive structure. Rote learning, on the other hand, leads to arbitrary, verbatim retention of discrete pieces of information, which are not relatable nor anchorable to the learner's established ideational systems and, consequently, significant relationships are seldom recognised nor understood. Furthermore, since association with material already a part of the cognitive structure is the basic learning and retention mechanism, according to Ausubel, *et al.* (1978:146), the retention span for rote learning is relatively brief.

Wenestam (1978), in Marton (1988), provides an interesting explanation of the differences in the way people learn and what is learned as a result. Adopting a relational view of learning, he asked adult subjects to read an article, which argued for a new approach to solving the problems of the Swedish welfare

system. The article provided an illustrative example, which took up less than half of the text, of a family on the brink of disintegration and in need of help. On being asked what the text was about, all subjects mentioned both the welfare system and the family in distress. However, while some subjects were obviously aware that the example had been provided to illustrate points being made about the welfare system, others saw them as two unrelated topics. They had not detected the hierarchical structure of a superordinate line of argument supported by a subordinate example. In a sense, they had not perceived the 'figure-ground' relationship between the two. They had not understood the line of argument (possibly because they had been concentrating on the text itself, rather than its meaning) and saw no relationship between it and the example. They, therefore, did not see it as an example and this made understanding the line of argument even less likely. Marton (1988:59) refers to the level of understanding of the meaning of a text and how it is organised (a hierarchical or merely a sequential arrangement of topics) as the *referential* and *structural* aspects of outcome.

A further illustration of the dialectical interplay between the referential and structural aspects of outcome is provided by Katona (1949). When subjects were asked to learn a series of numbers, some tried to memorise each numeral. Others detected a structure, an organising principle, in the series, which greatly facilitated learning and enhanced retention. The structure had remained invisible to those focusing on one numeral at a time, the relationship between each remained unseen and the meaning remained unchanged and elusive. A change in meaning results from structuring what is being learned, but this cannot be completed successfully unless a change in meaning has already begun to occur. Learners who focus on the 'sign' of a text, instead of 'what is signified', are unlikely to experience any change in meaning. In both Wenestam's and Katona's experiments, learners saw either a hierarchical or a sequential structure. What was signified in the text provided the structure, which provided the meaning. Focusing on the structural aspect of a text to gain an understanding of the text as a whole is described by Svensson (1984) as a holistic approach. The text alone provides little meaning beyond a sequence of topics with no apparent hierarchical relationship to one another. When the

learner focuses on this, it is segmented and both 'figure' and 'ground' are seen separately, as though there was no superordinate/subordinate relationship between them. This Svensson describes as an atomistic approach. Thus, while the approach to learning can be described as either holistic or atomistic, the outcome is either hierarchical or sequential in structure.

Whatever the label and description of the approach to learning, a student requires to have interacted actively with the content material in search of relationships and of meaning, to be able to apply, in real life situations, what has been learned. Over time, such an orientation produces a tendency to think more imaginatively and creatively in search of solutions to problems. Hudson (1966:90) referred to this as 'divergent' thinking, as opposed to the 'converger', who is able to provide only those solutions which have been directly or vicariously experienced. According to Entwistle (1981:155), "Divergent thinking is a search strategy which has a broad focus and allows connections between schemata to be made, even when the justifications for the associations are not obvious." There is no cause-effect relationship between divergent thinking and problem solving ability, but to hypothesise that a substantial positive association exists seems reasonable. Also, this is not to say that 'convergent' thinking is not more appropriate in some situations and the versatile learner would be able to adapt accordingly. An interesting finding of Wallach and Kogan (1965:303) is that children with high scores on 'divergent' thinking and low scores on 'convergent' thinking were seen to be "...in angry conflict with themselves and with their school environment and are beset by feelings of unworthiness and inadequacy. In a stress free context, however, they can blossom forth cognitively." Children with high scores on convergent thinking and low scores on divergent thinking "...can be described as 'addicted' to school achievement. Academic failure would be perceived by them as catastrophic, so that they must continually strive for academic excellence..." (Wallach and Kogan, 1965:303).

2.2.6 Personality

Very much related here is the question of personality. If this can be defined as "the dynamic organization within the individual of those psycho-physical systems that determine his characteristic behaviour and thought" (Allport, 1963:28), then self-consistent and enduring individual differences in cognitive organisation and functioning could probably be considered a part of personality.

On the basis of a description of an individual's personality, through the identification of relatively consistent traits common to others of the same personality type, it seems likely that predictions could be made as to his or her most likely mode of cognitive functioning. Entwistle and Ramsden (1983) draw attention to research literature which relates personality types to students' academic performance and choice of subject area. Science students tended to be syllabus-bound and 'toughminded', with theoretical and economic values. Most arts students, on the other hand, were described as syllabus-free and 'tenderminded', with religious, social and aesthetic values. Those who were high academic performers tended to be conservative, emotionally stable, highly motivated and hard-working introverts with a sound approach to studying. Low performers were characterised as poorly motivated extroverts with a degree of emotional instability and whose study methods were poor. Entwistle and Ramsden's (1983) own research in this area sought to identify personality characteristics of students with contrasting approaches to learning.

Deep orientation students had high scores on thinking introversion (*preference for ideas rather than practical action and wide ranging academic interests*), theoretical orientation (*a logical, analytical and critical approach to problems, an interest in the sciences and theoretical concerns*), complexity (*tolerance for ambiguity, enjoy novelty, adopt flexible approaches to problems*) and, to a lesser extent, autonomy (*distrust control and authority, tolerant of other peoples contrary views, prefer radical, liberal thinking*), aestheticism (*wide interests and involvement in literature, music, painting, architecture, etc.*) and religious scepticism (*reject conventional religious beliefs and practices*).

Surface learners, on the other hand, had high scores on practical outlook (*interested in practical things, value material possessions and facts and have a tendency to be authoritarian and conservative in outlook*) and masculinity (*interests in science rather than aesthetics, calm and emotionally stable and deny personal inadequacies*), combined with low scores on thinking introversion, theoretical orientation, complexity and autonomy.

Although there must be considerable overlap and, in many individuals, a mix of the characteristics listed as being typical of deep and surface learners, these findings appear to have implications for the development of more desirable approaches to learning in weaker students. To a certain extent, learners may be 'locked into' their habitual mode of information processing. Fortunately, however, behaviour is never absolutely consistent from one situation to another. To return to Ramsden's (1988) relational view, the approach to learning is far from being an individual characteristic of the learner and is more likely to be a response to the situational demands. In any school-like environment we are likely to find school-like conceptions of learning associated with appropriate approaches to learning. Meyer, *et al.*, (1992) refer to an individual's study orchestration, which remains relatively stable within a consistent context, as that individual's 'default' (i.e. automatic or natural) orientation to that particular context. This may be attributable to "...enduring motivational influences, preferred learning style or habitual ways of engaging learning tasks. However, the most basic understanding of student learning engagement acknowledges sources of variation attributable to the context..." (Meyer, *et al.*, 1992:294) Meyer, *et al.*, go on to suggest that variation in contextual perception, which modifies the way in which an individual orchestrates an approach to learning, may be a function of previous experience of similar contexts. Characteristic modes of thinking, remembering and problem solving may account for the conclusion that study approaches are relatively enduring over time and across tasks (Meyer, *et al.*, 1992; Ramsden, 1988).

While approaches to learning are more likely to vary according to perceptions of the academic context, the particular learning task or form of assessment, some evidence suggests that consistent preferences for 'holist' or 'serialist' strategies

may be stable individual differences. Pask's (1988) research clearly showed that students had distinct preferences in the styles of learning they adopted. He also found that students who were matched with learning materials of their own style learned faster and more thoroughly than students who were mismatched. Entwistle (1992) goes on to suggest that stylistic preferences can be extremely strong, are associated with established personality characteristics and "(t)heir modifiability may be limited, implying that students need opportunities to choose materials and methods conducive to their own styles of learning." (Entwistle, 1992:8). Entwistle and Ramsden (1983) remind us that any form of labelling on the basis of an habitual mode of processing may limit the potentialities of learners.

It is possible that the strategic orientation to learning, described by Entwistle and Ramsden (1983:154) and Meyer *et al* (1992:6), cited earlier, is a consistent personality trait in some learners. A competitive motivation is the driving force behind a strategic approach (Meyer, 1994) and it has been argued (Lorenz, 1966; Erikson, 1968) that there is an innate basis to the competitive drive. Students who typically adopt a strategic approach are motivated by competitiveness and a need for achievement. They seek to maximise assessment grades through such practices as searching for cues to examination topics, meticulous study of past examination papers, taking special care with the selection and writing of essay topics, paying particular attention to assignment requirements and bearing in mind the likes and dislikes of the assessor. Such students adopt deep and surface approaches in combination so as to achieve the highest possible marks. "It is as if the students are conscious of two separate foci of attention - the academic content and the teacher's reward system." (Entwistle, 1992:8).

2.2.7 Summary

The literature reviewed provides evidence that self-consistent and enduring individual differences in cognitive organisation and functioning are a part of

personality. Allport (1963) has defined personality as the dynamic organization of psycho-physical systems that determine an individual's characteristic behaviour and thought. It would be reasonable to assume, then, that an individual learner's habitual mode of information processing is likely to influence, to some extent, the orchestration to learning adopted as a consequence of his or her conceptions of learning and perceptions of the demands of the learning situation.

2.3 ESL STUDENTS AND THE DEMANDS OF THE LEARNING SITUATION

In circumstances in which lectures are presented to ESL university students by lecturers for whom English is a first language, severe learning problems can develop from linguistic and/or cultural sources. The difficulties that arise occur in part because of the nature of the lecture method of delivery, as well as the personal delivery styles, idiolects, dialects, voice qualities, voice projection capabilities and discourse strategies, *inter alia*, of the lecturers. In higher education, student groups are frequently large and it is difficult to conceive of dispensing with lecturing as a method of presentation of content material. Nevertheless, it is not without serious shortcomings.

2.3.1 Problems arising from Linguistic Sources

Unlike a face-to-face conversation or small-group discussion, where the rate of delivery is usually governed by interactional, conversational, implicative and 'turn-taking' rules which aid comprehension, "...a lecture consists of a steady flow of information delivered at a rate which may be only marginally influenced by a sensitivity to the problems faced by the audience." (Bilbow, 1989:85). Students, whose first language is not English, may experience great difficulty, as previously pointed out, in simply keeping up with the decoding of the content of the lecture, let alone understanding the meaning intended.

Note-taking and summarization of lectures, two of the skills most frequently required of students in academic classes, are likely to present the most difficult task, particularly for students less proficient in the language of instruction.

In a study by Johns and Mayes (1990), it was found that low proficiency students produce more direct replications and more distortions of the original text than do high proficiency students and that most ESL students experience difficulty in condensing ideas from the original and producing appropriate macro-propositions or generalizations from the text. In their study, the number of direct replications for the low group ranged from 0 to 14 with a mean of 2.38 and a standard deviation of 3.19, while the high group ranged from 0 to 7 with a mean of 0.78 and a standard deviation of 1.93. The following is an example of the distortion of the original text produced by a low proficiency student:

The fish and plant life is also dead or inedible (student version)

**When the fish or plant life is dead or inedible, people have less food to eat.
(original version)**

To make matters worse, few students feel comfortable holding up proceedings to ask for clarification. A number of psychosocial factors inhibit this, not the least being a sensitivity about one's ability to keep abreast of everyone else in the class. Active participation by students is rarely an integral part of the lecture format anyway and there are other means by which a lack of understanding can be compensated for.

In these circumstances, students are at the mercy of the lecturer, who is probably taking for granted proficiency in English at the tertiary level and may not realise the severity of their problems. As Dahlgren and Marton (1978:34) maintain "...the teacher may well fail to meet individual demands for explanation or clarification. In response, the average student's strategy for coping with the often impossibly rapid pace of teaching sessions is, naturally enough, to try to learn everything by rote."

The use of audio-taped material, although gradually being replaced by video recordings, further exacerbates the problem for ESL students. Many of us have experienced giving directions to a foreign language speaker over the telephone. The difficulties associated with this are largely due to the inability of the listener to see the speaker. Kellerman's (1990) review of research into the use made of articulatory movements by the deaf and the speech perception of the blind reveals the significance of the loss of vision, and therefore of the paralinguistic features of discourse, as an integral part of the listening process. The paralinguistic features of discourse provide cues as to meaning.

In a revealing study by Jacobs (1989) at the University of Cape Town, 50 English-speaking students of physics, who had studied physics at secondary school, were found to have a very poor understanding of commonly used lay terms, which have a more specialised meaning in physics. At the end of their first-year course, students were asked to rate their understanding of terms such as point, frequency, function, observation and proportion. Subsequently, a multiple-choice test provided an indication of their actual understanding of the same terms. On average, each student incorrectly assumed understanding of 15 out of the 25 words in the test.

When one considers that such words are "...not examples of problematic terminology, but items of vocabulary regarded by university teachers as common currency, and used on a daily basis in lectures and tutorials" (Jacobs, 1989:397), one begins to appreciate the difficulties of the ESL learner in circumstances where English is the language of instruction.

It is Strevens' (1971) contention that languages vary in the extent to which they give expression to scientific concepts and the greater the semantic and cultural distance between a student's mother-tongue and the language of instruction, the greater the learning task. It is possible, perhaps even probable, that Contrastive Analysis, explained by Ellis (1985), would reveal considerable differences between English and most African languages.

According to both Ellis (1985) and Macdonald (1991), as well as to Krashen (1981), albeit with some reservations, the mother-tongue provides, in part, a foundation upon which the ability to acquire and use a second language is based. This implies that the more proficient an individual in the mother-tongue, the better the foundation upon which to base a second language. There are a number of other factors involved, such as learner differences, the relative complexities of the second language and the context, but there could be some interference from the established mother-tongue learning processes, inhibiting the acquisition and correct use of a second language, particularly if the mother-tongue and second language are not cognate languages. This is not necessarily the case, however. Ellis (1985) cites Lee's (1968) finding that his mother-tongue, English, interfered very little with his learning of Chinese and Lee suggested that this was because the structures of the two languages are so very different.

Ellis (1985) and Tarone and Yule (1989) refer to Selinker's (1972) use of the term 'interlanguage', which refers to the second language learner/user's internal linguistic system, which is quite distinct from the systems of both first and second language, that provides for the development of grammatical competence in the second language. Selinker's explanation appears to indicate that an 'interlanguage' provides a conceptual structure, developed from the established mother-tongue learning processes, which provides a framework for the internalisation of the grammatical intricacies of the second language. It may be this that bridges the gap between very different languages. It is also possible that negative experiences of second language use would encourage the second language learner/user to revert to the linguistic system of the mother-tongue, with which he or she is so much more familiar, thereby causing mother-tongue interference with second language use.

In some developing African countries, students are taught both the mother-tongue and English at primary level. According to Poth (1990), these countries include Botswana, Cameroon, Gambia, Ghana, Kenya, Liberia, Malawi, Nigeria, Sierra Leone, Swaziland, Uganda and Zambia. South Africa is yet another. The language teaching quite frequently takes place in under-resourced

classrooms with exceptionally high pupil-teacher ratios. The author experienced a primary school class in Malawi of 79 children without paper, pencils or text books. Depending on the extent to which mother-tongue proficiency provides a basis for learning a second language, such a situation reduces the likelihood of developing a high level of proficiency in a second language. This may be the origin of some of the difficulties experienced with English by Malawian university students. Furthermore, there is some evidence to suggest that syllabuses do not provide for the future needs of the learner (Cornell, 1989). Macdonald states that children in primary grades in South Africa, probably the most developed of Southern African countries, are not given a good enough grounding in their own language. In addition, the present English syllabus and the nature of the learning experiences does not provide a strong enough foundation for using English as a medium of instruction. "The range of school-based learning experiences needs to be expanded both by the development of materials which are suited to the needs of the pupils and teachers, as well as major changes in the whole learning situation (or curriculum)." (Macdonald, 1991:8). Similarly, Strevens (1971) maintains that "... (m)uch of the effort currently expended in teaching potential engineers in tropical Africa about daffodils or about manners in nineteenth-century England could with profit be rechanneled through syllabuses whose ultimate aims include the preparation of citizens with adequate scientific and technical understanding." (Stevens, 1971:234).

An inability to process academic language at the rate demanded in lectures is only a part of the language problem. Whilst grammatical structure, sentence length, the cohesive devices used (formal links between phrases, sentences and clauses), speech rate, the amount of redundancy contained in the text, methods of emphasis used and non-verbal aspects of communication present a host of difficulties, understanding is dependent on context as well. As Kennedy (1978:10) states, "(w)e perceive partly what we expect to hear, and what we want to hear as well as what was said, and these are related to highly individual background experiences....", incorporating previous knowledge, expectations, an individual frame of reference and various schemata, enabling the learner to interpret, rightly or wrongly, what the academic discourse was about. The

background experiences of ESL students are likely to be somewhat different from those of a lecturer whose mother-tongue is English, particularly in Africa and Asia where considerable cultural differences exist. A number of serious difficulties could arise. Whilst they may be unable to recognise the redundancy in the language used and unable to identify the salient points, they may not be aware of the cues that signal transition from one main idea to the next. They may even be unable to discern the overall structure of a lecture or series of lectures. As Ramsden (1988:23) says, "It is easy for teachers, especially subject experts, to fail to realize that students are not understanding because they are not 'seeing' the structure of subordinate examples and super-ordinate principles." Kember and Gow (1990), cited previously, found that students in Hong Kong with a poor command of English were frequently unable to sense key concepts in a lecture and concentrated on copying from the chalkboard or overhead projector instead. In their study, students' scores on an English language scale, used as a measure of the students' English language ability, were found to be correlated with some subscales of the Approaches to Studying Inventory (ASI) constructed by Entwistle and Ramsden (1983), as shown in Table 2.3.2.

ASI Subscale	r	P <
Improvvidence	-0.32	0.001
Syllabus-boundness	-0.29	0.001
Negative attitude	0.25	0.5
Fear of failure	-0.24	0.05
Surface approach	-0.23	0.05

Table 2.3.2 Correlation between ASI Sub-scales and English Language Scale scores

The data presented in Table 2.3.2 indicate an inverse relationship between English language scale scores and four of the ASI sub-scales listed. It provides evidence suggesting that decreasing English scores are associated with increasing improvvidence (a failure to integrate detail into an overall picture and

an over-cautious reliance on detail and procedure), syllabus boundness (a narrow focus on the requirements of the task and a preference for clear guidelines and structure) and less so, but significantly, with fear of failure (a general concern with failing, but linked to examination tension, speaking in class and pressure of work) (Meyer, *et al.*, 1992:314), as well as with a surface approach. The implication of this is that students experiencing difficulty with the language of instruction are likely to perceive the demands of learning as necessitating the adoption of undesirable, reproducing strategies.

As Kember and Gow (1990:362) state :

"(i)t is possible that those with a poor command of English find it difficult to scan through a document to find the main points or, in a lecture, are unable to sense the key concepts. Instead the students might work step-by-step through a reading, concentrating initially on deciphering the rhetorical aspects (i.e. letters, words and sentences) of the text."

A second possible explanation is that the approach to learning of Hong Kong students may well be a product of earlier schooling and/or cultural tradition.

Certainly, if students with a low level of proficiency in the language of instruction fail to understand what the information presented in lectures is supposed to explain, they cannot possibly learn what the lecturers are trying to teach them (Ramsden, 1988:23). They have to rely on note-taking, covering as much of what was said as they can manage, followed by memorisation through rote learning. This results in regurgitation of course content in examinations and probably limited ability in application situations, since the meaning of much of the material has not been understood. "It is certainly possible to pass an examination without understanding, if only the necessary rules are correctly memorised ...(but) the practical usefulness of the individual's efforts will...be highly questionable." (Dahlgren and Marton, 1978:34).

Similarly, Zepp², writes from Maputo, in Mozambique, "...students learn the correct phrases and expressions for writing mathematics and, in a test, can write the most unbelievable nonsense in perfect mathematical jargon. In many subjects students can obtain high marks just by getting the language right, whether or not they understand anything."

According to Zepp (1981:59) there is wide agreement and sufficient evidence to indicate that achievement is related to proficiency in the language in which the subject is taught. He refers to the research by Heron (1970) at the University of Zambia in which failure rates were considerably higher among students with low levels of English comprehension. In his own study at the National University of Lesotho, Zepp separated 'proficiency in the language of instruction' into various component skills, including vocabulary, reading comprehension, listening skills, structure and expression, in an attempt to establish which aspect of English has the most significant effect on performance. Correlations were low, but Zepp (1981:68) tentatively suggests that "...while English proficiency is important for ... students, the precise nature of the required English proficiency varies considerably from student to student." He goes on to assert, on the basis of his own findings and those of Henderson and Sharma (1974) in Zambia, that English proficiency is more closely related to problem solving activities than to mechanical computation in mathematics. "...Students learning mathematics in their first language were superior to those learning in a foreign language, but in mechanical computation, no differences were found." In addition to these findings, Jones (1974) reports a correlation of 0.43 between English scores on the Ethiopian School Leaving Certificate and success in university science.

2 Zepp, R.(1991), UNDP Project Moz/89/014, P.O. Box 4595, Maputo, Mozambique.*Personal Communication.*

2.3.2 Problems arising from Cultural Sources

The difficulties with which many ESL students have to grapple lead quickly to fatigue and an inability to participate attentively. As a result, it becomes more difficult to anticipate what is to follow, which is essential if one is to grasp the meaning of a series of statements. Furthermore, lecturers may not be able to contextualise the material presented in a way that is meaningful to students of a different culture. As Brown and Yule (1983) maintain, language used as communication entails the negotiation and construction of meaning, which is a social activity and a sharing of culture. It is learned from other people in a linguistic community, within which they locate each act of speaking relative to the rest of their social lives. Our interactions with others tell us a great deal about how the world operates and our interactions are largely culture-bound.

Consistent experience of incorrect interpretation can lead to a lowering of self-esteem, of self-confidence and, subsequently, of the students' performance at learning tasks. This further exacerbates the situation and encourages strategies such as verbatim learning. The effects of low self-esteem on level of confidence and subsequent performance are discussed in Chapter 3.

Bilbow (1989:93) claims that cultural background acts as a backdrop against which the interpretation of statements is made. The language used in any discourse is frequently loaded with cultural and semantic biases and reference may be made to background knowledge, which may not be shared by students of a different culture. If this is the case, neither lecturer nor students may be aware of the cross-cultural misunderstandings that could have occurred. Even in situations where lecturer and students are of the same culture, there is some variation between the way in which the lecturer perceives what was taught and the way in which it was internalised by the student. Ausubel, *et al.* (1978:51) point out that this can lead to student responses being marked as incorrect, causing students subsequently to adopt reproducing strategies in order to provide what it is they think the lecturer wants. When one considers also that some of what lecturers say is meant in a non-literal sense and that some lecturers' styles "...depend on what is not said rather more than on what is said..." (Bilbow,

1989:94), it is not surprising that some students never make the connection between what was said and what was meant. A reproducing approach may be the only recourse.

Another consideration here is the difference, across cultures, in the conceptions students have of learning and of knowledge. As previously suggested, student orientations to learning are modified by these conceptions. Reproducing strategies may be considered appropriate in societies where knowledge is 'passed down' from the 'wise'. An example of this is provided by Kember and Gow (1991), who cite Murphy's (1987) finding in respect of tertiary students in Hong Kong.

Hong Kong Students display almost unquestioning acceptance of the knowledge of the teacher or lecturer...Coupled with this is an emphasis on strictness of discipline and proper behaviour, rather than on the expression of opinion, independence, self-mastery, creativity and all-round personal development. Further, there is a seeming lack of investigatory zeal, in that what the lecturer says must be true, so that there is no need to find anything further that might contradict what has been taught.

Kember and Gow's (1990;1991) research in Hong Kong has shed important light on the cultural specificity of approaches to learning. They describe a 'narrow' approach to learning, which they found common among Hong Kong students. Once the learning task is defined by the lecturer, the student strives to understand the material by adopting a narrow but systematic, step-by-step approach and then memorises concepts considered to be important. Kember and Gow see two main factors contributing to the adoption of such an approach. Firstly, is the influence of cultural tradition, as described (above) by Murphy. Secondly, few students in Hong Kong have acquired a high level of proficiency in English, the language of instruction. "English is very much restricted to formal interaction within the classroom ... English is used so little elsewhere that few students have acquired the level of fluency in the language which qualifies it as a second language." (Kember and Gow, 1990:361). As a result, material to be learned is copied down in detail and an attempt made to understand and to memorise each part, which may leave the student with a somewhat obscure view of the content. Related to both of these factors is the possibility of what Zepp (1981) refers to as 'mother-tongue interference', which

is of both linguistic and cultural origin. In his study of relationships between mathematics achievement and various proficiencies in the language of instruction, he cites the example of Igbo learners in Nigeria who lack an equivalent concept, as well as an expression in their own language, for improper fractions. As a result, they have difficulty in solving problems which deal with these, even when learning in English.

In a study by Parsons (1988) at the Cape Technikon, it was found that Afrikaans-speaking students were less divergent in their thinking and more reliant on reproductive learning strategies than their English-speaking counterparts. The reasons for this difference, Parsons concludes, "...might be traceable to the different methods employed at secondary level, to the different educational and cultural norms valued by the two language groups, or to the different demands placed on students by lecturers from the two language groups." (1988:110)

2.3.3 Problems arising from previous experience

The question of schooling is an issue which complicates investigation into the processes of learning adopted by ESL students. An approach to learning may be as much an artefact of formal schooling as it is a consequence of poor comprehension of English, perceptions of environmental demands or various cultural determinants. In countries in which English is the language of instruction but is not the mother-tongue, it is possible that many teachers suffer from the same difficulties as many ESL learners. The author found much evidence of this while on teaching practice supervision in the Torres Strait, where one student teacher explained how the sun circled the earth to produce night and day, having misunderstood the principles explained in the text-book, as well as having been unable to relate the evidence provided. While on teaching practice from the University of Malawi, a number of Education students appeared to base their model of teaching on their own experiences at

secondary school. What they had learned at University had little to do with what they, as student teachers, were now doing in classrooms.

As Marton states (1976:40), "(a) necessary prerequisite of ease of learning on the part of the learner is that the teacher himself has sufficiently clearly understood what is to be learned (and taught)". And according to Dahlgren and Marton (1978:29), the interpretation which the teacher adopts is crucial to understanding on the part of the students. In instances where the mother-tongue and the language of instruction are not cognate languages, the potential for misinterpretation of meaning is greater than it might otherwise have been had the languages evolved from the same roots. This is an issue to be dealt with in more detail in the next chapter.

The study by Ramsden, Martin and Bowden (1989) provides ample justification for the view that school environment (ethos, teaching, administrative style, etc.) influences individuals in their adoption of an approach to learning. Having found that some school environments are systematically associated with a tendency towards minimalist and reproductive approaches to learning, they speak with conviction about the general effect of perceived environments on the approaches learners take to academic tasks. The following interview responses, recorded as part of the present study, provide support for this view:

Malawians have been made to fear exams. All our learning has been so much centred on exams.

Students consider the lecturer to be the only truth bearer. They write down whatever the lecturer is saying.

I am used to being given detailed instructions concerning what to study and I prefer it that way.

I have found that I am assured of passing an exam if I recall exactly what was taught.

I memorise as much as possible because in most of the exams they ask us to recall.

2.3.4 Summary

It has been stated that difficulties associated with the language of instruction, in view of the nature of the lecture method of presentation, may lead students to adopt undesirable approaches to learning. This becomes more likely if their conceptions of learning and of knowledge are quantitative rather than qualitative in nature, which may be a consequence of cultural influences, a result of their perceptions of the learning environment (methods of assessment are particularly influential in this respect) or an habitual mode of information processing. Furthermore, the aura pervading many universities may prompt students to regurgitate the utterances of their mentors and their experiences of formal schooling may have a similar effect.

2.3.5 Conclusions

On the basis of the foregoing, the hypothesis that level of proficiency in the language of instruction is associated with learning quality seems reasonable. The literature reviewed indicates that some students adopt undesirable approaches to studying even when learning in the mother-tongue.

Learning in a second language with which one experiences difficulty, certainly appears to increase the likelihood of adopting an undesirable orientation, as a consequence of the perceived demands of the learning situation. On the other hand, in any ESL student body, there are likely to be individuals who favour reproductive learning strategies and, as such, may not be highly motivated to extract meaning from spoken discourse or written texts nor to improve their level of sophistication in the language of instruction.

CHAPTER 3

TOWARDS A RESEARCH DESIGN

LITERATURE REVIEW: PART 2

In this chapter the constructs to be built into the design of the research are discussed. On the basis of a review of the literature, a theoretical background is provided as well as a synopsis of earlier studies involving similar constructs.

3.1 A REVIEW OF STUDIES OF STUDENT APPROACHES TO LEARNING CONDUCTED BETWEEN 1976 AND 1993

Phenomenographic researchers have confirmed the existence of three qualitatively different approaches to studying which broadly typify deep, surface (Marton and Säljö, 1976a) and strategic approaches (Ramsden, 1979). The phenomenographic research methodology has been claimed to be particularly "...sensitive to the different meanings that individuals ascribe to learning within different academic situations..." (Richardson, forthcoming). The researcher, in interaction with the subjects of the investigation, is able to delve into issues pertinent to the investigation far more deeply than with other methodologies and frequently gathers data that was unanticipated and yet of great value to the research.

to be discussed in Chapter 5) but concurred with the results of Entwistle and Ramsden's study in confirming the presence of the two major study orientations.

In response to the research report by Meyer and Parsons, Entwistle (1989) points to the restrictive nature of research which tries to demonstrate relationships at the individual level and Entwistle and Tait (1990:5) explain that if, for example, students happened to be "...in substantial agreement about the quality of teaching within a single department, any analysis of their perceptions, in relation to approaches, would inevitably show no relationship, as there would be little variance in the course perception scores." However, as Meyer and Muller (1990b) maintain, if items (or sub-scales) in the instrument do not produce variance at an individual level, there can be no correlation between items (or subscales) and no corresponding factor structure. Ramsden, in his response, supported Entwistle's claim and explained the perspective from which their research was being viewed. "It is not the students' approaches to learning which are erroneous. We, the teachers, need to reflect on what we do that influences the relation between the students and what they learn." (1989:158).

In subsequent investigations, Meyer used a modified version of the ASI in which respondents indicated their level of awareness of a particular activity as being an aspect of their own learning experience. To explore the underlying associations amongst the subscale scores, Meyer used a statistical procedure known as multi-dimensional unfolding analysis. Large numbers of students attending a range of institutions were investigated. Meyer and Muller (1990b) showed that most students generated a highly coherent pattern of associations or 'orchestration' in which the meaning orientation subscales were tightly clustered and clearly differentiated, confirming the impression gained from studies using factor analysis that, as Richardson (forthcoming) states, "...the meaning orientation was conceptually and empirically more robust than the reproducing orientation." Meyer, Parsons and Dunne (1990) had similar results to those of Meyer and Muller, except that students who subsequently failed their courses showed no coherent study orchestration at all. In fact, in a subsequent study

Phenomenography is not without its shortcomings, however, as Fleming (1986) points out. He maintains that there is too great an inferential gap between what is described, in the interview, as being the case and what actually happens in reality. Using categories of description, which are derived from interview responses, on the basis of the interpretations of the interviewer, imposes unacceptable assumptions on the data (Fleming, 1986:556).

According to Richardson (forthcoming) these difficulties can be largely avoided through the use of standardised instruments, such as inventories and questionnaires, which do not depend on interaction between the subjects of the investigation and the researcher. The Study Processes Questionnaire (SPQ) (Biggs, 1978), the Inventory of Learning Processes (Schmeck, Ribich and Ramanaiah, 1977) and the Approaches to Studying Inventory (ASI) (Entwistle and Ramsden, 1983) are cases in point.

In the study by Entwistle and Ramsden (1983) at the University of Lancaster, perceived contextual factors and student approaches to learning were associated. The final version of their Approaches to Studying Inventory (ASI) was a Likert-type inventory consisting of 64 items in 16 subscales. The distinction between deep, surface and strategic approaches was incorporated into the broader framework of 'meaning', 'reproducing' and 'achieving' orientations. The inventory included subscales concerned with some of the cognitive processes associated with a deep approach (relating ideas and use of evidence) and with the learning pathologies (globe-trotting and improvidence) described by Pask (1976).

The ASI has subsequently been widely tested by a number of researchers, mainly in the United Kingdom (Entwistle and Ramsden, 1983), and Australia (Watkins and Hattie, 1990; Harper and Kember, 1989), but also in the Philipines and Venezuela, and it is now assumed that the ASI is "...relatively portable from one system of higher education to another." (Richardson, forthcoming). However, in countries where students are influenced by different cultural traditions and where the language of instruction is not their first

language, there can be far less confidence about its applicability. This applies also to the Study Processes Questionnaire (SPQ) constructed by Biggs (1987) and used extensively with Australian students. Kember and Gow (1990) used the instrument, in conjunction with the ASI, in Hong Kong, as already mentioned. They report a significant variation across sub-scales, in factor structures and in factor loadings, in the case of Chinese students. There was reasonable correspondence with previous studies on factors relating to a learning for meaning approach. This may have been because most tertiary students in most cultures probably perceive the goal of tertiary education as being loosely embodied in the term "independent learning" and respond to items accordingly. However, where less desirable approaches to learning are concerned, factor structures and loadings appear to have been affected by cultural influences and, possibly, language difficulties as well. Kember and Gow (1990) took the precaution of randomly dividing their 295 subjects into three groups, giving one group the SPQ translated into Chinese only, the second a version with both English and Chinese and a third with English only. There was no significant difference in scores across the three groups for those who typically adopted a learning for meaning approach. However, there was a significant difference where typically reproducing learners were concerned, suggesting a possible contribution of a low level of proficiency in English. (This provided a justification for translating the instrument used in the present study into the mother-tongue, an element of the research design to be described in Chapter 5). Kember and Gow also found that the 'narrow' step-by-step approach predominated over the reproducing orientation and had significant loadings on 'operation learning' (an ordered, systematic approach to learning) and 'improvidence' (an inability to build an overall picture of the elements of a subject or the inter-relationships between them) and, to a lesser extent, on 'syllabus boundness' and 'fear of failure'.

Meyer and Parsons (1989) tested the ASI and the CPQ as a stand alone method of exploring the relationship between student approaches to learning and perceived contextual factors at the Cape Technikon in Cape Town. They subsequently expressed some doubt as to the ability of the CPQ to explore the relationship at an individual level (an essential requirement of the present study,

they found successful students to be associated with a well-defined meaning orchestration and unsuccessful students with a 'fragmented' orchestration.

A particularly interesting development, along this line of investigation and of particular relevance to the present study, was the finding of Entwistle, Meyer and Tait (1991). In a preceding study, Entwistle and Tait (1990) had found that students with a meaning orientation to learning preferred lecturers who related content to the real world and interacted with the students' own ideas in group discussion, examinations which expected them to demonstrate their own thinking and courses which catered for personal interests and reading around the subject. And, on the other hand, those with a reproducing orientation preferred lecturers who told them what to include in their notes, examinations which could be answered solely from those notes and which indicated how much effort to put into each part, tutorials which served only to revise topics and courses in which content was directly related to examination requirements.

The more recent research of Entwistle, Meyer and Tait (1991) appears to clearly indicate that, in the case of students who are academically weak and who eventually fail their courses of study, the usual linkages between approaches to learning and perceptions of the learning environment appear to disintegrate and apparently random sets of association occur. The findings are based on multi-dimensional unfolding analysis, which allows students' approaches and perceptions to be mapped into a two- or three-dimensional space, showing clearly to which dimensions particular students are most attracted in terms of their inventory responses. The space created by the responses of failing students "...represented a total disintegration of the expected pattern of relationships between approaches to studying and perceptions of the learning context." They go on to explain that there is substantial incoherence between perceptions of the learning environment and study orchestrations. Some students produce "...strange combinations of ratings by combining meaning and reproducing orientations, linked to preferences for both deep and surface aspects of teaching and courses." (Entwistle, Meyer and Tait, 1991:2). Entwistle and Tait (1990) cite Biggs' (1987) similar finding that students who were not prepared to take personal responsibility for their poor performance, making

external attributions, also showed no clear factor structure in their responses to his Study Processes Questionnaire. This introduces an intriguing complication as far as the model of the teaching-learning process, which is evolving from this area of research, is concerned.

Entwistle, Meyer and Tait (1991) draw attention to the recent exploratory study by Parsons and Meyer (1990) in Cape Town in which 'at risk' students were interviewed, to explore their perceptions further and to help them come to terms with their experiences of learning and studying. Findings were inconclusive and the educational implications of the phenomenon of 'disintegrated perceptions' are not yet known. Perhaps such students are in a state of disequilibrium while attempting to make the transition from one orientation to the other.

Taylor (1986) provides a possible explanation for this. In a study of learning from the learner's perspective, in a course structured to encourage students to take responsibility for their own learning, she identified common patterns of disorientation among learners. Taylor maintains that the need to become skilled in the functional aspects of self-directed learning, such as identifying goals, becoming aware of one's own learning style, identifying resources and planning activities requires a major reorientation of their perspective on learning, knowledge, authority and themselves. Her subjects first experienced a major discrepancy between expectations and what they actually experienced. This was followed by a period of disorientation and confusion, accompanied by a crisis of confidence. Equilibrium was only reached after a period of "...intense struggle to grapple with disorientation and to develop an understanding of and a way to deal with this 'new world' of learning." (Taylor, 1986:69) Learners only gradually gathered insights, confidence and satisfaction as they became reorientated. Although only a limited number of learners were involved in Taylor's study and the degree to which her findings are generalisable requires further study, she does alert us to the possibility of a period of considerable instability after the introduction of a programme promoting responsibility-taking by students in their own learning.

To return to the study of 'at risk' students by Parsons and Meyer (1990), it is possible that such students are responding to some inventory items in the way that they consider is most acceptable, while with other items they are unable to detect the most acceptable response. Some students indicated a preference for examination questions that can be answered directly from notes and yet which provide some opportunity for individual interpretation. Whilst this appears to be a mix of opposing orientations, perhaps weaker students prefer questions in which there is some scope to 'fill out', with 'imaginative embroidery', what they have memorised. On the other hand, as failing students, to some extent alienated from the course, they may resent having to complete an inventory which probes an area about which they are sensitive and, consequently, respond insincerely to items.

In the present study, it is hypothesised that low levels of proficiency in the language of instruction are related to undesirable orchestrations to learning. In situations in which ESL students experience difficulty with English, the learning strategies they adopt to meet the demands of such a situation may place them 'at risk', in the same way as has been described in the foregoing review. As such the review has provided an appropriate foundation upon which the present study can proceed. The particular approach adopted, Meyer's most recent orchestration categorisation procedure, adapted and developed from his earlier studies, is described in Chapter 5 (Constructs Central to the Research Design, Instrumentation and Methodology).

3.2 THE MEASUREMENT OF PROFICIENCY IN ENGLISH

Fundamental to the construction of a valid measure of English proficiency is knowing precisely what it is that one needs to measure. According to Spolsky (1989a), one could measure:

- (1) overall or general proficiency, in much the same way as a traditional examination;
- (2) the grammatical rules and lexical aspects of the language;

or

- (3) the subject's ability to use the language in specific ways in definable situations.

The measuring instrument could focus "...on any selected functional skills, whether academic or communicative or specialized, receptive or productive ... It may choose accuracy, fluency, or native-like ability as a criterion."

(Spolsky, 1989a:146). In any event, the tester needs to make a decision as to how best to proceed to obtain as accurate a measurement as possible of the skill or skills required to be measured.

Cziko (1981) draws attention to three possibilities from which to select the most suitable type of measuring instrument of English proficiency required by the circumstances. The first is a psychometric discrete-point test, composed of items dealing with different elements of proficiency and selected to maximally discriminate between individuals with different levels of proficiency. The second possibility is an edumetric discrete-point test, which also measures separate elements of proficiency and consists of items selected for their sensitivity to intra-individual differences in amount learned before and after a learning experience. The items of discrete-point tests, however, typically bear little resemblance to the tasks of actual language use and provide little contextual information for the testee, particularly where vocabulary usage is concerned, removing it further from reality. They may be useful "...if one's use of language is restricted to classroom drills ... but not if one is interested in language use in real communicative settings." (Cziko, 1981:37). According to Canale and Swain (1980), communicative testing should focus not only on what the second-language speaker knows about the language and about how to use it (competence) but also on the extent to which he or she is able to demonstrate this knowledge in a meaningful communicative situation. They quote Clark (1972) in stating that:

"(i)ndirect tests of proficiency do not provide an opportunity for the student to try out his language competence in realistic communication situations. Although they may correspond in a statistical sense to direct tests of proficiency, paper-and-pencil tests, tape recorded listening and speaking tests, and similar measures cannot possibly have the same value."
(Canale and Swain, 1980:28).

Integrative tests, on the other hand, the third possibility, are particularly sensitive to inter-individual differences in language proficiency, since they require the same kind of behaviour that is required in actual, meaningful language behaviour. Cummins and Swain (1986:138) make the point that second language testing should be made more communicative on the grounds that "...a communicative approach better reflects the nature of language proficiency than one which emphasises the acquisition of discrete language skills." Similarly, Oller's (1979) view that language proficiency (i.e. listening, speaking, reading, writing) cannot meaningfully be broken down into a variety of separate components in specific social-communicative settings, suggests that integrative tests are more appropriate.

Ellis (1985) draws attention to the notion of 'communicative competence', referred to in Chapter 1, which consists of both knowledge of linguistic rules and knowledge of how these rules are used to communicate meaning. A testee is required to use his or her knowledge of the syntactic, semantic, discourse and sociolinguistic rules of the language in order to decode what is about to be heard or read, or in order to formulate what is about to be said or written. This requires a measure of one or more of the skills of listening, reading, speaking and writing in a communicative setting - a measure of proficiency.

Such a test should be designed so that a testee's score is interpretable with respect to a criterion. For example, if we are interested in measuring how close ESL university students come to mother-tongue English speakers, in their ability to interact with spoken and written material presented in English, and if we assume that second-language proficiency can vary from zero proficiency to mother-tongue proficiency, then mother-tongue proficiency is representative of the criterion. Carroll and West (1989) provide a series of yardsticks for the identification of mother-tongue proficiency in a series of linguistic activities, including listening, speaking, reading and writing for study purposes.

The content of such a test, according to Cziko (1981), would depend on the purpose intended. "Our foreign students should be tested using a representative

sample of the type of language they are likely to encounter in course lectures. One way to do this would be to use part of an actual lecture..." (Cziko, 1981:42).

In the present study, a student's ability to use the language of instruction in specific ways in definable situations needed to be measured. The measuring instrument was to focus on the ability of the individual to comprehend spoken discourse and written texts presented in English. This involved both listening and reading comprehension.

Comprehension means relating new experience to what is already known (Smith, 1975:10) and is the result of an interactional process between the cues provided by the lecturer or writer and the knowledge the learner can bring to bear in interpreting those cues (Wells, 1976). In order to comply with the purpose intended by the lecturer or writer, the student must also deconstruct or adapt his or her existing representation and integrate the new information into the old. "In a sense we can speak of language comprehension as a process which involves both *construction* and *deconstruction*." (Bridges, *et al.*, 1981:119) In the construction of an interpretation of a statement, students seem to begin by identifying surface structure and, hopefully, end up with an interpretation that resembles the underlying representation of reality intended by the presenter. Deconstruction of already held notions may or may not take place, dependent upon whether or not construction of new information occurred. One should not, therefore, think of comprehension as being a process of simply decoding the meaning and then acting upon it. To fully understand is to understand the relationship between the message, its intention or purpose and the context in which it is presented.

3.2.1 Listening Comprehension

O'Malley, Chamot and Kupper (1989:428) explain three phases involved in listening comprehension. During the first 'perceptual processing' stage,

attentional factors associated with the length of the listening task, level of fatigue and other distractions, are vital for the comprehension of a second language. Ineffective listeners "...reported that when they encountered an unknown word or phrase, they usually just stopped listening and failed to be aware of their inattention ... in some cases elaborations interfered with, rather than assisted comprehension (and) if the content reminded students of something they knew well, they sometimes got so involved in recalling prior knowledge that their attention wandered from the listening task."

The second phase involves segmenting and 'parsing' or assigning structure to what is heard, which can be expected to vary depending on the student's level of proficiency in the language. Those with a high level of proficiency are likely to listen for intonation, phrases and sentences and are able to infer the meanings of difficult words from the context. Those with a low level of proficiency tend to listen for each word and experience difficulty in discerning the structure of what is presented. Finally, O'Malley, *et al.* (1989) found that students more successful at perceptual processing and parsing were also more successful at "...drawing upon existing knowledge, both to enhance the meaning of the (new) information and to store (it) for later retrieval." This is a phase in comprehension referred to as 'utilization'.

As was indicated in Chapter 1, the extent to which a student comprehends spoken discourse is also determined by the ability of the lecturer to present the content in a way that is unambiguous, informative, relevant and appropriate for the students' linguistic and cognitive capabilities. In other words, the comprehension of the student also depends upon the comprehensibility of lecturer input. Characteristics such as the lecturer's accent, vocabulary used, the rate of delivery, cohesive devices used in the discourse, the nature of the idiomatic expressions used and the extent to which literal and non-literal explanations are given, amongst other things, may inhibit comprehension. All of these things constitute the overall coherence of spoken discourse, the product of which is often greater than the aggregate of component parts. In addition, cultural differences may lead to differences in what is assumed and in the

interpretation of statements, as well as differences in attitude and values, which is likely to influence the level of receptivity or responsiveness of students.

At the University of Malawi, the context of the present study, mother-tongue English speaking lecturers come from a range of countries and demonstrate strikingly different linguistic and discorsal features. In an attempt to control this variability to a reasonable extent, only mother-tongue English speaking lecturers who were raised in Southern Africa were involved in the present study. The features of their discourse were likely to be those more familiar to Black African students raised in the same region.

3.2.2 Reading Comprehension

Donald (1992) provides an illuminating comparison between the analytic and the constructivist view of reading. The analytic view focuses on the perceptual mechanism involved in the identification of letters and words as precise visual forms which are then transformed into speech sounds. This precedes the identification of meaning. The constructivist view, on the other hand, sees reading as a process driven by a linguistic, "meaning-making" function. As the reader perceives the printed text, so he or she selects information from that provided, tentatively predicts the meaning intended and subsequently confirms the prediction against the on-going and developing message, thereby constructing meaning.

Cook describes how mental representations of typical situations, referred to as 'schemata', are used in discourse processing to predict the contents of the specific situation which the discourse describes. "The idea is that the mind, stimulated by key words or phrases in the text, or by the context, activates a knowledge schemata, and uses it to make sense of the discourse (1989:69).

The construction of meaning or reading comprehension is defined by Johnston (1983), in Carrell (1991), as :

"...a complex behaviour which involves ... use of various strategies, including problem solving strategies, to build a model of the meaning which the writer is assumed to have intended. The model is constructed using schematic knowledge structures and the various cue systems which the writer has given (e.g. words, syntax, macrostructures, social information) to generate hypotheses which are tested using various logical and pragmatic strategies.

Johnston goes on to point out that most of the model constructed has to be inferred from the context, since text can never be fully explicit. Williams and Snipper (1990) endorse this view but draw attention to the difficulties faced by ESL students. It cannot be assumed that they will interpret the meaning of a written text in the way that the author intended. Different cultures have different ways of categorising experiences and the ESL student may not correctly hypothesise about the meaning of the text. "Some cultures, for example, emphasise the functional aspects of objects, whereas others do not ... Students from a culture that focuses on function are therefore likely to have trouble comprehending a piece of writing that describes an object in an abstract, non-functional way..." (Williams and Snipper, 1990:18). Some communities see forests, for instance, as a source of firewood, food and space to grow crops, whereas others would wish them to remain untouched for their aesthetic value.

Readers construct the meaning of a text by hypothesising about the meanings of clusters of three to seven words at a time, depending on their level of proficiency and the difficulty level of the text. In order to comprehend what they read, students must have a similar range of logical relationships and internal representations of reality as the writer of the text, to associate with potential meaning. If they do not, they may be able to understand individual words but not the text as a whole, because of a lack of mental models necessary to process them. Their own social community mediates their comprehension and influences the meaning they construct for any given text, since it is the source of most of their internal representations of reality. (Williams and Snipper, 1990) In the present study, the language of instruction and the mother-tongue are not cognate languages and, as such, the potential for misinterpretation was greater.

Performance on any test of an individual's ability to comprehend what he or she reads will depend on the characteristics of the text used, the nature of the task and the context, as well as the reading ability and previous knowledge of the individual. Carrell (1991) found that both first language reading ability and second language proficiency had significant effects on second language reading comprehension. Furthermore, Steffensen (1986) established, after conducting three cross-cultural experiments, that readers who did not share the cultural background of the writer did not have the appropriate schemata for comprehending the text and, as a result, experienced interference. Steffensen's results showed several effects of cultural interference. Subjects read foreign texts more slowly than native texts, recalled significantly less idea units and were less able to elaborate the original text with appropriate detail.

These considerations serve to outline some of the disadvantages associated with learning in a second language. Inevitably, they make learning more difficult for those not proficient in English, which may well serve to alter perceptions of the demands of the learning situation. The extent to which this is so has yet to be established in the present study. In any event, the literature reviewed has provided guidelines as to the approach to be adopted in the measurement of proficiency in English. The ability of students to comprehend both spoken discourse and written texts, presented in English in real communicative, lecture situations, was to be measured. The use of an integrative test of listening and reading comprehension is described in Chapter 5.

3.3 STUDENT RATINGS OF LECTURES

Communication is a two way process and, as indicated previously, student levels of comprehension, of spoken discourse and written texts presented in lectures, may well be influenced by the ability of the lecturer to present the content material in a way that is comprehensible to ESL students. In view of

this, students were given the opportunity to rate the lectures and materials in terms of comprehensibility.

The Adult Education Department at the University of Tallahassee in Florida defined learning as a more or less permanent change in behaviour that occurs as a result of activity or experience (Smith, undated). Add to this Katona's (1949) view that if a performance is better than a previous performance and if the improvement is due to the effects of experience, learning has taken place. A corollary to this would be that the facilitation of learning is the provision of activity or experience designed to bring about a more or less permanent change in behaviour or an improvement in performance. One way to evaluate the facilitation of learning then, is to measure the resultant change in behaviour or performance. However, measuring a change in behaviour that has occurred as a consequence of the presentation of a series of lectures and lecture materials *per se* is no easy matter.

3.3.1 Contextual Factors

The context within which learning takes place presents a considerable number of factors that compromise the simplicity of the above argument. The characteristics that learners bring to the instructional setting (previous knowledge and experience, interests, values, beliefs, attitudes, self-concepts, cognitive styles, level of comprehension of the language of instruction) together with those of the lecturer, create a unique combination of variables. Within this context, the aims and objectives of the lectures and materials must be taken into account in terms of their acceptability and attainability, in view of the previous knowledge of students, the time allowed and other factors. The physical and psychological environment within which the lecturer is expected to facilitate learning has to be considered. How many students are there? What allowances are made for the professional development of the lecturer, particularly in the facilitation of learning of ESL students? Perhaps even more significant are

considerations about the expertise of the lecturer in the subject area versus his or her ability to facilitate learning.

3.3.2 Successful or not?

McKenna (1984:23) states that "...success in teaching is highly contextual and notoriously difficult to evaluate." Human learning is far too complex to be explained as being the result of a given set of inputs plus certain teaching strategies. The myriad of factors impinging on each and every teaching/learning situation, each of which is unique, are too intertwined and reciprocally affecting one another in their particular combinational mode to enable us to view the complete scenario. To gauge its effectiveness, through some sort of conceptual 'templet', no matter how inclusive and complex its design, is fraught with difficulty. However, one does have to acknowledge that the concept 'success' has an inherent quality of absoluteness. It is at the opposite end of the continuum to 'failure'. Although there are varying degrees of success in between, success is real and not merely relative or comparative. Having made an attempt to identify, define and account for contextual factors in the evaluation of teaching, there remains the need to make the overall judgement as to whether it was successful or not.

3.3.3 Student Ratings

As the advantages and disadvantages of the uncontrollable variables remain obscure, reference to the learners might be illuminating, although their evaluation would have some limitations. Even if they are aware of what they should have learned, they are unable to tell how well they could have learned despite the effectiveness or ineffectiveness of the lecturer. Entwistle, Kozeki and Tait (1989a:337) maintain that there is considerable difficulty in interpreting, at face value, student perceptions of teaching, "...which stems from their differing social origins and attitudes."

Aleamoni (1984) maintains, on the other hand, that learners are the only people directly and extensively exposed to teaching and are, therefore, the most logical evaluators of the quality and effectiveness of it. He also points to the fact that this type of involvement of the student in the teaching/learning process may even help to increase its effectiveness. On the other hand, students with contrasting conceptions of learning are likely to define 'good teaching' in different ways. In any event, it can certainly be argued that students are in a position to be able to comment on the extent to which they felt motivated, how well they understood what was communicated to them and how satisfied they felt as a result. However, research has so far provided conflicting evidence (Millman, 1984). Whereas some studies indicate a high level of stability of ratings by learners, others contradict this and reflect inconsistent judgement, due to factors such as immaturity, inexperience and capriciousness. Variables such as gender and the rank of the lecturer within the institution, the perceived importance of the material to be learned, the nature of the feedback received from the lecturer, the year and size of the group, the time of day that the lecturing is done, whether the subject is compulsory or an elective and any prejudices that students may have, may also affect the rating they give the lecturer, no matter how valid and reliable the rating form. According to Entwistle and Tait (1990:2), some substantial correlations between the overall rating and student performance have been obtained in the process of establishing the validity of feedback questionnaires. What remains unclear is the extent to which the correlation reflects feelings about the course that were created by the marks the students received.

Entwistle and Tait (1990) and Prosser and Trigwell (1990) also draw attention to a distinct relationship between student approaches to studying and their ratings of a course. Furthermore, in response to the suggestion by Meyer (1988) that increased correlations with study orientations could be obtained from items devised to accentuate individual differences in perceptions, they found that students evaluated more positively lecturers who taught in the way they (the students) preferred. Students who typically adopt a surface approach to learning will rate highly lecturers who 'spoon feed' them. On the other hand, deep

orientation learners "...look for clear explanations and challenging ideas." (Entwistle, 1992:9). Van Rossum and Taylor's (1987) interview study also showed parallels between student conceptions of learning and their descriptions of 'good teaching'. And Entwistle and Tait (1990:20) maintain that "(a)s the conception progresses from an emphasis on the reproduction of facts towards the reconstruction of meaning, the definition of good teaching moves from methods which 'make things stick' ... towards a view of the lecturer as a facilitator of independent learning."

3.3.4 Sources of Student Dissatisfaction with Lectures

In a study of ratings of lectures by students at the Edith Cowan University in Perth, the author found that the most common sources of dissatisfaction were lack of organisation, failure to emphasise the main points, a mismatch between new material and students' previous knowledge, verbatim reading from lecture materials and providing too much information at once. File (1984:191) found that first-year Arts Faculty students at the University of Cape Town listed too much prescribed reading, incorrect assumptions about their previous knowledge, failure to emphasise main points and packed syllabuses, as their main sources of dissatisfaction. File's response to this is that first-year students have low expectations of a university workload, many have very little appropriate background knowledge, read too little and ineffectively, are unable to discriminate between main arguments, substantiation and detail in their reading, listening and writing and, consequently, find the syllabus too large. This situation must certainly be exacerbated by poor comprehension of the language of instruction. Behr (1988), on the other hand, takes more of the responsibility for student learning and places some blame on the lecturing style adopted. He draws attention to evidence that differences in quality of presentation account for more variance in student ratings than differences in the type of content covered.

3.3.5 Eliciting Feedback from Students

In a study by Tiberius, *et al.*, the data generated by questionnaires and that generated by the discussion approach to eliciting feedback from students about the teaching they had experienced were compared. They point out that the interactive method has been developed to overcome a number of shortcomings of questionnaires. "Despite the information gathering power and the efficiency of the questionnaire, ...teachers were unanimous in their preference for the information generated by the discussion groups - they described it as richer, more comprehensive, more candid, and as ultimately more useful." (1987:294).

In favour of an accommodating stance on the legitimacy of student ratings, based on a combination of quantifiable data using questionnaires and qualitative information gathered from semi-structured interviews, the author proposes, for the present study, that evidence from a substantial number of respondents would provide a reliable indication of the comprehensibility of lecturer input. The development of an inventory to meet the requirements of the present study is reported in Chapter 5.

3.4 SELF-ESTEEM AND LEARNING

Mead (1934:156) maintains that human group life is "...the essential condition for the emergence of consciousness, the mind, a world of objects, human beings as organisms possessing selves, and human conduct in the form of constructed acts". So vital is the role played by others in the ongoing process of self-development that, as Sampson (1976) points out, we would probably come to doubt our own existence if it were not for the continual confirmation of it in the form of reactions of others towards us.

3.4.1 Interactionist Propositions

According to the interactionists, it is the response to an individual's behaviour that endows that behaviour with meaning and the individual is able to modify his behaviour in anticipation of a certain response. In anticipating a certain response one is, in theory, putting oneself in the position of another and viewing oneself from the other's perspective (Sampson, 1976). Shaver clarifies the point being made here: "If I look at the world through the eyes of the people around me, one of the things that I will see is, obviously, myself". (1975:78) Whenever one thinks about, evaluates, judges and learns about oneself, from one's behaviour, one does so from the perspectives of others. This has significant implications in learning situations in terms of increases or decreases in levels of self-esteem (Skinner, 1938; Lindgren, 1968; Lovell, 1969).

According to Cooley (1902), the self consists of three elements: how we think we appear to others; how we think they evaluate that appearance, and the feeling of shame or pride that results. He refers to the picture, which results from symbolically putting oneself in the position of a significant or generalised other, to determine what sort of an impression one is making, as a 'looking-glass self'. A number of interview responses, gathered as part of the present study, indicated that students were unquestioning and non-contributive in lectures because of the belief that they would be considered inferior by their peers. As Babledelis and Adams (1967:329) state, the information we present to others is seldom selected at random. "We constantly face the dilemma of choosing from a vast storehouse of self-knowledge, the appropriate items for public display."

Throughout life, according to interactionist propositions, an individual's self-image is not only made possible by interaction with others but is also determined by how that individual feels others are evaluating him¹. And in Sampson's (1976:256) view, we make evaluative judgements about ourselves, comment on ourselves, learn about ourselves by seeing ourselves and attributing

1 The male gender may be substituted by the female gender if desired.

meaning to ourselves, from the perspectives of others, particularly our peers. Accepted individuals tend to feel positively about themselves while those who feel rejected often see themselves as inferior and inadequate. Individuals in learning situations are likely to be very aware, either rightly or wrongly, of their worth as learners in the eyes of their peers.

3.4.2 Social Comparison Theory

Festinger (1954:119) adopts a very similar standpoint. He postulates that we have a drive to evaluate ourselves because we need to know whether or not we are acceptable. To do this we behave in such a way as to produce as accurate an appraisal of our opinions and abilities as possible. There is no entirely objective, physical, non-social means available by which one can measure the acceptability of such factors, leaving only the same factors in others against which to compare. Important here is Festinger's hypothesis that an accurate evaluation can only be gained by comparison with others who are not too dissimilar in respect of these factors. Besides, as Morse and Gergen (1970:154) state, "(w)hen another is seen to be similar to self, he places a stamp of legitimacy on one's conduct or appearance (while) (e)ncountering an individual whose characteristics differ from one's own may initiate a process of self-questioning and doubt". On this point, Festinger (1954) suggests that an individual may take action to reduce discrepancies between himself and others with whom he compares himself. He does this either by changing his own position or by trying to change that of the other(s). A learner may put in greater effort or become sufficiently disruptive to decrease the performance levels of his peers. Morse and Gergen (1970:155) add here that a resultant increase in similarity may produce an increase in self-esteem.

An individual's concept of self is vitally dependent, then, upon the views he believes others have of him and upon his evaluation of his abilities, by comparing himself with others, as the test of validity of his opinions. His behaviour is, subsequently, largely determined by the resultant increment or

decrement in self-esteem. The presence of a person perceived to have highly desirable characteristics is likely to produce a decrease in one's level of self-esteem. On the other hand, level of self-esteem is likely to increase if the other's characteristics are perceived as undesirable. Some interview responses recorded in the present study indicate that proficiency in English is an important criterion for comparison amongst ESL students.

3.4.3 Labelling Theory

The societal reaction perspective, sometimes referred to as labelling theory, provides a somewhat different standpoint from which to view behaviour as a function of the self-concept. It is the point of view that unacceptable behaviour or performance lies not in action, or some other characteristic of the individual, but depends upon the evaluation put upon that action or characteristic by the social group and the proposition that, once labelled, the individual tends to become what he is described as being. As the 'victim' becomes conscious of the label attached to him, he internalises the role he is expected to play. He thus begins to act in certain ways and to become the target of certain behaviours of others (Gove, 1970).

There are no universal criteria for what is to be labelled as unacceptable. The social process is relative to time, place, culture and many other factors. Also societal reaction often tends to exaggerate both the amount and the degree of unacceptability. Once an individual is publicly processed as unacceptable and forced into a 'deviant' group, in which he comes to rationalise his position, it becomes increasingly more difficult for him to shake off his 'deviant' status and he faces the world as a stigmatised individual. Stigmatisation is a process which one group of people inflicts upon another and the stigmatised have to come to terms, both socially and psychologically, with their resultant 'spoiled identity' (Goffman, 1963). In learning situations, for example, some individuals are labelled as 'slow-learners', as a consequence of some previous performance, are treated as such and, from then on, find it very difficult to be anything else.

Sampson (1976) takes the view that, by providing a context that both induces the individual to play the role he has been given and reinforces the performance of it, the process changes the individual's attitudes and self-concept and creates conditions more conducive to continuation of the unacceptable behaviour or performance. This is a "...deviance-becoming and maintaining network..." and has been referred to as the self-fulfilling prophecy. It is fuelled by the tendency to behave in ways consistent with one's self-concept, as well as with the expectations of others (Coleman, 1976). The 'sick role', which an individual thinks he is expected to play, may lead him to believe that, even when he succeeds in a task, his success is due to some force beyond his control. A slow-learner tends to be 'channelled' through life accordingly and when he uncharacteristically receives a high mark for an assignment he is likely to see this as an error on the part of the marker. The teacher who continually refers to one or more of his students as lazy and irresponsible may well help to confirm the dominance of those very characteristics. A dynamic vicious circle may develop as, the more the individual embraces and accepts the deviant role, the more he is defined as deviant or unacceptable by others and the more fully he enters into the role. There is a reciprocal and cumulative interrelation between the deviant's behaviour and the societal reaction (Millon, 1973:420).

3.4.4 Summary

The parallels which have appeared with the theoretical viewpoints so far discussed are worth noting. The fact that all theories emphasise the influence on behaviour of a process that can only take place in a world of others and which has a unique effect on each individual, provides a common conceptual thread. Furthermore, the interactionists, the social comparison theorists and the societal reaction perspective all see man behaving in terms of the view he has of himself, based on how he thinks others see him and, in so doing, to some extent fulfilling the expectations he has of himself. Level of self-esteem and level of confidence appear to be associated and can have a significant effect on level of

performance. The learning outcomes of an ESL student, who experiences difficulty with the comprehension of English, are likely to be poor. This may well motivate him to take action, such as the adoption of reproducing strategies, in an attempt to reduce the discrepancies between himself and others.

3.4.5 Personal Construct Theory

The 'personal construct' theory of Kelly (1963) focuses on the uniqueness of the view that each individual has of himself and of the world around him and on his behaviour as a function of this view. According to Kelly, man behaves in terms of a unique personal construct system or set of hypotheses about himself and about the world, which is continually being modified by experience and is inextricably linked to interpersonal processes. Each individual sees the world through "...unique personal construct goggles" or 'templets', which he has developed as a result of his unique experiences of the world, and behaves accordingly (Hjelle and Ziegler, 1976:224). In the event of a new experience not fitting, the 'templet' is modified or discarded. There are similarities between this and Piaget's 'frame of reference' and the assimilation or accommodation of experience. Kelly sees these templets or constructs as unique interpretations of events in the individual's environment, which cannot necessarily be expressed in communicable language terms.

One of Kelly's (1955:95) main postulates is that a person's behaviour is determined by his conception of his world, and that most important in that world are significant others. "The way in which the person interprets these people and their relations to him and what he expects from them have much to do with his behaviour..." (Guildford, 1959:325). Similar to the schools of thought already discussed, Kelly (1955) supports the idea of man taking the role of or "...getting into the constructs of..." significant others, in an attempt to evaluate or construe himself from their point of view. As Hjelle and Ziegler (1976:230) explain, his behaviour is then based on his understanding of what the significant other is doing and thinking in relation to him.

3.4.6 Attribution Theory

Attribution theory is also based on the notion that people search for meaning in the social world around them. According to the theory, individuals employ processes of attribution to interpret any behaviour of others which has either positive or negative significance for them. The direct or indirect observation of an action is the first of three main steps in the process. The second is a judgement of intention, but this is very much complicated by the fact that the actor is engaging in self-presentation, revealing to observers only what he does not mind their seeing, while the perceiver is not just passively encoding the information available to him. "He is...actively constructing an impression consistent with his (own) needs and social categories." (Shaver, 1975:75). The final step in the process is the making of a dispositional attribution, unless it is decided that the action was undoubtedly brought about by some factor in the environment of the actor and that most people would have acted in a similar way.

When one considers the three main stages of the attribution process, together with the multiplicity of factors that could have had an influence on both the actor and the perceiver, it is easy to see that there are likely to be significant differences between the attributions of the perceiver (attributions made to others) and those of the actor (attributions made to self). Shaver (1975:81) quotes Jones and Nisbett, who maintain that there is a "...pervasive tendency for actors to attribute their actions to situational requirements, whereas observers tend to attribute the same actions to stable personal dispositions." A student might exonerate his academic failure by focusing on what he perceives to be shortcomings of the course of study undertaken.

As a person learns about the relative contributions of his internal states and external forces, by observing himself in different situations, he develops "...a generalised estimate of these relative contributions by making observations

across situations and over time." (Shaver, 1975:89). Thus learners with early successful experiences are likely to expect success in the future, while those with early failures are likely to expect failure. These expectations, according to the self-fulfilling prophecy, can produce behaviour that will guarantee that the expectation is fulfilled. Apart from this, if these earlier experiences served to establish the concept a learner has of himself, the generalised expectancy might persist despite later evidence to the contrary.

Strobe, *et al.*, (1977) investigated the effect of a person's self-concept on the inferences he makes about the feelings (attributions) of others towards him. They predicted that a person's interpretations of another's behaviour toward him are consistent with his self-concept. What they found was that subjects low in self-esteem rated negative evaluations of themselves as sincere and positive evaluations as contrived. The reverse was the case with individuals who were high in self-esteem.

3.4.7 Self-esteem and Learning

In broad terms then, an individual's concept-of-self is formed through experience with the social environment and influenced particularly by positive and negative reinforcement by significant others. One's perceptions of self influence the way in which one acts and one's acts influence the way in which one perceives oneself. (Shavelson, *et al.*, 1976). On this basis, the author contends that, in the learning situations investigated in the present study, individuals are particularly vulnerable to the influences of the social milieu. This seems even more possible when individuals are expected to learn in large groups and at a time when they may also be grappling with the personal conflicts of adolescence or early adulthood. One's ability to learn is an extremely sensitive issue in any community and the literature reviewed suggests that level of self-esteem plays a vital role in any learning situation. Watkins and Hattie (1990) found, in their study of 1274 Australian secondary school students, a significant relationship between level of self-esteem and approach to

learning. Their findings "...support the role of self-esteem in the development of deeper level learning strategies required for higher level learning outcomes. (Watkins and Hattie, 1990:340). Furthermore, Shavelson, *et al.*, (1976:117) remark that the "...improvement of a student's self-concept seems to be valued as an educational outcome in its own right."

3.5 ASSESSMENT OF LEARNING OUTCOMES

Once a learner demonstrates, in any situation in which learning outcome is evaluated, an improvement in the quality of performance, learning is considered to have occurred (Katona, 1949). In other words, a learner's behaviour or performance is evidence of a learned capacity. However, this necessitates crossing an inferential gap between the behavioural evidence on the one hand and the learned capacity on the other. Learning for meaning, however, aims not simply at a change in behaviour or performance but at an ability to apply, with justification, what has been learned to unfamiliar situations which are closely representative of reality. An ability to do so avoids, to some extent, the inferential gap which, according to Dearden, can seldom be crossed with complete logical security. "Attributing relative permanence to it involves further pitfalls." (1979:115).

3.5.1 Misconceptions of Assessment.

One of the underlying reasons for the failure of some students to adopt a learning for meaning approach is the way in which facilitators think about the assessment of learning. As Ramsden (1988:17) explains, they frequently respond to the outcome of a learner's performance by providing direct instruction to remedy mistakes, seeing them simply as mistakes which need to be put right and ignoring the underlying misconceptions. The conceptual misunderstandings of the learner are thus stored up as obstacles to later, more complicated learning and students are forced to find alternative ways of

providing teachers with what they think the teachers will reward. These are invariably the opposite approaches to those that enable qualitative changes in understanding. So it seems that "...in our teaching methods we encourage ... superficial approaches to learning, and ... we allow students to avoid changing their conceptions of phenomena." (Ramsden, 1988:17).

"All too often, what we really test is not changes in how students understand the world, but something that is an invalid proxy for such changes..." (Ramsden, 1987:281). Evidence, presented in the last chapter, suggests that the strongest and most pervasive influence on approaches to learning is the system of assessment and how it is perceived by those assessed. According to Entwistle (1992) even totally incorrect beliefs about assessment procedures influence study behaviour.

When achievement is measured in terms of reproducing facts or implementing memorised procedures, an operational definition of what it means to be highly competent becomes immediately available to students and leads them to adopt strategies at variance with the teacher's aims (Ramsden, 1988:25). "To the extent that our tests can be passed by rote-learning, and our essays completed by a collage of near quotes, our students hide their lack of understanding from us." (File, 1984:193). And Elton (1988:215) quotes Paulsen (1908) in stating that "(t)he prospective examination necessarily turns the student's attention from the subject itself to the examination that must be passed." Although lecturers may explicitly state that originality, creativity and the abilities to criticise, analyse and make correct decisions characterise good students, the way in which we present material to them in lectures, and assess them, may clearly signal that reproduction of course content will be the measure of their competence.

The implication of this is that students become extrinsically motivated to achieve good grades rather than intrinsically motivated by interest in understanding the subject. A great deal of student learning is not concerned with content material but about what will achieve high grades. The teacher has to try to predict how students will respond to assessment requirements and to adopt assessment strategies that will make desired outcomes more likely. However, it is

extremely difficult to do this since they react to situations on the basis of how they themselves perceive them.

3.5.2 Modifying Conceptions

Understanding of basic concepts in a group of university economics students, both before and after one term of study, was investigated by Dahlgren (1978). The aim was to detect any conceptual changes in the students' understanding of economic aspects of the world around them. It was found that any variation in conceptions among the students was already present before the course began and no improvement as a result of the course was apparent. As Saljo (1982:186) suggests, "...changing one's conceptions of reality is not what has come to be associated with the specific task of learning..." Yet students, in the main, are successful learners in terms of the criteria by which they are judged. There appears to be little doubt that they can successfully negotiate the course that is set for them, in the way, it would appear, that lecturers have indicated they should. According to Marton (1988:75), in terms of figure-ground relations, the conceptual foundations of disciplines are all too frequently the ground against which the rest of the content is thematized. "In order to bring about the most important conceptual changes, figure and ground should be temporarily reversed..." If we try to change students' conceptions of learning and of knowledge by changing their experiences of them, they may come to see the conceptual perspective upon which the body of knowledge and the sets of procedures they have acquired are based. They will not then go on thinking about the world as they always have done.

According to Ramsden (1988:18), changing students' conceptions of learning involves a change in lecturers' conceptions. He goes on to explain that lecturers conveniently package pieces of information to be remembered and reproduced, while students begin to believe that knowledge consists of factual statements and that learning is the same as adding facts and procedures to one's repertoire. The focus has to be on the quality of learning and the extent to which skills can be

applied, rather than the quantity of behavioural outcomes that the student is able to demonstrate. The goal is to make the pleasing of lecturers and the demonstration of understanding as closely overlapping as possible (Ramsden, 1988:24)

If lecturers are able to alter appropriately their conceptions of what should be provided in terms of a learning environment, content to be learned and assessment procedures, so as to bring about a change in students' conceptions of learning and of knowledge and in their perceptions of the situational demands, one of the changes will involve assessing, for example, the students' abilities to solve problems in novel situations and to present a line of argument supported by evidence. In other words, teachers will assess the quality of what is learned rather than the quantity, through the use of appropriate essay-type questions, problem-solving and project work. The quality of the learning will be inherent in the learner's performance.

One is then faced with the problem of expressing the degree of quality observed. Preferably, this would not involve quantifying the quality, but rather an expression of acceptability or non-acceptability, such as 'pass' or 'fail'. On the other hand, there may be a point at which the teacher has to ask 'how much' of the content has been understood. This may have to be expressed quantitatively, which reintroduces the problem. An answer to this lies in Bigg's (1979:385) SOLO Taxonomy, which enables learning quality to be expressed in terms of the 'Structure of the Observed Learning Outcome'. It is concerned with the structural complexity of a particular response to a learning situation, similar to Bloom's taxonomy (1956) (in Bloom, *et al.*, 1971) and Marton's (1976) categorisation of particular learnings. The advantage of such an approach, as declared by Biggs, is that "... (i) f a student believes he will be given credit for good factual recall, he is likely to adjust his studying accordingly; likewise, adjustment is likely if he believes his final grade depends on Solo level rather than number of correct points made." (1979:393).

3.5.3 Alternative Methods of Assessment

There is certainly evidence to suggest that students adjust their approach to learning to suit different forms of assessment. "Factual, multiple-choice or short-answer questions push all students, in different degrees, towards a surface approach to learning, while more open questions encourage a deep approach." (Entwistle, 1992:6). It appears imperative to carry out a detailed study of how students perceive the assessment procedures used. Ramsden (1987:282) suggests reducing the amount of assessment as well as reliance on quantitative criteria of performance, introducing more detailed reporting of what learners are actually able to do and giving students a far clearer picture of the kind of learning that is expected of them. However, he quotes Newble and Jaeger's (1983) report of a study in the School of Medicine at Adelaide University. Practical ward-based assessment replaced the traditional clinical viva. Students perceived this to be a far less hazardous form of assessment and responded by spending far less time in the wards in order to study for the theoretical component of the course.

It has been established that students who adopt a meaning orientation to learning understand what they learn by considering how the content relates to previous knowledge, what the main message in the content might be and how well the main points are supported by evidence. In effect they ask themselves questions about these deeper aspects, rather than passively accepting material intact as discreet pieces of information to be memorised. Ramsden (1987:278) suggests that the kinds of questions successful students ask themselves provide the model for questioning all students, in an attempt to elicit the same level of understanding in typically less successful students. However, in a Swedish study of this idea, instead of adopting a deep approach, students focused on the structure of the text in its literal form and narrowed their attention to answering the questions that were interspersed in the text. Furthermore, they perceived the requirements of the questions quite differently from the way intended (Ramsden, 1987).

Setting problems for students to solve is considered, by many university lecturers, to be an appropriate method of establishing whether or not they understand what they are able to verbalise. This is true to the extent that the problems require transformation of existing knowledge in order to arrive at an acceptable solution. Ausubel, *et al.*, (1978:569) claim that "...(i)nsightful problem solving is ... a type of meaningful discovery learning in which problem conditions and desired objectives are non-arbitrarily and substantively related to existing cognitive structure." Furthermore, it includes transformation of learned material through such processes as analysis, synthesis, hypothesis formulation and testing, rearrangement, recombination, translation and integration in order to arrive at a solution. This appears to meet many of the requirements for the promotion of meaningful learning. According to Birch (1986:73), problem based learning is central to the purpose and value of higher education, since it provides a focused and structured orchestration to learning in an atmosphere of research, in which knowledge and skill become objects of enquiry and extrapolation. He quotes Whitehead in stating that "(E)ducation is the art of the utilisation of knowledge."

Ausubel, *et al.*, (1978:147) also warn, however, that there are other abilities and qualities, other than comprehension of underlying concepts and principles, that are required in order to solve problems. He lists reasoning power, perseverance, flexibility, the ability to improvise, problem sensitivity and tactical astuteness and points out that failure to solve problems may reflect a deficiency in one or more of these factors. As an alternative, Ausubel, *et al.*, (1978) suggest that lecturers adopt what might be described as a mastery learning approach and provide students with new, sequentially dependent learning material that cannot possibly be mastered without genuine understanding of the previous learning task.

According to Elton (1988:216), the adoption of a more humanistic approach to grading would have the desired effect. Firstly, if the stated objectives of a course are the development of the abilities to question, analyse and solve problems, i.e. concerned with deep learning, then these should also be the measure of a student's competence. The difficulty with this is that a great deal

more judgement on the part of those responsible for awarding grades is required. It is far easier to grade the extent to which course content has been reproduced in a student's response. Secondly, since students will eventually face assessment as qualified professionals, the form of assessment being determined by the field of operation, this should provide the model for university assessment. As Elton (1988:219) says, "(t)he idea that the experience of and achievement in a degree course can be adequately expressed in a single number - a degree class or grade point average - is farcical." He supports the approach adopted in courses in art and design, in which student projects and portfolios form the major part of the work to be assessed.

The assessment of learning outcomes in the present study is described in Chapter 5 (Constructs Central to the Research Design, Instrumentation and Methodology). Whilst the most appropriate formal measure of learning outcome, at the University of Malawi, was an end-of-course examination, Bigg's (1979) SOLO taxonomy provided the model for assessment of responses to examination questions.

CHAPTER 4

THE THEORETICAL MODEL UPON WHICH THE PRESENT STUDY IS BASED

The literature reviewed has provided a theoretical background against which to view what is seen happening in practice, as well as an appropriate approach for the development of a research design and methodology. A synthesis of these two aspects is now required in order to proceed. This is presented in the current chapter, in the form of a Model, which provides a theoretical foundation for an investigation of the constructs central to the present study and their imputed association .

4.1 RATIONALE FOR A THEORETICAL MODEL

A scientific model may be broadly defined as a set of descriptive, comparative and explanatory statements designed to accumulate and relate the knowledge we have about a certain aspect of reality (Harvey, 1969).

There are two important considerations which precede the use of a model. The functions a model will perform, and its appropriateness for the particular operation required of it, need to be established.

The Model which arose from the present study served various functions. Firstly, it acted as a direct explanatory device, detailing the interrelationships in a system as well as the steps in a process. Secondly, it served as a conceptual device, enabling complex interactions to be more easily visualised or 'pictured' and, thirdly, it functioned as an organisational device for the collection and analysis of data. Furthermore, the articulation and elaboration of the Model served as a design procedure by which the abstraction of relevant existing theory was brought to bear on a section of reality. The Model is largely an *a posteriori* model, used to represent theory as it is developed.

As with other models, the present Model facilitated the interpretation of theories and principles, by transferring them into realms which are more familiar, understandable and controllable. And, more pertinently, it was based on aspects of emerging theory that has been used in similar circumstances. It functioned to connect theory and experience in a real situation and, as a result, can, hopefully, be claimed to have enriched emerging theory a little.

Regarding its appropriateness for the operation required of it, the Model can claim to be suited to its functions because it evolved alongside experience, through use in an actual situation; it was modified in response to reality, not wholly pre-designed nor presented without prior investigation. It was from discussion, consultation and deep consideration throughout the period of the study and through sensitive tailoring of methods to the realities of the situation that the Model gradually metamorphosed. As such, it proved invaluable,

focusing the research where key issues were involved, providing a context and perspective for the whole, as well as a framework and a system of relationships, and giving direction to the investigation.

4.2 DESCRIPTION OF THE MODEL

A diagrammatic representation of the Model upon which the present study is based is presented in Figure 4.1, which, as a whole, represents lecture situations in which the language of instruction is a second language. Placed on the left side of Figure 4.1 is the learner, with a multiplicity of individual differences, including a level of proficiency in the language of instruction. The learner views the learning situation, placed on the right of Figure 4.1, from his or her own perspective. What the learning situation demands for success to be achieved, as perceived by the learner, becomes a central preoccupation of the learner.

The demands of the learning situation are possibly greater for students who experience difficulty with the language of instruction. Such students are likely to select learning strategies which are perceived by them to be the most expedient in the circumstances. Furthermore, these strategies are likely to be reproductive in nature, since abstraction of meaning is made more remote by the increased demands of the learning situation. This gave rise to the hypothesis that level of proficiency in the language of instruction and learning orchestration are associated.

The quality of the student's orchestration to learning, which has an already established association with the quality of learning outcome (Meyer, *et al.*, 1990), is represented in Figure 4.1 by the arrow head below the characteristics of the individual learner and those of the learning situation.

4.3 THE THEORETICAL ASSOCIATION OF CONSTRUCTS

4.3.1 Language and Learning

A number of writers have argued that language influences thought (Vygotsky, 1967; Carroll, 1964; Dale, 1976; Clark and Clark, 1977; Macdonald, 1991). Vygotsky maintains that "...thought is born through words" (1962:153) and reflects reality as conceptualised by the individual's community. He explains that a word is a microcosm of human consciousness, in the sense that thought comes into existence through words. "Words play a central part, not only in the development of thought but in the historical growth of consciousness as a whole." (1967:153).

Language, which develops in a social context, comes to have self-directive properties that result in internalised verbal thought. In other words, the internal processes underlying given language symbols, for that individual, figure prominently in his or her thinking. The concepts named by language symbols are 'tools' of thought, in that they provide some of the internal stimuli and stimulus-producing responses that carry forward the sequences of events from the external stimuli initiating the process to the overt responses terminating it. Furthermore, they represent organisations of internal processes (acquired through past experience) that are critical in determining whether a given sequence of thought will eventuate in successful overt response (Carroll, 1964). This is not to state that the flow of thought is accompanied by a simultaneous unfolding of speech, as if there was a rigid correspondence between the two. Some thoughts cannot be expressed in language terms, but everything we say has thought preceding it. It is through the meanings of words that speech and thought unite (Vygotsky, 1962).

Olson (1977) argues that written language accounts for the development of abstract thought, because it forces people to decontextualise events, to step beyond the immediacy of the situation and view it from different perspectives.

The bias of written language toward providing definitions, making all assumptions and premises explicit, and observing the formal rules of logic, produces an instrument of considerable power for building an abstract and coherent theory of reality." (Olson, 1977:278)

He goes on to state that written language accounts for the predominant features of a culture and the distinctive modes of thought of its members.

According to Whorf (1956:71), language is not merely a reproducing instrument for voicing ideas but is the shaper of ideas, "...the program and guide for the individual's mental activity..." The formulation of ideas is not an independent process, but is part of a particular language and differs from language to language. "When Semitic, Chinese, Tibetan or African languages are contrasted with our own, the divergence in analysis of the world becomes apparent." (1956:72).

If higher levels of thought are dependent upon language and languages differ considerably, this implies that the world is experienced differently by speakers of different languages. It is doubtful that speakers of different languages have different 'world views', since there are many more similarities than differences in the way languages symbolize concepts, particularly among the cognate languages. However, research has shown that differences do exist (Whorf, 1956; Strevens, 1971; Zepp, 1981). In addition, both cultural and environmental influences can give rise to different conceptions of reality. The diverse ways in which speakers of different languages and members of different cultures conceptualise and display their wealth is a case in point. The contrast between a British and an Inuit conceptualisation of snow is an illustration of considerable linguistic difference. Whereas the former have two or three expressions for snow, the latter have in excess of twenty.

Students in lectures are provided with experiences which are intended to develop their ideas in particular ways. Much of this experience, at university level, involves spoken and written language of an academic nature. If some benefit is to be gained from these experiences, and ideas are to be developed in particular

ways, students require to adequately comprehend spoken discourse and written texts presented in the language of instruction.

The student has first to identify what aspect of reality is being referred to, by the lecturer or writer, and has to construct an adequate representation of it in his or her own mind. The student has then to identify the lecturer's or writer's purpose and, using the new information presented, relate this to his or her existing representation of that aspect of reality, resulting in comprehension of the material presented.

As previously expressed, comprehension is not simply a matter of decoding statements and then acting on them. The relationship between a statement, its intention and the context in which it is presented, demands a more complex process. Comprehension means relating new experience to what is already known and is the result of an interactional process between the cues provided by the lecturer or writer and the knowledge the learner can bring to bear in interpreting those cues. The student has to integrate the new information into the old through the construction of a new representation of reality and deconstruction or simply the adaptation of any previously held representation. Deconstruction would be necessary to replace any naive conceptions of reality.

If language and thinking are closely connected and thinking involves cognitive re-organisation (construction and deconstruction or adaptation), it seems reasonable to expect there to be an association between the ability of learners to comprehend material presented in lectures and the extent to which they are able to internalise or integrate new ideas into their existing representation of reality.

The subjects of the present study are students learning in a second language. This introduces additional obstacles to the comprehension of spoken discourse and written texts. Students may misinterpret statements, the purpose of statements and/or the contexts in which they have meaning. To add to the potential difficulty implied here, Cummins and Swain explain that many of the linguistic demands of the classroom reflect communication which provides little contextual support for expressing or receiving meaning. They make the

statement, which is of relevance to the present study, that "...tasks which are cognitively undemanding for a native speaker may be highly cognitively demanding for an ESL learner. The more context-reduced a particular task, the longer it will take ESL learners to achieve..." (1986:156). This should be considered in the light of the fact that subjects of the present study use the language of instruction in the classroom and the mother-tongue in almost every other situation.

4.3.2 Perceptions of the Demands of Learning Situations and Learning Orchestrations

The literature reviewed has indicated that a learner's perceptions of the demands of the learning situation influence him or her in the selection of strategies adopted in engaging learning. As the perceived demands of the learning situation increase, so the learner adopts a less desirable orchestration. Reproducing strategies are perceived, by the learner, to be the only recourse in some situations, not the least of which, it is hypothesised, is one in which difficulties in comprehending the language of instruction are experienced.

4.3.3 The Central Constructs in the Present Study

The constructs central to the present study are proficiency in the language of instruction, learning orchestration and quality of learning outcome. An individual's level of proficiency is measured using integrative measures of his or her comprehension of both spoken discourse and written texts presented in actual lecture situations. These two abilities are prerequisites for students attending lectures, if they are to develop an understanding of what they hear and what they read.

Learning orchestrations are measured using the inventory 'Experiences of Teaching and Learning' and the categorisation procedure developed by Meyer

(1991 and 1994, respectively). Subsequent to the work conducted for this thesis, Meyer (1994) proposed a categorisation procedure that yields study behaviour categories with more robust ordinal properties (Meyer and Sass, forthcoming) than in the present study. The categories employed in this thesis research proceed from a less sophisticated manipulation of the 'masking' process to be described in Section 5.5 of Chapter 5.

The formal end-of-course, and externally moderated, examination provides the measure of learning outcomes in the present study. Responses to examination questions are assessed using Biggs' (1979) SOLO taxonomy

Low scores, of a substantial number of students on the integrative measures of comprehension, which are accompanied by 'at risk' or undesirable categorisations of learning orchestration, as well as poor learning outcomes, are interpreted as evidence of an association between proficiency in the language of instruction and the quality of learning orchestration.

4.3.4 Related Factors and the Nature of their Association with the Central Constructs

The comprehension of spoken discourse or written text is not simply a problem with which the student alone should contend. Communication is a two way process and a 'student-in-deficit' model was not intended. The lecturer, as facilitator of learning, is expected to present content material in a way that is comprehensible to ESL students. For this reason it was essential to gain an indication, from the students themselves, of the degree to which the lecturer was fulfilling his part, as facilitator, in the two-way process of communicating with students.

Lectures were unlikely to be rated highly by students experiencing difficulty with English. Their responses to individual items in the inventory provided an indication of specific sources of difficulty, as well as confirmation of their low level of proficiency.

In addition, self-esteem is considered to represent a critical variable in the present study, in the sense that it affects an individual's level of confidence and, in turn, level of performance. An individual's level of self-esteem may be influenced by his or her level of proficiency in the language of instruction. The converse may be the case and other factors may be involved. In any event, level of self-esteem has a profound and pervasive influence on learner performance in many instances and, as such, it is a variable which may be inextricably linked to proficiency in the language of instruction and orchestration to learning. It is measured in the present study using the adult version of the Coopersmith (1986) Self-Esteem Inventory. Students with low levels of self-esteem may be perceiving increased demands in the learning situation.

4.3.5 Extraneous Factors

As can be seen in Figure 4.1, a number of individual differences impinge on the central constructs. In the diagrammatic representation it is not intended that they represent a hierarchy of individual differences. The hierarchy itself would vary from individual to individual. In any event, they are not measured in the present study, but are likely to introduce some variance in the measurement of constructs that are central to the study. This is an issue to be discussed in the next chapter.

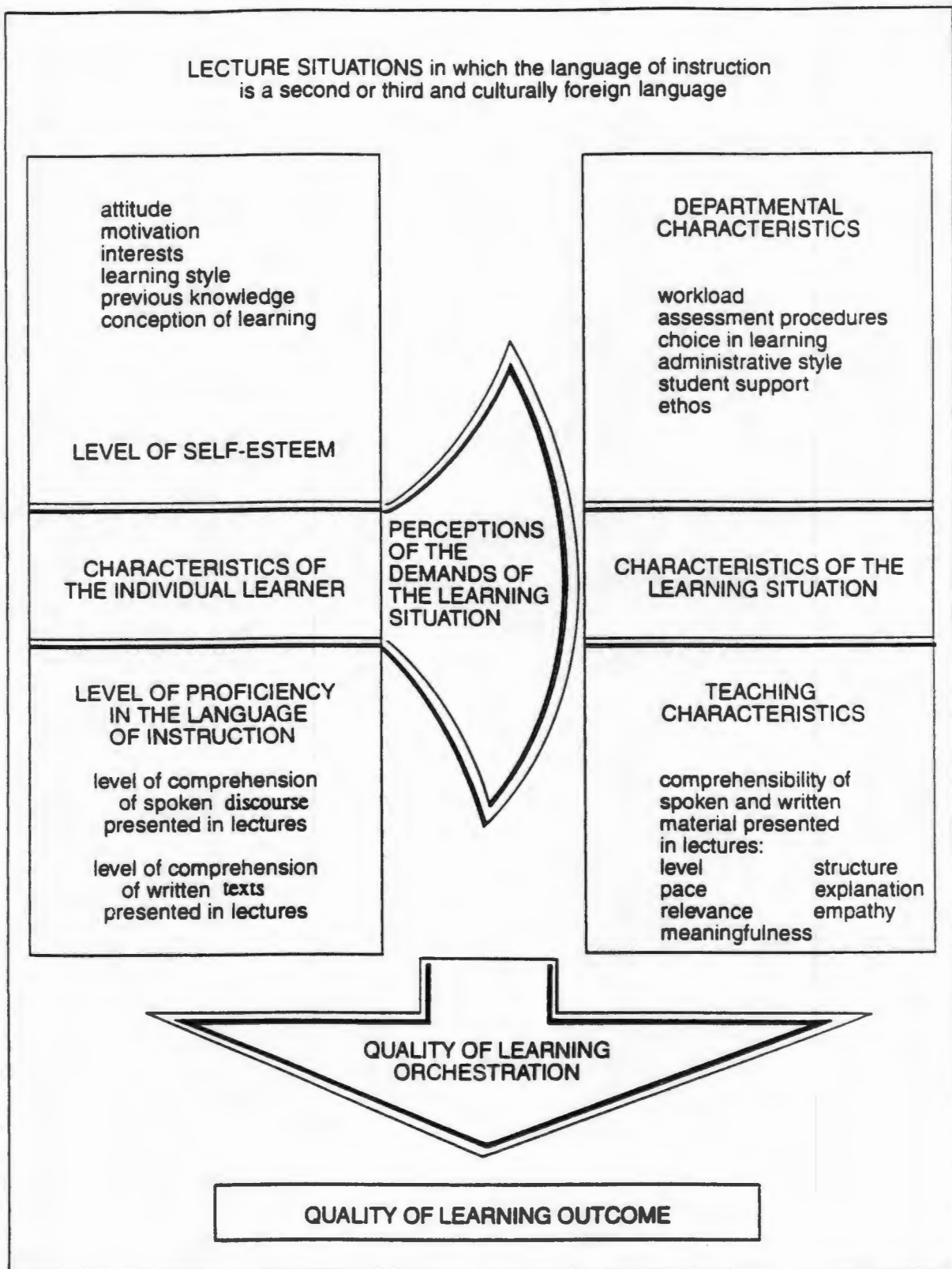


FIGURE 4.1 THEORETICAL MODEL OF THE IMPUTED RELATIONSHIP BETWEEN PROFICIENCY IN THE LANGUAGE OF INSTRUCTION AND ORCHESTRATION TO LEARNING

CHAPTER 5

CONSTRUCTS CENTRAL TO THE RESEARCH DESIGN, INSTRUMENTATION AND METHODOLOGY

In this chapter the research approach selected as most appropriate to achieve the objective of the study is described and the suitability of including the methods of qualitative research, in conjunction with quantitative techniques, is discussed. Descriptions of the methods of data collection, sampling, and techniques of analysis are given, steps taken to ensure adequate reliability and validity are pointed out and factors likely to limit the generalisability of the research are considered.

5.1 THE RESEARCH APPROACH SELECTED

As previously stated, the study focused on the association between instruction in a second language, individual orchestrations to learning and learning outcome. It was hypothesised that low levels of proficiency in the language of instruction are related to the extent to which undesirable, reproducing orchestrations to learning are adopted. In an attempt to reveal the extent to which level of proficiency in English and student orchestrations to learning are related, proficiency was measured, and orchestrations were categorised, using a procedure described in Section 5.5 of this chapter. This provided for the tabulation of ordered pairs of proficiency scores and orchestration categorisations of individuals to facilitate analysis.

Concurrently with this, and since the study is an investigation of the perceptions of individuals, it was considered essential to consult the students in their particular contexts to gain an understanding of their understanding of the situation in which they were expected to learn. Hence, qualitative data were gathered, in a series of semi-structured interviews, to supplement and to further explore the patterns and tendencies identified through quantitative analysis.

There was a deliberate attempt to capitalise on the strengths of both quantitative and qualitative methods of research. A number of researchers support the view that more meaningful and reliable information can be obtained by collecting both types of data, since they supplement and enrich each other (Knowles, 1972; Hall, 1975; Dyer, 1979). Besides, and it is emphasised, this is a study of individuals, not of groups and, as such, it was necessary to develop as clear a picture as possible about individuals.

In addition to the foregoing, a supplementary investigation was conducted, in an attempt to further elucidate the hypothesised relationship between proficiency in the language of instruction, learning orchestration and learning outcome. Two matched groups were taught a new topic over a short series of lectures in different languages (English, the language of instruction, and Chichewa, the mother-tongue of the students). Learning outcomes were then assessed by way of a measure of understanding in the language in which they had been taught. Shortly thereafter, a second topic was similarly presented to each group with languages switched and learning outcomes were again assessed. This is described in more detail in Section 5.3.

5.2 METHODS OF DATA COLLECTION

5.2.1. Measurement of Students' Proficiency in English

Subsequent to the literature review and after considerable correspondence with a number of international English Language testing organisations^{1,2,3,4}, as well as consultation with experts in this and related fields in the Academic Support Programme⁵ at the University of Cape Town, the author adopted the following standpoint:

measures of proficiency in English, requiring testees to write essays, respond to tests of comprehension, identify errors of syntax and conduct conversations, and which express proficiency in terms of a grade evolved from quantities of normative data, are somewhat removed from what was intended in the present study. The skills needed to write an essay differ from those required to follow a line of argument presented in a lecture. The former requires an ability to make utterances that are appropriate and effective in the context, which is a measure of expository skill, of communicative competence. The latter demands that a student identifies the meaning intended in the message presented, which is a measure of interpretive skill, of proficiency in the language of instruction. A comprehension test can be responded to by repeated reference to the text, whereas much of a lecture is experienced aurally and only once. The context in

- 1 Australian Second Language Proficiency Ratings, Language Testing and Curriculum Centre, The National Languages institute of Australia, Griffith University, Nathan, Brisbane, Australia Qld.4111.
- 2 International English Language Testing System, The British Council, 10 Spring Gardens, London SW1A 2BN.
- 3 A.R.E.L.S.Examination Trust, University of Oxford, Ewert House, Ewert Place, Summertown, Oxford OXZ 7BZ.
- 4 International Development Division, University of Cambridge Local Examinations Syndicate, 1 Hills Road, Cambridge CB1 2EU.
- 5 The Academic Support Programme at the University of Cape Town was established to provide support for ESL students, disadvantaged by inferior schooling.

which a series of syntactic errors are to be identified is artificial, whereas a lecture and related learning materials are goal directed, with all the pressures and demands that being goal directed implies. This is a study of the performance of individuals within a context made unique by virtue of the way in which each individual perceives that context (an indication of which is provided by the orchestration categorisation procedure, individual ratings of the comprehensibility of lectures and the interview responses).

It was considered that a grade in a standardised test of English proficiency would be unlikely to provide as good an indication of a student's ability to comprehend a series of lectures and learning materials as would a measure taken *in situ*. Carroll and West (1989) draw attention to the recent proliferation of standardised tests and point out the difficulty associated with selecting one which would stand as a yardstick for use 'at the coal face'. A measure of comprehension (i.e. listening and reading comprehension) of material which was to be learned was required. Material to be learned forms a highly significant part of the learning context of students, which helps to shape the perceptions individuals have of their learning task and the orchestrations they adopt as a result.

On the basis of this argument, as well as the views of Spolsky (1989), Cziko (1981), Canale and Swain (1980) and O'Malley, *et al.*, (1989), presented in Chapter 3, a measure of the level of 'listening comprehension' of students was constructed and administered to students after a brief series of lectures. The spacing of the lecture sessions was to some extent restricted by time-tabling requirements but were presented during the first three days of a week and the test of comprehension was administered before the weekend. This was very close to and representative of a normal working week for the students. As Cziko states, "...foreign students should be tested using a representative of the type of language they are likely to encounter in course lectures. One way to do this would be to use part of an actual lecture..." (1981:42).

The following procedure was adopted by the author in the construction of the instrument, which required students to respond in writing, in view of the large

number of students involved, to comprehension questions. However, students were permitted to respond in point form, in preference to essay-type responses, since it was listening comprehension that was to be measured and not the ability to express oneself.

- (1) Identification of a content area that could be covered in 2 to 3 hours of lectures and which could be applied by students in hypothetical problem situations without difficulty.
- (2) Construction of questions requiring hypothetical application of the material presented and which could be responded to in point form and in a short period of time, so as not to introduce anxiety and/or fatigue.
- (3) Preparation of the content material for presentation, paying particular attention to the structure of the content, in terms of super-ordinate principles and sub-ordinate examples.
- (4) Presentation of the content material in a way that was assumed to be unambiguous, informative, relevant and appropriate for the students' linguistic and cognitive capabilities.
- (5) Administration of the measure of listening comprehension as soon as possible after lecture sessions, in an attempt to reduce the effects of any contemporaneous factors.

The measure of listening comprehension was not administered immediately after the series of lectures, because of the possibility of the content covered in the final lecture session inhibiting application of principles covered earlier. Students were not fore-warned of the test, as this would have led to extensive revision by students, and rote learning in some cases. Furthermore, students were not permitted to refer to notes they had taken during lectures, as a number of low performing students copy those made by higher performers and commit these to memory. The following interview responses, recorded as part of the present study, provide evidence of this :

I must be disorganised, because when I compare my notes with those of my friends, I find they are different and change them.

Then I reduce the notes to abbreviations so that each letter stands for the initial letter of the important fact and I commit them to memory.

I go through my work time and again and if I fail to understand, I ask my friends to explain in our language. I consult friends when something is difficult; not the lecturer because then he knows I don't understand.

Then I commit things to memory by re-reading and re-reading

Many are having problems with English. Sometimes Malawian lecturers help us in Chichewa.

My friends say that if you repeat what the lecturer said, you cannot be wrong.

The results are presented and discussed, particularly in relation to orchestration categorisations and learning outcomes, in Chapter 6 (Analysis of Quantitative Data). The instruments used are presented in Appendix A.

On a subsequent occasion, and as a measure of their reading comprehension of English, students were given an academic article, which was related to and provided supplementary information to the content of the lectures they had attended. The article was of some 1500 words in length. They were asked to read the article and answer, in point form, the questions that followed, in their own time. This was completed in the lecture-room, so as to prevent collaboration in the mother-tongue.

This provided a measure of the level of 'reading comprehension' of handouts, text-books and other written texts selected as part of the presentation of content material and an example is presented in Appendix A.

5.2.2. Student Ratings of Spoken and Written Materials Presented in Lectures

A number of different factors can be measured using a student lecture-rating inventory. Items can be constructed to elicit feedback from students about the presentation of lectures, course content, the teaching materials used, assignments set, assessment procedures, course organisation, the value of tutorials, laboratory work, field trips, visiting speakers, as well as other aspects of the learning programme. Entwistle and Tait (1990:1) cite Marsh's extensive review of feedback questionnaires, in which he describes nine factors, identified using factor analysis, which summarise the responses of students. These are listed as:

- * interest and relevance (of content)
- * workload (including pace and level of difficulty)
- * organisation (of course and individual lectures)
- * explanation (discussing background and implications)
- * enthusiasm (including effort and style)
- * openness (encouraging group involvement)
- * empathy (showing interest in students)
- * assignments (including resource material provided)
- * assessment procedures (including quality of feedback)

Entwistle and Tait (1990:24) go on to suggest the following as components of a feedback questionnaire, in which "...the first two sets of qualities would be endorsed most strongly by students focusing on reproducing, while the second two sets would appeal more strongly ... to those concerned with developing personal meaning."

- * basic lecturing skills (audibility/visibility, handouts)
- * provision of clear goals and standards
- * systematic organisation of course
- * workload and level of difficulty

- * interesting and relevant content
- * level at which material is pitched
- * pace at which topics are covered
- * clear structure within lectures

- * quality of explanations provided
- * use of real life illustrations
- * humour and enthusiasm in presentation
- * empathy with needs of students

- * assignments providing choice and resources
- * full explanations in feedback on assignments
- * assessment procedures related to course aims
- * advice on study skills and strategies

Prosser and Trigwell (1990), on the other hand, identify seven specific aspects of teaching, which formed the sub-scales of the inventory used in their research and which are listed below. Items were rated by students on a five point scale from strongly agree to strongly disagree and an overall course rating, on a seven point scale from 'very poor' to 'outstanding', was included.

The teacher:

- * made explanations clear
- * taught to help understanding
- * stimulated interest
- * created opportunity for questions
- * was available for consultation
- * made objectives clear
- * was well prepared

In the present study, the intention was to establish the extent to which spoken and written English was comprehended by ESL students in lectures. There were two central factors affecting comprehension, which were of particular interest to the present study. Firstly, the students' levels of proficiency in English and, secondly, the extent to which the lecturer presented material which was unambiguous, informative, relevant and appropriate for the students' linguistic and cognitive capabilities.

Students' levels of proficiency were measured as described in Section 5.2.1 of this chapter. The extent to which the lecturer presented content material in a comprehensible manner, as described above, was measured as follows.

In view of the confounding effects of contextual variables and the shortcomings of student ratings of lectures, as pointed out in Chapter 3, the inventory constructed for the present study was strictly limited to items which would elicit information about the comprehensibility of the spoken and written content of lectures. If a substantial number of students were asked about these two related aspects of lectures and no more, and if a distinct trend was recognisable in their responses, an answer to the relevant research question (How do ESL students rate the comprehensibility of spoken discourse and written texts presented in lectures?) would have been provided. This is an approach recommended for such circumstances by Hook (1985). In addition, up to five items were constructed to elicit feedback from students about any one subscale, depending on the relative importance of the subscale concerned.

The key subscales, about which student responses were elicited, were adapted from the work of Entwistle and Tait (1990) and Prosser and Trigwell (1990) and are listed as follows, in order of importance to the present study, as perceived by the author:

- * communication skills (clarity of English usage, quality of explanations, audibility, visibility)
- * learning materials (handouts, text and reference books)
- * workload (pace and level of difficulty)

- * empathy (previous knowledge, showing relationships, helpfulness)
- * interest and relevance (of content)
- * organisation (of course and individual lectures, including goal directedness)
- * openness (encouraging group involvement)

Respondents were given five response categories ranging from strongly agree to strongly disagree with scores from 5 to 1 for positive statements and reversed polarity for negative statements.

Scores are presented and discussed in Chapter 6. A copy of the instrument constructed is provided in Appendix B.

5.2.3. Descriptions of Learning Experiences and Orchestrations to Learning. (QUANTITATIVE DATA)

A prerequisite for the collection of data for research question (2) (How do ESL students experience the context and content of learning?) was an already established instrument with a tried and tested track record in a variety of cultural settings. The instrument selected was a composite inventory, 'Experiences of Teaching and Learning', adapted by Meyer (1991) from previously developed inventories on teaching and learning: the Approaches to Studying Inventory (Entwistle and Ramsden, 1983) and the Qualitative Context Inventory (Meyer, 1988). Furthermore, as the present study was an investigation of a hypothesised relationship between levels of proficiency in the language of instruction and orchestrations to learning, the instrument was administered in its English form and shortly thereafter in the mother tongue, Chichewa. The intention was to establish whether or not differences in responses of individuals would occur across the two languages.

The term 'orchestration to learning' refers, as previously stated, to the self-reported and context-specific study behaviour of an individual. It is defined as the manifestation of the coalescence of an individual learner's qualitative

perceptions of the learning context and the learning approach adopted within that perceived context.

5.2.3.1 Translation into Chichewa

At the University of Malawi, translation from the established English version of the instrument was done initially by a group of Year 4 students (N=18), who had studied both English and Chichewa at undergraduate level and were not subjects of the present study. The students worked on the translation in groups of two or three and then compared their final products. Once a final translation was accepted by the group as correct, a second group (N=15) attempted a back-translation, this time on an individual basis. Some difficulty was encountered over several words and phrases which cannot be directly translated into Chichewa. The word "effectively" in item 1 of the inventory ("I find it difficult to organise my study time effectively") and "effective" in item 17 ("Distractions make it difficult for me to do much effective work in my study time.") are cases in point. However, students agreed by consensus that "bwinobwino" was the closest possible equivalent. In the back-translation, they were translated into English as "very well" or "very good", respectively. Item 6 ("Ideas in books often set me off on many thoughts of my own, which are not always related to what I was reading") and item 44 ("Often when I'm reading books, the ideas produce pictures in my mind which sometimes take on a life of their own") both centred on the idea of day-dreaming in the Chichewa version, which produced much the same once back-translated. So as not to lose the conceptual meaning of the original items, students were asked to translate on a word for word basis. This produced back-translations with slight but insignificant variations that were far closer to the original meaning of the items (e.g. Many times, ideas in books are starting me to think about things of my own, which sometimes have nothing to do with what I was reading). The word "adventurous" necessitated a slight deviation from the original item, although not from its meaning. Item 27 ("I prefer to follow usual or common approaches to solving problems rather than anything too adventurous.") was back-translated as "I prefer to follow usual or

common approaches to solving problems rather than to take a chance with a new idea." Item 62 ("Some people think I should be more adventurous in making use of my own ideas.") was back-translated as "Some people think I should be more bold in making use of my own ideas." This did not appear to change the original meaning of the item.

On completion of the back-translation, both versions of the instrument were given to the Head of Department of Chichewa for scrutiny. It was, in due course, pointed out that "a puzzling idea" in item 21 (In trying to understand a puzzling idea, I let my imagination wander freely to begin with, even if I don't seem to be much nearer a solution) and the word "rationally" in item 59 (I think it is important to look at problems rationally and logically without jumping to conclusions) had been translated as "a problem" and "using reason", respectively, both of which were considered acceptable. The Chichewa version was also administered to a group of students (N=10), who were not subjects of the present study, as a pilot test. All students stated that they had understood what they had read and responded to.

All parties to the translation were paid according to their level of participation, in an attempt to increase the diligence and thoroughness of participants.

The English and Chichewa versions of the instrument appear in Appendix C.

5.2.4. Descriptions of Learning Experiences and Orchestrations to Learning (QUALITATIVE DATA).

On the basis of the rationale given in Section 5.1 of this chapter, a semi-structured interview schedule was constructed with a view to collecting qualitative data to supplement, and possibly confirm, the conclusions drawn from the analysis of quantitative data. To increase the flow of information and the likelihood of eliciting unanticipated data, students were encouraged to expand on their responses wherever they felt able to do so. Data was recorded

on audio-tape and subsequently transcribed verbatim for detailed, systematic analysis.

This procedure presented an ideal opportunity to encourage students to say as much as they wished about their individual conceptions of learning, knowledge and understanding. Also of particular interest in the present study, was the extent to which students felt disadvantaged by the fact that the language of instruction was not their mother tongue. The following items were included in the interview schedule in an attempt to elicit responses on this issue, without asking directly about the difficulties individuals had experienced in understanding English, which is a very sensitive issue with many African students.

Item c. During lectures, very few students question or contribute to what they hear.

Why do you think this is ?

Item g. What do you do when something is difficult to understand ?

Item q. What would you like to change about the courses at this university? The workload?

The subject choice? The Language of instruction? The teaching methods?

The social climate?

The interview schedule is given in Appendix D.

5.2.4.1 Assistant interviewers

The author considered it important to interview as many students as possible and, as indicated, interviewees were encouraged to expand as much as they wished on any of the concepts or issues discussed. In view of the fact that the process was to be a lengthy one, a small team of assistant interviewers was carefully selected from Year 4 Research Methodology students. A workshop, which served to review the semi-structured interview technique was held and a memorandum, summarising the main points covered, was sent to each assistant

interviewer. They were paid on an hourly basis, again to increase diligence and thoroughness.

A total of 120 subjects were interviewed. An unanticipated benefit from the employment of assistant interviewers soon became evident. As recorded responses were handed to the author for analysis, it became apparent that interviewees were being far more candid in what they were saying to assistant interviewers (fellow students) than they were with the author. Assistant interviewers expressed the view that certain things were best not said to a member of staff.

Many of the responses of interviewees are presented and discussed in Chapter 7.

5.2.5. A Measure of Level of Self-Esteem

Self-esteem is a set of relatively consistent attitudes and beliefs with which an individual faces, amongst other things, the world of learning. It includes beliefs about whether he or she can, as a learner, expect success or failure and whether or not failure will 'hurt'. According to Coopersmith (1986), feelings of confidence and self-worth are as important in learner performance as in any other area of life.

Much of traditional Malawian society sees women as inferior to men in the professional arena and female students typically enter academic learning situations in higher education with feelings of inadequacy. On the basis of the literature reviewed in Chapter 3, it is likely that this undermines their confidence and adversely affects the outcomes of learning. For this reason and to provide some degree of clarification of the effects of level of self-esteem as a significant variable in the present study, the adult version of the Coopersmith Self-esteem Inventory (SEI) was selected, for reasons indicated below, and administered to all subjects of the investigation.

5.2.5.1 The Coopersmith Self-Esteem Inventory

The SEI was developed as part of a major study to empirically test the widely held belief that self-esteem is significantly associated with personal satisfaction and effective functioning (Coopersmith, 1986). The inventory measures evaluative attitudes toward the self in social, academic and personal areas of experience and provides an indication of the extent to which an individual believes him- or herself to be competent, successful, significant and worthy in learning, as well as in other situations.

Since its development, the SEI has been administered to tens of thousands of individuals, including all socio-economic ranges and many ethnic and cultural groups. However, some cultural or religious groups are likely to have values and perceptions that are different from those inherent in the SEI statements. Although a culturally specific option, such as that just completed by Mboya (1993) in South Africa, was not available at the time the present study was conducted, the subscales of the SEI include those of relevance to the present study and items are constructed in very simple conversational English. It was not considered necessary to translate the instrument into the mother-tongue as no difficulties were experienced by students involved in the pilot-test of the instrument. A copy of the SEI, adapted very slightly for Malawian conditions, appears in Appendix E. To focus their thinking on their self-concepts in the university environment, students were requested to think of themselves specifically as members of the university community while responding to the inventory.

Coopersmith (1986) alerts the researcher to possible sources of error in the interpretation of results. Although an individual's appraisal of his or her self-esteem will usually remain stable over a period of several years, momentary changes can and do occur. For example, a student from an achievement-oriented family who receives a low score for academic performance is likely to score significantly lower on the SEI the day after receiving such a score than he would have done the day before. In addition, a student might score highly on the SEI as a consequence of an area of prowess outside the classroom, but show

no sign of being able to function appropriately in academic learning situations. Some individuals will also be incorrect in their views of themselves. They will answer "like me" to items such as "I can make up my mind without much trouble", and yet be extremely poor decision makers.

5.2.6. Assessment of Learning Outcomes

A number of studies provide evidence of an association between categorisations of orchestrations to learning and learning outcomes. "(A)cademic success is associated with a well defined meaning orchestration coupled with a holistic perception of the learning context, while academic failure is associated with the disintegration of such an orchestration..." (Meyer, *et al.*, 1990:67). In other words, desirable orchestrations lead, theoretically, to success, in that students are able to apply with justification what they have learned, in problem situations which closely represent reality. Undesirable orchestrations, on the other hand, place the student, theoretically, at risk, in that he or she is often able to reproduce what has been learned but is unable to apply it in realistic problem situations. Since the objective of the present study was to explore the extent to which levels of proficiency in English were related to the learning orchestrations adopted by students, it was important to ascertain, as far as possible, the extent to which students had understood and were able to apply what they had been taught.

The results of the Educational Foundations examination were taken as a measure of learning outcomes. The end of year examination consisted of questions which provided little scope for the regurgitation of lecture notes. Candidates were required to provide solutions to problems presented within novel and unfamiliar contexts and to provide justification for the solutions selected. The author is aware that algorithmic procedures for the solving of various types of problems can be memorised. (A number of subjects of the present study regurgitated the steps involved in the action research process and fashioned a misconceived response to an examination question around this.) However, the

presentation of seemingly unrelated pieces of information is not possible in circumstances where a prerequisite to the solving of a problem is the ability to see the relationships amongst those pieces of information. An example of the type of question set is presented in Appendix F.

5.3 SUPPLEMENTARY INVESTIGATION

The literature provides some evidence that the approaches to learning adopted by science students tend to vary, often quite markedly, with those adopted by students of the humanities (Biggs, 1987; Ramsden, 1988; Dall'Alba, Walsh, *et al.*, 1989; Gow and Kember, 1990; Meyer, *et al.*, 1990:76). This is due, to some extent, to differences in the nature and extent of coverage of the content material and assessment procedures. Student comments gathered as part of Gow and Kember's (1990) study indicated that reproducing strategies were axiomatic with the nature of science subjects. In the present study, students of Geography were selected for the supplementary investigation, since the subject area is widely considered to have a foot in both camps.

Groups of students were balanced (but not pairwise matched, due to the small numbers of students specialising in Geography) on ability, other-subject-choices and gender and randomly assigned to groups A and B. A lecturer considered by many to be competent to teach in both English and Chichewa and who was held in high esteem as a facilitator of learning was selected. Group A was introduced to 'the hydrological cycle' in English; Group B in Chichewa. Significant aspects of the teaching/learning situation (time of day, classroom and teaching aids used, teaching style, *inter alia*) were kept constant for the two groups. Both groups were tested, as previously indicated, in the language in which they had been taught.

Following this, the next topic in the syllabus considered to be of similar complexity to the first, was presented to Group A in Chichewa, Group B in English and the procedure repeated. Furthermore, the entire procedure was

replicated with three different year groups.

The findings of this investigation are presented and discussed in Chapter 6.

5.4 THE SAMPLING PROCEDURE

Conventional research is designed so that generalisations can be extended from a representative sample to the larger population. Pilsworth and Ruddock (1975) point out that a good statistical sample is tested within its own methodology, i.e. the criteria of adequacy are purely quantitative and are built into the sampling method; and reliance is placed on a preconceived, substantiated, and defensible theoretical framework, implying that a series of value judgements have been made prior to empirical testing.

Pilsworth and Ruddock (1975) suggest instead, Glaser and Strauss's (1967) qualitative method of sampling, which can be judged without statistical procedures since it is evaluated in terms of theoretical criteria. Theoretical sampling is the process of collecting and analysing data according to theory as it emerges. These methods are based partly on 'a general sociological perspective' (a critical and sociologically-informed analysis of the level of cohesiveness of the theory) and partly on a general problem area, and on 'common sense' and general experience. The adequacy of the theoretical sampling technique is judged on a more direct level: how broad was the sampling of various groups, how closely did it relate to the categories established by the researcher for study, and how closely did the selection of categories relate to the emerging theory?

There are no single techniques of data collection which are specifically appropriate for theoretical sampling. As Pilsworth and Ruddock (1975:38) emphasise, "(t)he greater the number and sources of data, the richer becomes the overall perception of the situation and of the participants' definitions of it."

In action research, the investigator studies a particular existing population (usually the total population in which he or she is interested) and the subjects do not normally represent a random sample from any known total population. The investigator is interested in discovering generalisations which he or she hopes will assist work with subjects in the same or strikingly similar circumstances. Smith (undated) suggests that action research studies are undertaken, not to make possible lateral extensions of generalisations but to make vertical extensions into the future. The action researcher is thus bound by the same canons of generalisation as the orthodox researcher and his or her generalisations are applicable to the extent that the subjects represent a sample of the cumulative population of future groups. This suggests that generalisations can be derived by replication of the investigation in the same or very similar situations.

The present study is based on a non-probability (non-random, purposive sampling) sampling design. Such designs derive their control not from randomness but from the judgement of the investigator. The selection of sampling units is based on availability, with no statistical method of determining the probability that each element in the population will be included in the sample. Because the sample is not random in a classical sense, there is the inherent limitation that the results are not truly representative, in a statistical sense, of the whole population. However, the author attempted to follow two of the necessary steps in sampling construction: precise definition of the population, coupled with large enough samples to represent the characteristics typical of the population. In the present study, entire year-groups of ESL Education students were used as subjects (Years 2, 3 and 4 in 1992 and Years 1 and 2 in 1993) and these were considered to be representative of future groups, although not in a statistical sense. As Kerlinger (1973) states, the weakness of non-probability sampling can, to some extent, be mitigated by using knowledge, expertise and care in selecting whole classes or categories of subjects and by replicating procedures with different samples.

5.5 METHODS OF DATA ANALYSIS

The data collected using the inventory 'Experiences of Teaching and Learning' was subjected to an orchestration categorisation procedure developed and described in more detail by Meyer (1994). An individual's responses to the inventory are treated as a preference structure. This is matched with one of nineteen conceptual masks, each of which "...represents a preference structure in terms of two conceptually incompatible sets of three constructs each; one set of 'pure' meaning constructs in the form of deep approach, use of evidence and relating ideas, and another set of constructs which, in the first phase of the categorisation procedure, ...represent the pathologies of improvidence, globetrotting and fragmentation (Meyer, 1994:24). In the first mask, the pathologies supersede the meaning constructs in the preference structure and the student is categorised as being severely 'at risk'. In the nineteenth mask the converse is the case, with each of those in between representing a gradual conceptual improvement on the preceding mask. It is a sliding scale of 'at risk' to 'no risk'! It is self-evident that polar positions on this scale indicate 'at risk'/'no risk'. The location of intermediate positions is a product partly of conceptual interpretation, and partly the results of empirical modelling (see, for example, Meyer 1993, 1994; Meyer and Sass 1993). It also needs to be observed that in these modelling applications, and also at a conceptual level, Meyer has assumed that the pathologies are equivalent. In the absence of any information to the contrary, this assumption is also reflected in the present analysis.

Expressed differently, the normalised scores of responses to sub-scales in the inventory are ranked, producing an orchestration profile. The profile is then examined for a match to one of the masks or templates, which characterise study behaviour ranging from severely 'at risk' to, relatively, 'not at risk', in terms of the degree to which the learning pathologies out-rank the meaning orchestration constructs in the profile. The procedure is then repeated where other undesirable characteristics of study behaviour are concerned (memorisation, disorganised study methods, perceptions of a heavy workload, *inter alia*.) The profile can be matched a second and third time to one of the masks, in terms of the degree to which such non-pathological characteristics, but characteristics nevertheless related to undesirable forms of study behaviour, outrank the meaning orchestration constructs in the profile. The outcomes of this 'masking' procedure can be further grouped to yield a categorical variable, which, in conceptual terms, has ordinal properties (Meyer and Sass, 1993).

As mentioned in Chapter 4, subsequent to the work conducted for this thesis, Meyer (1994) proposed a categorisation procedure that takes the outcomes of the 'masking' process and manipulates them further than in the present study, to yield study behaviour categories with more robust ordinal properties (Meyer and Sass, 1993). The categories employed in this research proceed from a less sophisticated manipulation of the 'masking' process. In the data presented in tabular form in Chapter 6 and Appendix G, the pairs of numerals listed under the columns headed 'orchestration categorisation' represent, firstly, a categorisation of the orchestration in terms of the learning pathologies (improvidence, globetrotting and fragmentation) and, secondly, a categorisation of the orchestration where various non-pathological characteristics are concerned (i.e. memorisation, disorganised study methods and perceptions of a heavy workload). An orchestration categorised as matching 'masks' 1 to 12 where the learning pathologies are concerned is regarded as placing the student 'at risk' in terms of learning outcomes. A categorisation of 1 to 12 where the non-pathological characteristics are concerned is regarded as undesirable and not normally associated with successful learning outcomes.

Since the main objective of the study was to explore the extent to which a low level of proficiency in the language of instruction is associated with undesirable orchestrations to learning, proficiency scores were compared with the orchestration categorisation as derived above.

Examination results, which were intended to measure meaningful learning as far as is possible, were used as a measure of learning outcome. Where, in individual cases, these appeared to be associated with the findings of the orchestration categorisation procedure (e.g. poor learning outcome combined with 'at risk' or undesirable orchestration), learning outcomes were taken as supportive evidence of such an orchestration and reference was then made to the English proficiency scores of those individuals.

Perhaps the most robust source of data was that obtained from the semi-structured interviews. Information on every aspect of this investigation was gathered and systematically recorded and, in many instances, provided powerful support to the findings of the analysis of quantitative data. Attention is drawn to these in Chapter 7.

5.6 RELIABILITY AND VALIDITY CHECKS

"In common sense terms reliability means stability, predictability, dependability, consistency." (Kerlinger, 1979:442) It can be defined as the level of internal consistency or stability of measurement of some object, person or source, over time and across situations.

There should be accuracy in measuring what is supposed to be measured and in practical terms this implies that the measurement of a characteristic should remain the same (stability) for as long as the characteristic does not change and that different judges, applying the identical method or instrument, should be able to obtain similar measurements of a characteristic (consistency of judgement). As Guilford states, "(b)y a perfectly reliable measurement we mean one that is completely accurate and free from error. The same 'yardstick', applied to the same individual or object in the same way, should yield the same value from moment to moment, providing that the thing measured has itself not changed in the meantime." (1965:438)

In measuring human attributes, abilities or performance, it is the 'true', unknowable measure of that attribute or ability in which we are interested. In this sense, the degree to which a measuring instrument is reliable is the extent to which there is no variance, fluctuation or error in the measurement, due to factors other than that quality which is being measured.

Variance, within measurements of the same unchanging individuals, may be 'systematic', in that a particular tendency prevails (e.g. scores are all higher or all lower than the 'true' scores) or it may be 'random', in that no pattern prevails and errors may even compensate for one another. The measurement errors are the sum or product of the effects of a (possibly very large) number of extraneous factors, which are not subject to precise description and control.

In the present study, measuring instruments and procedures were either, for the most part, reasonably well established - the inventory 'Experiences of Teaching and Learning' (Meyer, 1991), the orchestration categorisation procedure

(Meyer, 1994) and the Self-esteem Inventory (Coopersmith, 1986) - or had to be constructed.

In the construction of instruments, Kerlinger's (1973) recommendations for the improvement of reliability were followed. Items were subjected to rigorous scrutiny by experts and colleagues and refined by trial and retrial, in an attempt to ensure that each item was not ambiguous. Supplementary, confirmatory items of equivalent kind and quality were included. As Kerlinger states, adding more items increases the probability that an individual's total score is close to his notional 'true' score.

"With few items, a chance error ... looms large. The probability of its being balanced by another random error the other way is greater when there are more items ... more items increase the probability of accurate measurement.

Furthermore, in the present study, clear and standard instructions, which tend to reduce errors of measurement, were incorporated into constructed instruments. The instruments were administered under standard, controlled and similar conditions across groups.

Validity is concerned with the degree to which an instrument measures what it is intended, professes or purports to measure (Borg and Gall, 1979). However, Guilford (1965:471) asserts that it is a "...highly relative concept" and the decision as to whether any investigatory procedure is valid requires the preliminary question: valid for what? The purpose of the present study is, primarily, to establish an imputed association between two variables, namely, a measure of proficiency in English and a measure or categorisation of learning orchestration. Instruments measuring these variables need to pass a test of their construct validity or appositeness as measures for the phenomenon under study.

The focus on the question of validity in the context of the present study requires that consideration be given to the questions of both content and construct validity. The former is concerned with the extent to which the items of an instrument are a representative sample of the universe of content that is relevant to the variable being measured. The latter is concerned with the extent to which

a proposed instrument measures the theoretical construct in a philosophically appropriate way.

Subsequent to a review of the relevant literature, a measure of proficiency in English, which was deemed appropriate for the requirements of the present study, was constructed. The instrument was presented to colleagues, and experts in the field, for their judgement of its item content, prior to pilot testing and administration. As Kerlinger (1973) states, content validation consists essentially of judgement by competent individuals of the representativeness of items. In the present study, the universe of interest was clearly defined and judges were given specific directions for making judgements, as well as specification of what they were judging. Refinements and trials of the instrument were then made on the basis of the judges' recommendations.

The construct validation of the instrument was conducted on the basis of what Kerlinger (1973:462) refers to as convergence:

"Convergence means that evidence from different sources gathered in different ways all indicates the same or similar meaning of the construct. Different methods of measurement should converge on the construct.

He goes on to state also that the evidence yielded by administering the measuring instrument to different groups should yield corresponding meanings. Data collected in the semi-structured interviews, as well as that collected using the student lecture-rating inventory, provided evidence confirming the findings of the test of English proficiency. Those subjects with low proficiency scores clearly indicated in interview responses that they experienced difficulty with the language of instruction. The same students rated lectures as low in terms of comprehensibility, probably as a consequence of the difficulties they experienced. Those subjects high in English proficiency rated the lectures conversely. Results were similar across all five year groups included in the study.

As previously stated, the student lecture-rating inventory constructed for the present study was strictly limited to items which would elicit information about the comprehensibility of the spoken and written content of lectures. In addition, up to five items were constructed to elicit feedback from students about any one subscale included in the inventory. Also, and as indicated above, interview responses and English proficiency scores provided an opportunity to validate the instrument on the basis of convergence of evidence from other sources.

The formal end-of-course examination provided the measure of learning outcomes in the present study. A validation procedure which is standard practice for all examinations at the University of Malawi was adhered to. A copy of the examination paper was presented, prior to administration, together with copies of the syllabus, course outline, model answers and marking scheme, to an external moderator from the University of Botswana. A slight amendment was made to the examination paper on the basis of a recommendation made by the moderator.

5.7 INHERENT SPECIFICITY OF THE RESEARCH

The research problem, which centred mainly on an investigation of the perspectives of individuals, called for an illuminative approach which encouraged individuals to tell of their subjective experiences and to express their opinions, feelings and preferences. Such an approach may have limited generalisability. Zubir (1988:140) quotes Entwistle and Hounsell (1975) in stating that "...the very sensitivity and flexibility which are the essence of illuminative research are also its achilles' heel."

As can be seen from the description of the research, experiential data were gathered to measure and describe approaches to learning. The gathering of experiential data is not straightforward. It may provide an indication of what students were actually doing in the course of the learning event, what they were trying to do or what they thought they were doing. The author concluded that

this would be reflected in learning outcomes, on the basis that students who demonstrated a desirable orchestration in the outcome of learning were probably reporting on what they were actually doing; students unable to demonstrate a desirable orchestration in outcomes and yet who reported a meaning orchestration, were probably reporting on what they were trying to do or on what they thought they were doing.

Performance data were collected to measure and describe learning outcomes. Tests of understanding should necessarily distinguish between students adopting contrasting orchestrations to learning. As a consequence of such an approach to assessment, students may have begun to anticipate the nature of tests and altered their orchestrations accordingly.

Some control of critical additional factors, such as level of self-esteem, and the ability of lecturers to facilitate learning, was accomplished by building them into the research design. However, the larger the number of variables included for control in the investigation, the fewer the number of subjects there were in the sample with certain combinations of attributes. This limitation restricted the extent of balancing of groups in the supplementary investigation and randomisation and, consequently, also limited the generalisability of the findings, by reason of the possible effects of factors which were not under control in the study.

Notwithstanding the reservations recorded above, generalisation of the findings of the present study appears appropriate, at least to the extent that subjects represent a sample of the cumulative population of future groups in similar circumstances. In view of the sampling procedure adopted, in which five whole year groups were used as subjects of the investigation, and the precautions taken to ensure adequate reliability and validity of instruments used, it seems reasonable to suggest that replication of procedures with similar subjects in the future would produce similar results.

CHAPTER 6

ANALYSIS OF QUANTITATIVE DATA

At the outset of this chapter, the central hypothesis and main objective of the study, as well as the research questions, are restated for the convenience of the reader.

The data collected from 307 students are tabulated, in their respective year groups, in Appendix G. The general patterns and tendencies observed in the data are discussed in this chapter. Subsequently, scatterplots of English proficiency and learning outcome, English proficiency and self-esteem, and learning outcome and self-esteem scores of each year group are presented and discussed. Multiple-regression analysis is then carried out to determine the main source, or sources, of variability in the learning outcome scores of individuals.

The supplementary investigation, in which balanced groups were taught in different languages, involved an additional 54 students. Results are presented and discussed in section 6.5.

6.1. THE HYPOTHESIS, THE OBJECTIVE AND THE RESEARCH QUESTIONS

The main hypothesis of the study is that level of proficiency in the language of instruction is related to the quality of learning orchestration adopted. It was not the intention of the present study to establish whether or not any such association arises from any causal relationship between proficiency in English and orchestration to learning. It is possible that a low level of proficiency increases the demands of learning, and that this increase alters the perceptions

individuals have of the learning context and thereby exacerbates the orchestration adopted, whatever the individual's perceptions of the situational demands might otherwise have been.

The principal objective of the study was to test the main hypothesis of association (versus no association) by exploring the extent to which such an association exists. On the basis of the literature reviewed, it seems reasonable to expect that level of proficiency in the language of instruction, in interaction with the university environment, would predispose students to perceive the learning context, and to engage in learning, in markedly different ways.

The research questions which follow addressed quantitative, as well as qualitative data, in exploring the extent to which a relationship exists between proficiency and orchestration :

- (1) What are the attainment levels of ESL students in their comprehension of spoken discourse and understanding of written texts presented in English?
- (2) How do these students experience the context and content of learning ?
- (3) How do these students rate the comprehensibility of spoken discourse and written texts presented in lectures ?
- (4) What levels of self-esteem are demonstrated by these students ?
- (5) what are the learning outcomes associated with these attainment levels, descriptions, ratings and levels of self-esteem ?

6.2 PRELIMINARY EXPLORATION OF DATA

Initially, and to provide an overview of the data, orchestration categorisations of individuals in each year group are presented in Appendix G, in Tables G1 to G5, together with their English proficiency and learning outcome scores. Both gender and the study area (humanities or sciences) of individuals are listed, as well as levels of self-esteem and student ratings of lectures, as these are referred to in subsequent discussion.

As explained in Chapter 5, the categorisation of each individual's orchestration, in terms of the pathologies (improvidence, globetrotting and fragmentation), is indicated by the first of a pair of numerals presented in the columns labelled 'Orchestration Categorisation'. The second figure identifies the categorisation in terms of non-pathological characteristics (memorisation, disorganised study methods and perceptions of a heavy workload).

The inventory 'Experiences of Teaching and Learning', used to collect the data, was administered to three year-groups in both English, the language of instruction, and Chichewa, the mother-tongue of the students. Categorisation columns are appropriately labelled - 'Orchestration Categorisation(E)' for English and 'Orchestration Categorisation(C)' for Chichewa - to indicate from which version of the instrument the categorisations emanate.

Test-retest reliability is a relevant concept for instruments which purport to measure a phenomenon over periods in which the phenomenon is believed to be stable. It is possible that a particular student might generate markedly different profiles for the same subject at two points in time due to the intrusion of personal or environmental variables. However it is here regarded as highly unlikely that a fully informed and adequately motivated set of students, who had individually given a prior indication of their willingness to complete two versions of the inventory, would consistently exhibit substantial differences across the two versions in a common language, one week apart. The inference here is that the language differences in the versions of the instrument is the source of any marked variations observed in a large subset of the students.

Marked differences in categorisation of orchestration, of the same individual across the two languages, occur in 85 out of 183 cases. (Year 2, 1992, and Year 3, 1992, completed the English version of the inventory only, due to the temporary closure of the University for political reasons.) In some cases, individuals were categorised as 'at risk' in terms of the learning pathologies, on the basis of their responses in one language and not the other. In others, orchestrations were categorised as undesirable where the non-pathological characteristics (memorisation, disorganised study methods and perceptions of a heavy workload) were concerned, again on the basis of their responses in one language and not the other.

Table 6.1 presents the orchestration categorisations of those students ($n = 34$) whose categorisations varied across languages from 'at risk' to 'not at risk' where the learning pathologies are concerned, that is, in terms of the first 'mask' value only. Each student, whose orchestration categorisations appear in Table 6.1, was either categorised as 'at risk' after administration of the Chichewa or the English version of the inventory 'Experiences of Teaching and learning'. In some cases, orchestrations were categorised as severely 'at risk' after administration of the Chichewa version of the instrument and as highly desirable after administration of the English version or vice versa. Student No.22 in the Year 4 (1992) sub-group and student No.20 in the Year 2 (1993) sub-group provide illustrative examples of this.

Where these differences occur, an indication of differences in understanding of individuals across the two languages is provided. Since administrations of the two versions of the instrument were only one week apart, with the Easter weekend falling in the interim, any differences were unlikely to be as a result of changes in study orchestration. It is possible that some other contemporaneous factor may have had an effect, but differences across the two languages, in the interpretation of the meaning of each item in the inventory, were assumed here to be a central factor, particularly in view of the fact that an accurate back-translation of the inventory, from Chichewa to English, had been achieved.

Student	Year	Orchestration Categorisation (c)	Orchestration Categorisation (E)
13	4/1992	2.1	0.6
11	4/1992	14.3	5.2
17	4/1992	7.6	0.16
26	4/1992	0.16	10.1
54	4/1992	7.1	0.19
38	4/1992	6.4	19.8
22	4/1992	0.19	1.1
41	4/1992	7.4	0.19
59	4/1992	0.8	9.18
39	1/1993	6.5	19.19
43	1/1993	3.3	0.8
61	1/1993	18.8	1.1
48	1/1993	12.8	16.16
55	1/1993	0.15	2.1
25	1/1993	19.6	6.8
26	1/1993	5.6	16.15
30	1/1993	3.3	14.14
57	1/1993	19.18	6.4
46	1/1993	16.8	12.8
56	1/1993	0.5	6.16
01	1/1993	18.17	12.8
58	1/1993	19.6	5.17
37	1/1993	8.8	17.5
59	1/1993	17.9	7.16
52	2/1993	1.3	0.9
27	2/1993	11.8	0.6
56	2/1993	11.6	17.9
41	2/1993	11.12	18.19
37	2/1993	12.12	19.16
20	2/1993	1.1	0.19
16	2/1993	8.2	15.8
08	2/1993	17.8	3.9
32	2/1993	6.6	0.18
59	2/1993	12.7	16.5

Table 6.1 Differences in orchestration categorisation where the learning pathologies are concerned (Mother-tongue versus Language of Instruction).

Overall, the responses of Year 4 students in general, to the English version of the inventory, indicate a slight improvement in orchestration categorisation when compared to the responses of students from earlier years (orchestration

categorisations for all students are presented in Appendix G). The Year 4 (1992) group had 9 orchestrations categorised as 'at risk' and 26 as undesirable, whereas the Year 1 (1993) group had 16 students with orchestrations categorised as 'at risk' and 30 as undesirable. This slight improvement may be an indication that as students gain experience, and become more sophisticated in their use of the language of instruction, so they are able to discard some reproducing strategies and gradually adopt more desirable orchestrations.

6.2.1 Orchestration profiles

It is important to restate at this point that, in cases where an orchestration is categorised as fitting any of the masks between 1 and 12, where the learning pathologies are concerned (the first numeral in the column labelled 'Orchestration Categorisation'), the student is regarded as being 'at risk'. An orchestration categorised as fitting any of the masks between 1 and 12 where the non-pathological characteristics are concerned (the second numeral in the column labelled 'Orchestration Categorisation') is regarded as undesirable and is not normally associated with successful learning outcomes.

A range of orchestration profiles, together with an explanation of the symbols used, appear in Appendix H.

Inspection of the preference structures or orchestration profiles of all students in the present study reveals a widespread preoccupation with a perceived excessive workload. In fact, the construct 'perceptions of a heavy workload' appears at or near the top of almost every profile. Fear of failure, syllabus boundness and strategic approach occur in the top half of the structure in a striking number of cases. Memorisation also occurs in the upper half of the hierarchy in many instances. (Memorisation may previously have been even more preferred but reduced to some extent, because the author, upon arrival in Malawi and prior to the commencement of this study, had tried vigorously to discourage such a strategy.)

A plausible explanation for such profiles is that, at the University of Malawi, examinations are given considerable weighting as a component of the assessment process and students can be dismissed in the event of failure. In-course assessment and assignments carry substantially less importance. As a result, examinations cause a great deal of concern amongst the majority of students and appear to induce undesirable forms of study behaviour, as a consequence of their perceptions of the demands of the learning situation. Interview responses, to be discussed in Chapter 7, provide substantial evidence of this.

According to Säljö (1982), File (1984) and Ramsden (1988), assessment procedures can have a striking influence on some students and, as Entwistle (1992) maintains, even totally incorrect beliefs about assessment procedures influence study behaviour.

6.3 THE SCATTERPLOTS

6.3.1 English proficiency and learning outcome scores

A moderately positive linear association between proficiency in the language of instruction and learning outcome is evident in each of the scatterplots, presented in Figures 6.1 to 6.5. This association can be interpreted to mean that the more proficient a student is in English, the better the learning outcome is likely to be and vice versa.

A possible explanation for such an association is that an individual's performance is likely to be graded at a lower level when responses are not well expressed linguistically. A low level of proficiency in the language of instruction may be the precursor to a low level of expression in any measure of learning outcome. On the other hand, whilst responses which are linguistically well expressed are likely to be more impressive in terms of outcome, course lecturers have to remember that they are measuring understanding and not the ability of students to express themselves. This important consideration was taken

Year 2 (1992) Proficiency/Outcome

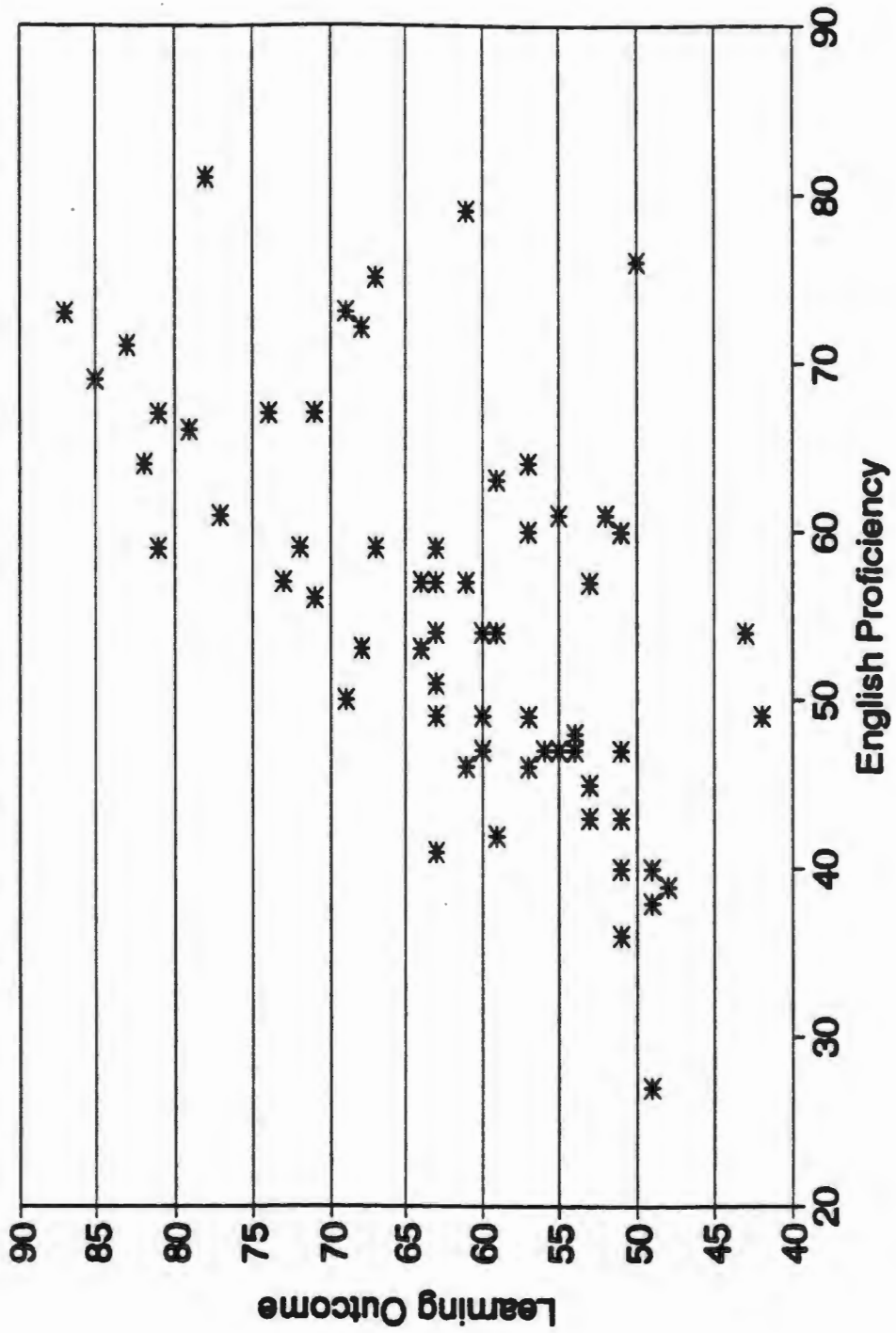


Figure 6.1

($r = 0.39$; $N = 66$)

Year 3 (1992) Proficiency/Outcome

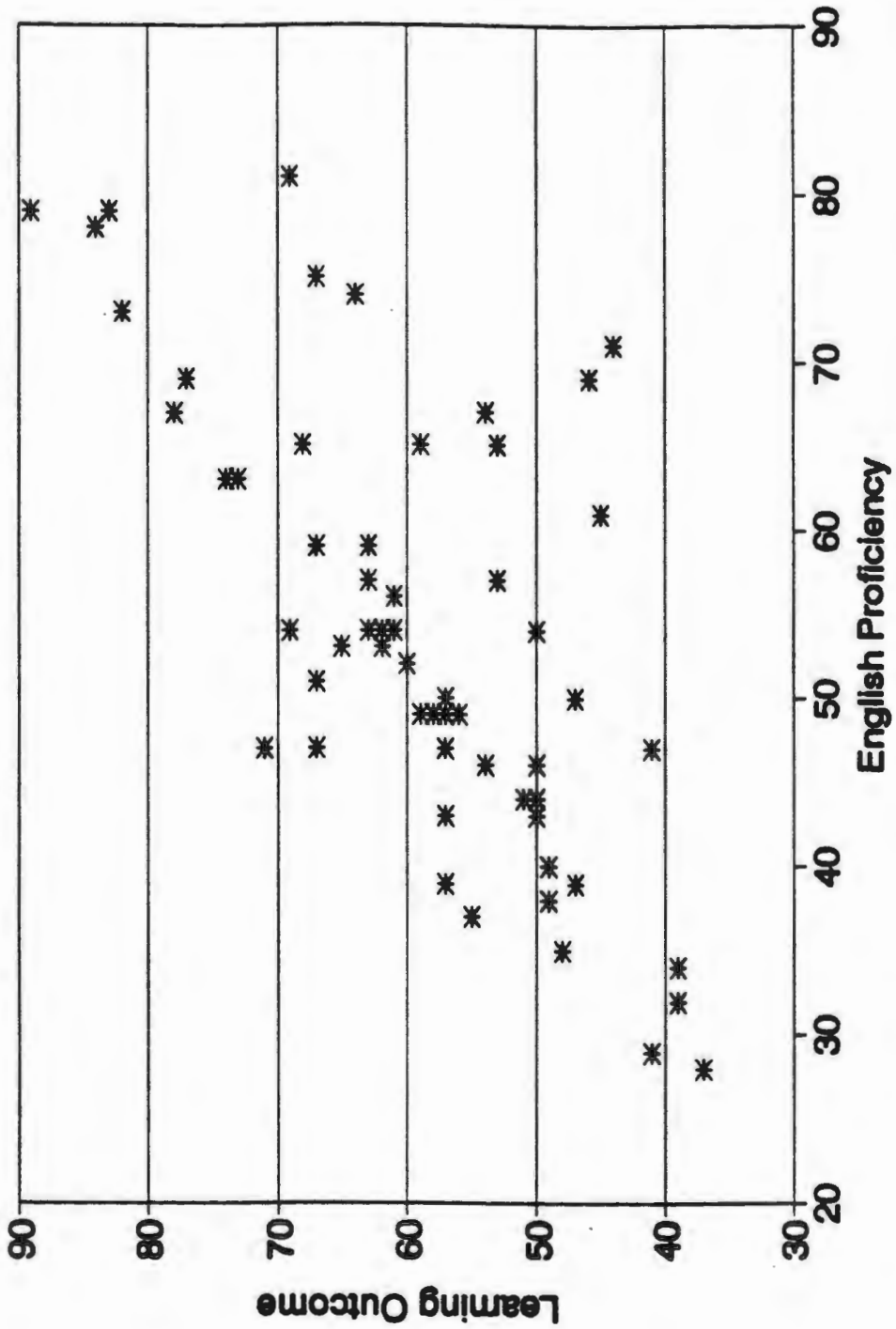


Figure 6.2

($r = 0.47$; $N = 58$)

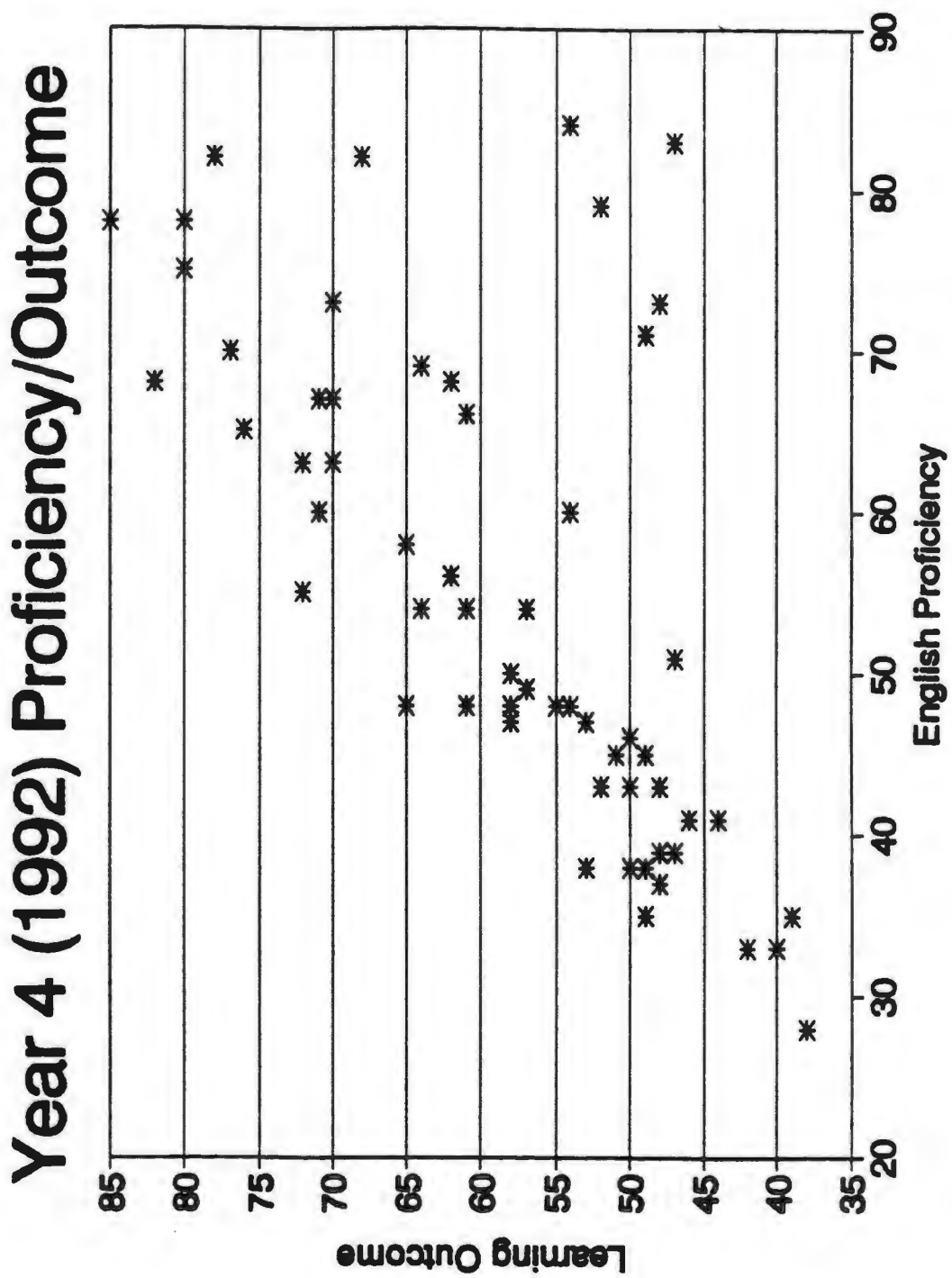


Figure 6.3

 $(r = 0.48 ; N = 61)$

Year 1 (1993) Proficiency/Outcome

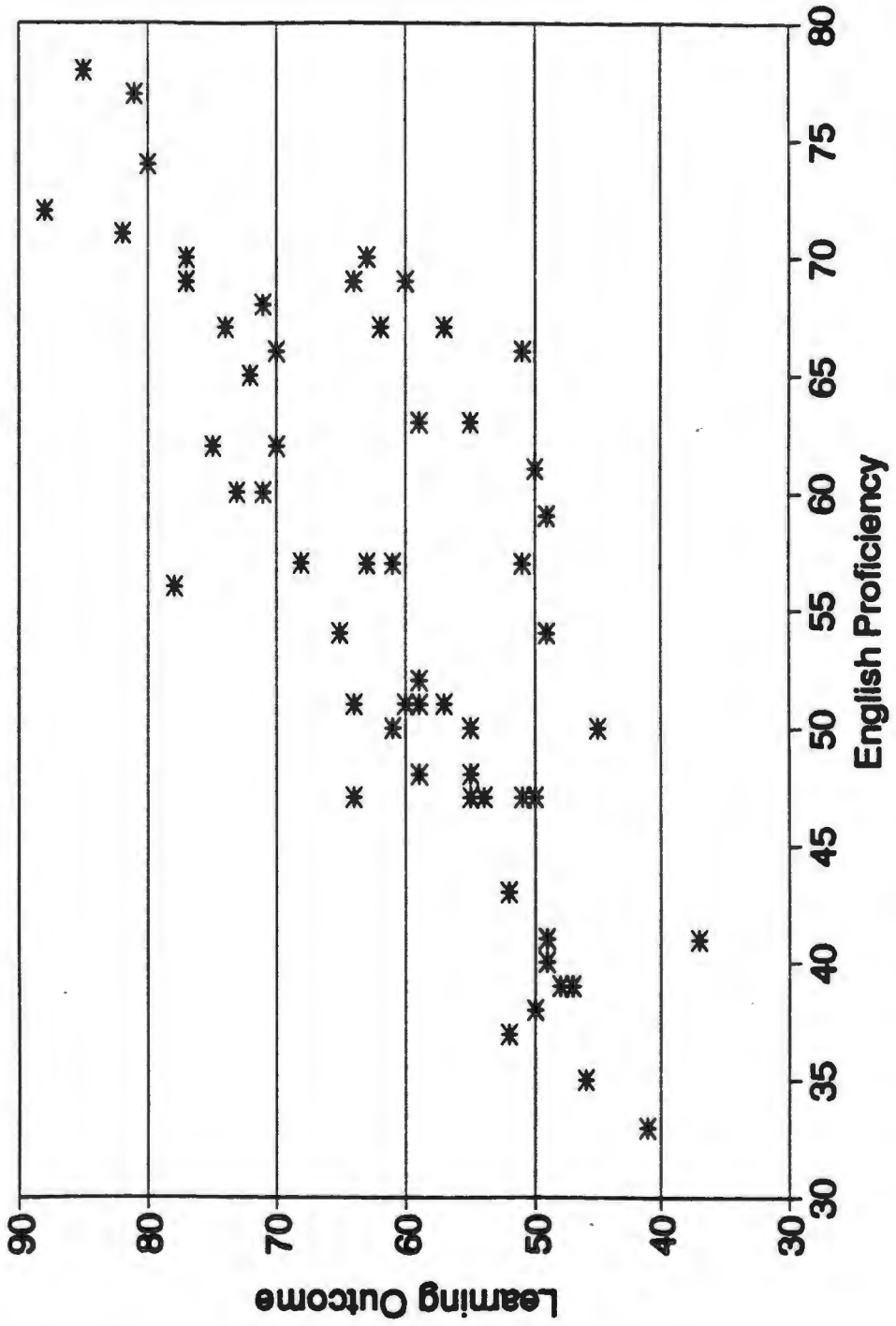


Figure 6.4

($r = 0.59$; $N = 61$)

Year 2 (1993) Proficiency/Outcome

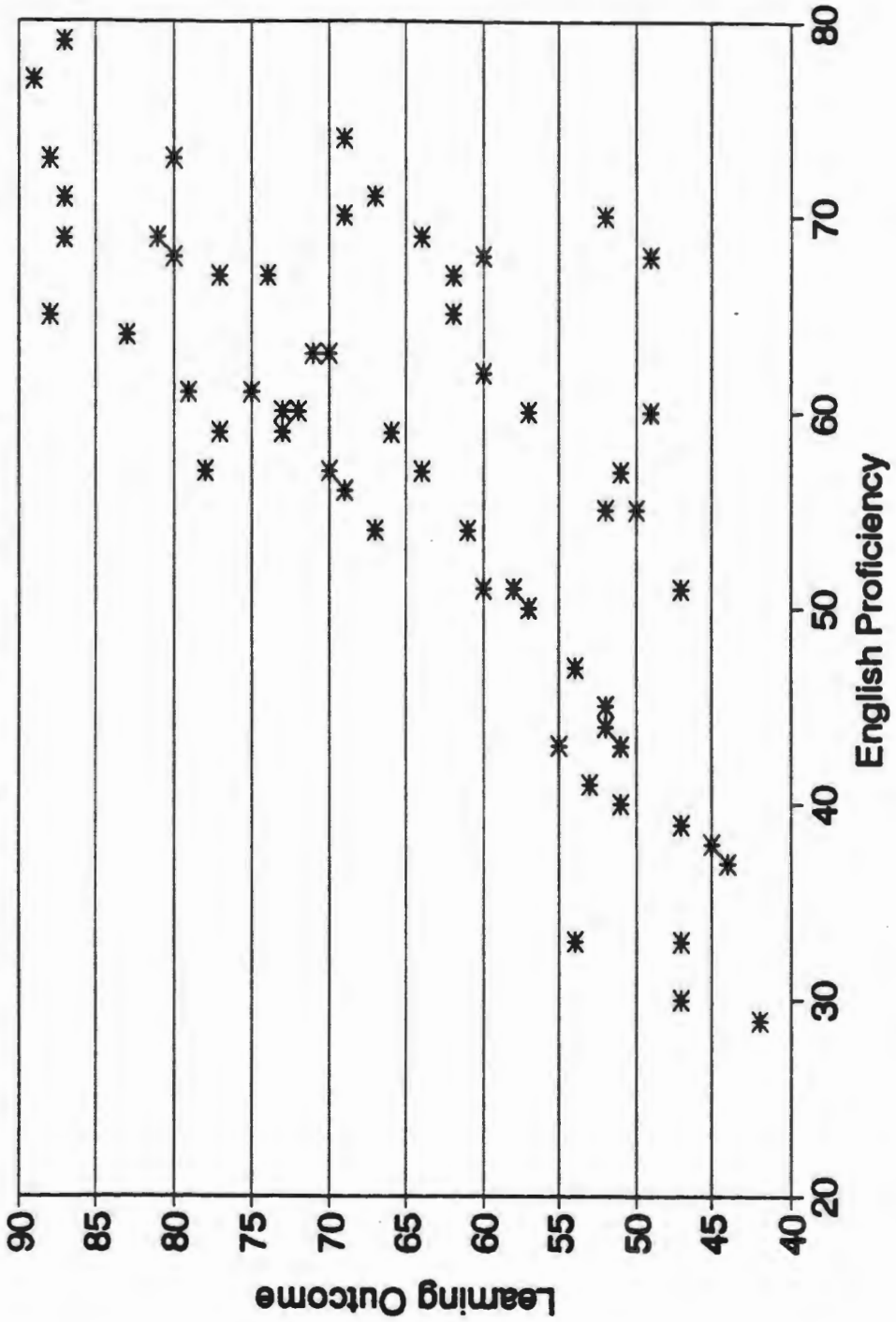


Figure 6.5

($r = 0.55$; $N = 61$)

into account by the author, in the measuring of both proficiency in English and learning outcome. The level of understanding demonstrated was the variable measured in each case, not the level of linguistic expression.

An interesting apparent characteristic of each scatterplot of English proficiency and learning outcome scores is the 'slippage' of a sub-group in each year-group, appearing on the right of the diagonal line in each of Figures 6.1 to 6.5. Each 'slipped' group demonstrates the same associational characteristics but achieves lower learning outcome scores than the main group. This phenomenon is discussed in Section 6.3.1.2 of this chapter.

A majority of those individuals scoring below the means of their year group in both English proficiency and learning outcome are also categorised as 'at risk' in terms of orchestration, which is evidence of a possible association between proficiency, orchestration and outcome. The poor learning outcome may have been due to the undesirable orchestration, the low level of English proficiency or the combination of the two.

It is hypothesised that a low level of proficiency in English predisposes individuals to adopt undesirable orchestrations in an English-medium-of-instruction context. In only a small number of cases in which students were categorised as being 'at risk', was English proficiency high and learning outcome low. Here it is inferred that the poor outcome is probably a consequence of the 'at risk' orchestration. The number of cases in which poor English proficiency occurred concurrently with an undesirable orchestration, in each year group, was far greater than the number of cases in which levels of proficiency and orchestration did not concur.

This phenomenon can be seen in Tables 6.2a to 6.6a, each of which provides the proficiency and learning outcome scores of students categorised as 'at risk' in terms of learning orchestration, within their respective year-group.

The asterisks in Tables 6.2a to 6.6a, against the proficiency and learning outcome scores of individuals, indicate scores below the means of the respective

year group for proficiency or learning outcome. The proficiency (\bar{x}) and learning outcome (\bar{y}) mean scores and standard deviations (SD) for the 'at risk' sub-group appear at the bottom of the appropriate columns in the tables. The entire year group mean for proficiency (\bar{X}) and outcome (\bar{Y}), as well as the number of students in the whole year group (N), are reported in the descriptive title of each table.

In order to illustrate the contrast, in terms of English proficiency and learning outcome scores, that exists between students 'at risk' and those 'not at risk', Tables 6.2b to 6.6b present data under the same headings as in Tables 6.2a to 6.6a for a 'not at risk' sample of fifteen students from each year group. These students were drawn randomly from the 'not at risk' sub-group within each year group.

The normative statistics in each table apply to the whole 'not at risk' sub-group and not just to the randomly selected sample.

With reference to the explanation of the categorisation procedure provided in Section 5.5 of Chapter 5, an orchestration categorisation of '0' for the first 'mask' (the first of the pair of numerals in the table columns labelled 'Orchestration Categorisation') represents the most desirable categorisation where the learning pathologies (improvidence, globetrotting and fragmentation) are concerned. The '0' indicates a mismatch with all of the conceptual 'masks' used in the categorisation procedure. A categorisation of '0' for the second 'mask' (the second of the pair of numerals in the table columns labelled 'Orchestration Categorisation') indicates the most desirable categorisation where the non-pathological characteristics (memorisation, disorganised study methods and perceptions of a heavy workload) are concerned, again indicating a mismatch with all of the 'masks' used in the procedure.

Tables 6.2c to 6.6c present the observed means, the differences of means and the standard errors of differences of the 'at risk' and 'not at risk' subgroups in each of the year groups, for proficiency (\bar{x}) and learning outcome (\bar{y}). The t-

statistics are also provided, with confidence intervals, to indicate whether or not differences are statistically significant.

Student	Orchestration Categorisation	Proficiency	Learning Outcome
02	5.3	38 *	49 *
03	8.8	54 *	60 *
15	10.9	47 *	54 *
27	8.1	40 *	49 *
35	1.6	36 *	51 *
39	2.8	49 *	42 *
40	8.8	43 *	53 *
42	6.6	54 *	43 *
45	8.6	76	50 *
57	4.1	27 *	49 *
58	9.6	47 *	51 *

$$\bar{x} = 46.45 \quad \bar{y} = 50.09$$

$$SD = 12.09 \quad SD = 4.69$$

Table 6.2a Year 2 (1992) (n = 11) (N = 66)
'At risk' Orchestration, Proficiency (Group \bar{X} = 54.90)
and Outcome (Group \bar{Y} = 61.71)

Student	Orchestration Categorisation	Proficiency	Learning Outcome
04	16.15	67	74
06	0.15	59	81
17	19.15	71	83
21	16.12	79	61 *
24	19.15	67	71
33	18.14	61	77
36	0.15	64	82
43	0.15	69	85
48	0.14	75	67
49	0.18	57	73
51	19.13	81	78
54	0.15	73	69
56	0.16	67	81
59	0.15	66	79
61	19.18	73	87

$$\bar{x} = 56.60 \quad \bar{y} = 64.04$$

$$SD = 10.42 \quad SD = 9.93$$

Table 6.2b Year 2 (1992) (n = 15) (N = 66)
Sample of 'Not at risk' Orchestration (s = 15),
Proficiency (\bar{X} = 54.90) and Outcome (\bar{Y} = 61.71).

In the Year 2 (1992) sub-group of 'at risk' students (Table 6.2a), one student (No.45) was well above the English proficiency mean of the group and yet, with an orchestration categorisation of 8.6, only scored a bare pass in the examination, with a mark of 50. Every other student had a level of proficiency below the mean of the year group, accompanied by an 'at risk' learning orchestration and a below average learning outcome score.

In the randomly selected 'not at risk' sample of Year 2 (1992) students (Table 6.2b), all scored above average on the measure of English proficiency, had learning orchestrations normally associated with success in terms of learning outcome and had average to above average learning outcome scores. Student No.21. had an orchestration categorised as 16.12, the least desirable in the sub-group where the non-pathological characteristics are concerned, and achieved the lowest learning outcome score.

	n	Profic.(x)	Outcome (y)
Whole Year Group	66	54.90	61.71
'At risk' students	11	46.45	50.09
Not 'at risk' students	55	56.60	64.04
Comparison: Difference		10.15	13.95
Std.Error (Diff.)		3.91	1.95
Degrees of freedom		13	34
t-statistic		2.59	7.15
Significance level (One tail)		<0.025	<0.005
95% Confidence interval for true difference		1.7 - 18.6	9.97 - 17.93

**Table 6.2c Year 2 (1992)
Comparison of Proficiency and Outcome means :
'at risk' versus 'not at risk' students**

The significance levels for the t-statistics given in Tables 6.2c to 6.6c are recorded below the t-statistics. These reported levels are conservatively rounded to values associated with the particular set of t-tables used, in which the most extreme significance level available was 0.005 or 0.5%.

In the context of the present study, one method of exhibiting the differences between 'at risk' and 'not at risk' sub-groups is to provide a confidence interval that simultaneously describes both the size of the differences and the inherent uncertainty associated with the estimated size. The significance level represents an upper bound on the probability of obtaining differences as marked or greater than those observed, if the 'at risk' and 'not at risk' sub-groups were in fact equivalent in average proficiency and learning outcome. One-tail significance levels are chosen because of an *a priori* expectation that the 'at risk' sub-groups will exhibit markedly lower proficiency and outcome scores.

Minute probabilities indicate that the observed data is so unlikely under a scenario of zero differences, that to interpret them as evidence of the falseness of the hypothesis of zero differences is preferred. It is thus concluded that differences exist and are statistically demonstrable, as in the case of Table 6.2c, in which the differences between the proficiency and outcome means of 'at risk' and 'not at risk' sub-groups are statistically significant.

Student	Orchestration Categorisation	Proficiency	Learning Outcome
02	8.1	35 *	48 *
03	4.1	29 *	41 *
07	3.2	34 *	39 *
08	10.1	50 *	47 *
09	12.4	43 *	57 *
11	1.1	47 *	41 *
13	3.1	69	46 *
14	6.6	37 *	55 *
21	3.1	39 *	47 *
31	2.1	28 *	37 *
34	12.1	49 *	59
39	4.8	61	45 *
40	11.5	53 *	62
49	10.15	71	44 *
50	1.1	32 *	39 *
54	2.3	46 *	50 *

$$\bar{x} = 45.18 \quad \bar{y} = 47.31$$

$$SD = 12.89 \quad SD = 7.31$$

Table 6.3a Year 3 (1992) (n = 16) (N = 58)
'At risk' Orchestration, Proficiency (\bar{X} = 54.00)
and Outcome (\bar{Y} = 58.93)

Student	Orchestration Categorisation	Proficiency	Learning Outcome
01	18.13	67	78
05	0.15	73	82
19	19.18	78	84
20	16.6	65	68
28	16.19	67	54 *
33	0.19	63	74
36	0.19	59	63
38	0.15	79	83
42	19.14	51 *	67
44	0.15	81	69
46	19.17	54	69
47	19.17	75	67
53	0.19	79	89
56	14.8	63	73
58	19.14	69	77

$$\bar{x} = 57.35 \quad \bar{y} = 63.35$$

$$SD = 11.71 \quad SD = 10.24$$

Table 6.3b Year 3 (1992) (n = 15) (N = 58)
Sample of 'Not at risk' Orchestration (s = 15),
Proficiency ($\bar{X} = 54.00$) and Outcome ($\bar{Y} = 58.93$).

In the Year 3 (1992) 'at risk' sub-group (Table 6.3a), three students (Nos. 13, 39 and 49) scored above the year group mean on English proficiency and yet also failed to achieve scores above the mean for the year group in learning outcome, possibly as a consequence of their 'at risk' orchestrations. On the other hand, two students (Nos. 34 and 40) scored below, and marginally below, the year group mean on the measure of proficiency and yet scored marginally over the year group mean on learning outcome. Interestingly, their orchestrations were categorised as 12.1 and 11.5, respectively (i.e. relatively less 'at risk'). Both students represent marginal cases and manifest an association as expected. The remaining 11 students had below average proficiency scores, 'at risk' learning orchestrations and learning outcome scores below the mean of the year group.

In the 'not at risk' sample of Year 3 (1992) students (Table 6.3b), all but one of those randomly included in the table scored above the mean for the year group on proficiency and all had orchestrations categorised as desirable to moderately

so. Only one student (No.28) scored below the year group mean on learning outcome.

	n	Profic.(\bar{x})	Outcome (\bar{y})
Whole Year Group	58	54.00	58.93
'At risk' students	16	45.18	47.31
Not 'at risk' students	42	57.35	63.35
Comparison : Difference		12.17	16.04
Std.Error (Diff)		3.69	2.41
Degrees of freedom		26	40
t-statistic		3.29	6.66
Significance level (one tail)		<0.005	<0.005
95 % Confidence interval for true difference		4.58 - 19.76	11.17 - 20.91

Table 6.3c Year 3 (1992)
Comparison of Proficiency and Outcome means :
'at risk' versus 'not at risk' students

As demonstrated in Table 6.3c, the differences between the proficiency and outcome means of 'at risk' and 'not at risk' sub-groups are statistically significant.

Student	Orchestration Categorisation	Proficiency	Learning Outcome
11	5.2	41 *	46 *
15	10.2	45 *	49 *
22	1.1	35 *	39 *
24	12.4	73	48 *
26	10.1	66	61
32	1.5	41 *	44 *
37	4.4	84	54 *
46	5.8	71	49 *
59	9.18	43 *	52 *
		$\bar{x} = 55.44$	$\bar{y} = 49.11$
		SD = 16.92	SD = 5.89

Table 6.4a Year 4 (1992) (n = 9) (N = 61)
'At risk' Orchestration, Proficiency ($\bar{X} = 55.61$)
and Outcome ($\bar{Y} = 58.90$)

Student	Orchestration Categorisation	Proficiency	Learning Outcome
04	0.19	78	84
05	19.15	65	76
06	0.19	67	70
07	17.15	68	82
16	0.15	67	71
28	0.19	68	62
29	0.19	82	78
31	0.15	69	64
34	15.15	75	80
39	0.19	75	83
47	19.14	63	72
50	0.14	73	70
51	0.15	78	80
53	0.16	70	77
54	0.19	82	68

$$\bar{x} = 55.63 \quad \bar{y} = 60.59$$

$$SD = 14.92 \quad SD = 12.24$$

Table 6.4b Year 4 (1992) (n = 15) (N = 61)
Sample of 'Not at risk' Orchestrations (s = 15),
Proficiency ($\bar{X} = 55.61$) and Outcome ($\bar{Y} = 58.90$).

Four out of nine students (Nos.24, 26, 37 and 46) in the Year 4 (1992) 'at risk' sub-group (Table 6.4a) scored well above the English proficiency mean of this year group. However, all but one of them demonstrated a below average level of understanding in the examination, again possibly because of an 'at risk' orchestration. The examination score exception (student No.26) may well have been boosted by a higher standard of linguistic expression. The remaining 5 students had below average proficiency scores accompanied by 'at risk' orchestrations and learning outcome scores below the mean of the year group.

The randomly selected 15 students in the Year 4 (1992) 'not at risk' sample (Table 6.4b) all scored above the English proficiency and learning outcome means of the year group and had learning orchestrations normally associated with success.

	n	Profic.(\bar{x})	Outcome (\bar{y})
Whole Year Group	61	55.61	58.90
'At risk' students	9	55.44	49.11
Not 'at risk' students	52	55.63	60.59
Comparison: Difference		0.19	11.48
Std.Error (Diff)		6.01	2.59
Degrees of freedom		10	25
t-statistic		0.03	4.43
Significance level (one tail)	>0.10		<0.005
95 % Confidence interval for true difference		(-13.2) - 13.58	6.14 - 16.82

Table 6.4c Year 4 (1992)
Comparison of Proficiency and Outcome means :
'at risk' versus 'not at risk' students

As is evident from Table 6.4c, the difference between the proficiency means of 'at risk' and 'not at risk' sub-groups is not significant, whereas the significance of the difference between outcome means is statistically demonstrated.

Student	Orchestration Categorisation	Proficiency	Learning Outcome
01	12.8	51 *	64
11	9.8	47 *	51 *
14	7.12	39 *	47 *
25	6.8	38 *	50 *
41	8.12	35 *	46 *
42	11.9	41 *	49 *
44	6.4	33 *	41 *
46	12.8	47 *	54 *
54	9.9	50 *	45 *
55	2.1	37 *	52 *
57	6.4	51 *	60 *
60	4.5	39 *	48 *
61	1.1	41 *	37 *
		$\bar{x} = 42.23$ SD = 5.99	$\bar{y} = 49.54$ SD = 6.90

Table 6.5a Year 1 (1993) (n = 13) (N = 61)
'At risk' Orchestration, Proficiency ($\bar{X} = 55.93$)
and Outcome ($\bar{Y} = 60.74$)

Student	Orchestration Categorisation	Proficiency	Learning Outcome
02	0.19	74	80
03	19.19	69	77
06	0.19	70	63
07	0.16	66	70
12	16.15	69	64
20	0.15	78	85
21	0.15	77	81
22	0.15	69	60 *
23	0.15	68	71
27	0.15	67	74
28	18.9	67	62
34	0.19	70	77
36	18.9	71	82
52	0.19	72	88
53	0.19	67	74

$$\bar{x} = 59.65 \quad \bar{y} = 63.77$$

$$SD = 9.81 \quad SD = 10.79$$

**Table 6.5b Year 1 (1993) (n = 15) (N = 61)
Sample of 'Not at risk' Orchestration (s = 15),
Proficiency (\bar{X} = 55.93) and Outcome (\bar{Y} = 60.74).**

All of the students in the Year 1 (1993) 'at risk' sub-group (Table 6.5a) scored below the English proficiency mean of the year group and all but one scored below the group mean for learning outcome. The exception (student No.1), with an orchestration categorisation of 12.8 (not severely 'at risk') and one of the highest proficiency scores in the sub-group, achieved an outcome score above the group mean.

All students in the 'not at risk' sample, drawn randomly from the Year 1 (1993) sub-group, (Table 6.5b) scored well above the year group mean on proficiency and had orchestrations categorised as desirable. Student No.22 achieved the lowest score on the measure of learning outcome, with an orchestration categorised as 0.15 after administration of the English version of the inventory and as 18.9 after administration of the mother-tongue version. Her orchestration profile in this case, which is presented at the beginning of Appendix H, shows a relatively high preference for memorisation, perceptions of a heavy workload and disorganised study methods.

	n	Profic. (\bar{x})	Outcome (\bar{y})
Whole Year Group	61	55.93	60.74
'At risk' students	13	42.23	49.54
Not 'at risk' students	48	59.65	63.77
Comparison: Difference		17.42	14.23
Std. Error (Diff)		2.18	2.47
Degrees of freedom		34	32
t-statistic		7.99	5.76
Significance level (one tail)		<0.005	<0.005
95% Confidence interval for true difference		12.97 - 21.87	9.19 - 19.27

Table 6.5c Year 1 (1993)
Comparison of Proficiency and Outcome means :
'at risk' versus 'not at risk' students

As demonstrated in Table 6.5c, the differences between the proficiency and outcome means of 'at risk' and 'not at risk' sub-groups are statistically significant.

Student	Orchestration Categorisation	Proficiency	Learning Outcome
07	4.2	60	49 *
08	3.9	39 *	47 *
09	12.19	43 *	55 *
30	6.4	30 *	47 *
38	3.5	38 *	45 *
39	5.9	43 *	51 *
53	2.3	29 *	42 *
58	7.2	68	49 *
		$\bar{x} = 43.75$	$\bar{y} = 48.13$
		SD = 12.82	SD = 3.66

Table 6.6a Year 2 (1993) (n = 8) (N = 61)
'At risk' Orchestration, Proficiency ($\bar{X} = 57.20$)
and Outcome ($\bar{Y} = 64.15$)

Student	Orchestration Categorisation	Proficiency	Learning Outcome
02	19.19	79	87
05	18.19	68	80
06	0.19	74	69
10	16.19	71	67
19	0.16	70	69
21	19.8	69	87
22	19.19	71	87
23	0.19	67	74
24	19.18	73	80
26	0.19	67	77
28	0.19	64	83
31	19.19	77	89
35	18.19	65	88
40	19.19	69	81
46	19.18	73	88

$$\bar{x} = 59.23 \quad \bar{y} = 66.56$$

$$SD = 10.82 \quad SD = 12.47$$

Table 6.6b Year 2 (1993) (n = 15) (N = 61)
Sample of 'Not at risk' Orchestration (s = 15),
Proficiency ($\bar{Y} = 57.20$) and Outcome ($\bar{X} = 64.15$).

Two out of eight students (Nos.07 and 58) in the Year 2 (1993) 'at risk' sub-group (Table 6.6a) scored above the year group mean on the measure of proficiency, but failed to achieve scores above the group mean for the year group in the examination, possibly due to the nature of their learning orchestrations (4.2 and 7.2, respectively). The other 6 'at risk' students had both proficiency and learning outcome scores below the mean of the year group.

Again, all of the students in the 'not at risk' Year 2 (1993) sample (Table 6.6b) scored well above the English proficiency mean of the year group and had desirable learning orchestrations. Learning outcome scores were all above average.

	n	Profic.(\bar{x})	Outcome (\bar{y})
Whole Year Group	61	57.20	64.15
'At risk' students	8	43.75	48.13
Not 'at risk' students	53	59.23	66.56
Comparison: Difference		15.48	18.43
Std.Error (Diff)		4.77	2.14
Degrees of freedom		9	43
t-statistic		3.25	8.61
Significance level (one tail)		0.005	<0.005
95% Confidence interval for true difference		4.69 - 26.27	14.11 - 22.75

Table 6.6c Year 2 (1993)
Comparison of Proficiency and Outcome means :
'at risk' versus 'not at risk' students

The differences between the proficiency and outcome means of 'at risk' and 'not at risk' Year 2 (1993) sub-groups are statistically significant, as demonstrated in Table 6.6c.

6.3.1.1 Summary

Tables 6.2a to 6.6a provide consistent evidence that 'at risk' orchestrations to learning tend to occur in tandem with reduced levels of proficiency in the language of instruction. However, the impression of the expected association of 'at risk' categorisation and poor academic performance is even more distinct, as statistically demonstrated in Tables 6.2c to 6.6c.

Tables 6.2b to 6.6b present the proficiency scores and learning outcome scores of random samples of 'not at risk' students from each year group. Their learning orchestrations, which are normally associated with success in terms of learning outcomes, are accompanied by above average levels of proficiency in the language of instruction in all but one case.

On the basis of the data presented in Tables 6.2c to 6.6c, it can be stated that, in the comparison of performance levels of 'at risk' and 'not at risk' sub-groups on proficiency and outcome, the only difference that is not statistically significant is that between the proficiency means of the 'at risk' and 'not at risk' sub-groups in the Year 4 (1992) group (Table 6.4c).

The matter of whether or not the observed differences are consequential and important is a separate professional or subject-specific issue. In the situation to which the observed differences refer, it is the judgement of the author that all differences in means above 10 are consequential. Thus we may infer significant statistical evidence for substantially superior performances of 'not at risk' sub-groups over 'at risk' sub-groups in almost every year group on both proficiency and learning outcome : in the 5 year groups involved in the present study, 57 students were categorised as 'at risk' in terms of their learning orchestrations; 53 of these scored below their year group mean on the measure of learning outcome and 47 had English proficiency scores below their year group mean. Of particular interest to this study is that 44 students, out of the 57 categorised as 'at risk', had outcome as well as proficiency scores below the means of their year group.

These findings concur with a number of those reported in the literature review. Kember and Gow (1990), in their study in Hong Kong, found that students low on English proficiency adopted reproducing strategies. Zepp (1981) found in Lesotho that achievement was related to proficiency in the language of instruction. Zepp also cites Heron's study, at the University of Zambia, in which failure rates were found to be considerably higher among students with low levels of English comprehension. Jones (1974) reported a correlation of 0.43 between English scores on the Ethiopian School Leaving Certificate and success in university science.

It seems reasonable to infer, on the basis of these first findings of the present study, that low levels of proficiency in the language of instruction increase the demands of the learning situation, lead to the adoption of reproducing strategies and, as a consequence of this, reduce the quality of learning outcome.

6.3.1.2 The 'Slipped' Sub-groups

As mentioned in Section 6.3.1, an interesting apparent characteristic of each scatterplot of English proficiency and learning outcome scores (presented in Figures 6.1 to 6.5) is the 'slippage' of a sub-group in each year-group. As mentioned earlier, each 'slipped' sub-group demonstrates the same associational characteristics but achieves learning outcome scores lower than the main group. The year 1 (1993) (Figure 6.4) scatterplot presents one of the most distinct illustrations of this phenomenon. The 'slipped' sub-group appears as a reflection or shadow of the main group, positioned below the main group in terms of learning outcome scores.

The possibility that an as yet unidentified variable is having this effect thus suggests itself. In the light of the literature reviewed concerning self-esteem and the possible effects this can have on individuals in learning situations, it seemed appropriate to examine whether or not self-esteem might also be associated with the orchestration-proficiency-outcome structure. Research has indicated that an increase in the perceived demands of the learning situation is likely to bring

about a change in the strategies perceived to be appropriate for engaging learning. A low level of self-esteem is likely to have the effect of increasing perceived demands, since students who believe themselves to be inadequate in terms of ability to succeed are likely to perceive greater pressure and demands than those with confidence in themselves as learners.

This initial observation indicated the necessity for an investigation of students appearing in the 'slipped' sub-groups. Amongst other variables recorded for each of the students in the year groups involved in the present study, for the reason provided in Chapter 1, was a self-esteem score (SEI).

The self-esteem means of male and female students were considered separately within each year group, because, in all 5 year groups, the male mean was consistently higher than that of female students, with strikingly uniform levels of dispersion of scores across year groups, as shown in Table 6.7. This appears to be evidence in support of the explanation of the differences between males and females, where self-esteem is concerned, in Malawian society, provided in Section 5.2.5 of Chapter 5.

Year 2 (1992)		Diff.	SE(d)	df	t
Female SEI	(n = 16) \bar{x} = 56.00 SD = 8.83				
Male SEI	(n = 50) \bar{x} = 72.48 SD = 10.33	16.48	2.65	31	6.22
Significance level (one tail) < 0.005					
95% Confidence interval for true difference 11.07 - 21.89					
Year 3 (1992)					
Female SEI	(n = 14) \bar{x} = 57.43 SD = 8.89				
Male SEI	(n = 44) \bar{x} = 68.54 SD = 11.96	11.11	2.98	31	3.73
Significance level (one tail) < 0.005					
95% Confidence interval for true difference 5.02 - 17.20					
Year 4 (1992)					
Female SEI	(n = 16) \bar{x} = 59.50 SD = 9.58				
Male SEI	(n = 45) \bar{x} = 67.91 SD = 11.79	8.41	2.97	34	2.83
Significance level (one tail) < 0.005					
95% Confidence interval for true difference 2.35 - 14.47					
Year 1 (1993)					
Female SEI	(n = 12) \bar{x} = 56.67 SD = 8.62				
Male SEI	(n = 49) \bar{x} = 73.06 SD = 10.56	16.39	2.91	21	5.63
Significance level (one tail) < 0.005					
95% Confidence interval for true difference 10.34 - 22.44					
Year 2 (1993)					
Female SEI	(n = 14) \bar{x} = 60.57 SD = 9.89				
Male SEI	(n = 47) \bar{x} = 73.19 SD = 11.13	12.62	3.10	25	4.07
Significance level (one tail) < 0.005					
95% Confidence interval for true difference 6.23 - 19.01					

Table 6.7 Analysis of Self-Esteem (SEI) Mean Scores, Year Group and Gender.

Tables 6.8 and 6.9 provide an overview of the students in the Year 3 (1992) and the Year 1 (1993) 'slipped' sub-groups. The asterisks in the tables, against the proficiency and learning outcome scores of individuals, indicate scores below

the mean for the year group in each case. The mean score for the entire year group on each of these two variables is provided in the descriptive titles of each table. In the case of self-esteem, the mean scores for female and for male students in the year group are provided and asterisks against self-esteem scores indicate a score below the mean for the gender within the respective year group.

Student	Gender	Orchestration Categorisation	Self-Esteem	Proficiency	Outcome
11	f	1.1	52 *	47 *	41 *
23	f	19.1	64	74	64
24	f	18.5	44 *	54	50 *
28	f	16.19	56 *	67	54 *
44	f	0.15	68	81	69
08	m	10.1	60 *	50 *	47 *
13	m	3.1	72	69	46 *
15	m	18.8	72	65	59
39	m	4.8	64 *	61	45 *
45	m	16.6	76	65	53 *
47	m	19.17	84	75	67
49	m	10.15	68 *	71	44 *
57	m	19.8	60 *	57	53 *

Table 6.8 Year 3 (1992)
'Slipped' Sub-Group Members (N = 13) - Gender, Orchestration,
Self-Esteem (Female \bar{x} = 57.43; Male \bar{x} = 68.54),
Proficiency (\bar{X} = 54.00) and Outcome (\bar{Y} = 58.93).

There are 14 female students in this Year 3 (1992) group of 58. Of these female students, 5 appear in the 'slipped' sub-group (Table 6.8) and 3 have levels of self-esteem below the mean for their gender within their year group. Of 8 male students in the 'slipped' sub-group, 4 have self-esteem scores below the male mean. This gives a total of 7 individuals, of 13 'slipped' sub-group members, with levels of self-esteem below the mean for their gender, all 7 of whom scored below the year group mean on learning outcome and all but one have orchestrations ranging from 'at risk' to undesirable.

There are 6 students in the 'slipped' sub-group with self-esteem scores above the mean for their gender, 4 of whom (Nos.23; 44; 15 and 47) have above average outcome scores. The other 2 (Nos.13 and 45) have orchestrations not normally associated with successful learning outcome scores (3.1 and 16.6, respectively).

In this Year 3 (1992) group, there are 19 out of 45 students not appearing in the 'slipped' sub-group with self-esteem scores below the mean for their gender and 15 of them have below average outcome scores.

Student	Gender	Orchestration Categorisation	Self-Esteem	Proficiency	Outcome
06	f	0.19	56 *	70	63
22	f	0.15	60	69	60 *
39	f	19.19	48 *	54 *	49 *
43	f	0.8	56 *	61	50 *
54	f	9.9	44 *	50 *	45 *
61	f	1.1	56 *	41 *	37 *
09	m	19.9	56 *	63	59 *
12	m	16.15	72 *	69	64
18	m	19.15	68 *	67	57 *
24	m	16.8	52 *	59	49 *
26	m	16.15	64 *	63	55 *
28	m	18.9	76	67	62
31	m	19.6	68 *	66	51 *
45	m	18.15	76	57	51 *

Table 6.9 Year 1 (1993)

'Slipped' Sub-Group Members (N = 14) - Gender, Orchestration, Self-Esteem (Female \bar{x} = 56.67; Male \bar{x} = 73.06), Proficiency (\bar{X} = 55.93) and Outcome (\bar{Y} = 60.74).

There are 12 female students in this Year 1 (1993) group of 61 (Table 6.9), of whom 6 appear in the 'slipped' sub-group. Five of these have self-esteem scores below the mean for their gender. Six of the 8 men in the 'slipped' sub-group have levels of self-esteem below the male mean within the year group. This yields a total of 11 individuals in a 'slipped' sub-group of 14 with self-esteem

scores below the mean for their gender, of whom 9 scored below average on the measure of learning outcome and 6 had orchestrations ranging from 'at risk' to undesirable.

Only 3 students in the 'slipped' sub-group (Nos.22; 28 and 45) had above average self-esteem scores and 1 of these (No.28) scored above the year group mean on the measure of learning outcome.

There are 47 Year 1 (1993) students not appearing in the 'slipped' sub- group. Twenty-two of these students had self-esteem scores below the mean for their gender, 17 of whom had below average outcome scores.

After having carried out similar descriptive analyses of all five of the year groups involved in the present study, the investigation did not appear to reveal a marked contrast between students in the 'slipped' sub-groups and those not appearing in the 'slipped' sub-groups. It has so far not been possible to identify a variable, or variables, from those investigated (gender, orchestration categorisation, self-esteem, proficiency and learning outcome), that is conclusively associated with the 'slippage'. It is apparent that orchestration, proficiency and outcome are associated and that, according to the literature (Shavelson, *et al.*, 1976), level of self-esteem can affect the performance of learners, but it is also possible that an as yet unidentified variable may be associated with the apparent 'slippage' and remains elusive thus far.

Table 6.10 and 6.11 provide overviews of the 'slipped' and 'non-slipped' sub-groups, respectively, in all 5 year groups, where self-esteem, proficiency and outcome scores are concerned.

	Year 2 (1992)	Year 3 (1992)	Year 4 (1992)	Year 1 (1993)	Year 2 (1993)	Totals
N	15	13	13	14	16	71
<hr/>						
n(female)	6	5	4	6	6	27
No. below SEI mean	3	3	2	5	2	15
No. below Prof. mean	1	1	1	3	2	8
No. below Outc. mean	4	3	1	5	5	18
<hr/>						
n(male)	9	8	9	8	10	44
No. below SEI mean	4	4	4	6	6	24
No. below Prof. mean	1	1	0	0	2	4
No. below Outc. mean	7	6	6	6	8	33
<hr/>						

**Table 6.10 Overview of 'Slipped' sub-group members :
Self-esteem, Proficiency and Outcome**

	Year 2 (1992)	Year 3 (1992)	Year 4 (1992)	Year 1 (1993)	Year 2 (1993)	Totals
N	51	45	48	47	45	236
<hr/>						
n(female)	10	9	12	6	8	45
No. below SEI mean	6	5	6	5	5	27
No. below Prof. mean	7	2	8	5	6	28
No. below Outc. mean	5	1	4	4	4	18
<hr/>						
n(male)	41	36	36	41	37	191
No. below SEI mean	12	12	18	19	14	75
No. below Prof. mean	21	21	20	21	14	97
No. below Outc. mean	18	19	21	16	13	87
<hr/>						

Table 6.11 Overview of 'non-slipped' sub-group members : Self-esteem, Proficiency and Outcome

Table 6.12 presents a comparison of the 'slipped' and 'non-slipped' sub-groups in terms of self-esteem, proficiency and outcome scores.

Female students n		No. below SEI mean	No. below Profic.mean	No. below Outco.mean
Slipped sub-group	27	15 (56%)	8 (30%)	18 (67%)
Non-slipped subgroup	45	27 (60%)	28 (62%)	18 (40%)
<hr/>				
Male students				
Slipped sub-group	44	24 (55%)	4 (9%)	33 (75%)
Non-slipped sub-group	191	75 (39%)	97 (51%)	87 (46%)

Table 6.12 Comparison of 'Slipped' and 'Non-slipped' sub-groups : Self-esteem, Proficiency and Outcome.

Table 6.12 provides evidence that the percentage of 'slipped' sub-group members scoring below the year group mean for their gender on self-esteem is not vastly dissimilar to that of the 'non-slipped' sub-group members. On the other hand, the percentage of 'slipped' sub-group members scoring below the year group mean on proficiency is considerably smaller than that for the 'non-slipped' sub-group, particularly where male students are concerned. In the case of learning outcomes, the converse is the case.

Tables 6.8 to 6.12 provide a possible but inconclusive indication that level of self-esteem and, according to the literature reviewed, level of confidence and the self-fulfilling prophecy, colour an individual's perceptions of the demands of the learning situation and perceptions of the strategies seen to be appropriate for engaging learning, which affects the quality of learning outcome.

Where self-esteem was low, a student's performance on the measure of learning outcome was likely to be less than it might otherwise have been, had the

individual's concept of self been more favourable. There were 71 'slipped' sub-group members in all, across the 5 year groups. Amongst these were 39 students, male and female, with self-esteem scores below the mean of their gender within their respective year group, 36 of whom also scored below the year group mean on the measure of learning outcome.

Of the 32 'slipped' sub-group members with above average levels of self-esteem, 17 scored above the year group mean on the measure of learning outcome and 15 scored below this level. Eight of those students scoring below the year group mean on learning outcome had learning orchestrations categorised as 'at risk' or undesirable.

Thus it appears that 51 'slipped' sub-group members scored below the mean for their year group on learning outcome with one or more of the following :

- A low level of proficiency in the language of instruction.
- An undesirable learning orchestration.
- A low level of self-esteem.

This does not account for those 20 students who scored above the year group mean on learning outcome and yet also appeared in the 'slipped' sub-groups. Whilst multiple-regression analysis, reported in Section 6.4 of this chapter, showed that between 55% and 75% of the variability in the learning outcome scores of individuals emanates from levels of proficiency in the language of instruction and levels of self-esteem, there appears to be an as yet unidentified factor, or factors, involved.

**6.3.2. The Scatterplots continued:
English proficiency and self-esteem scores**

A positive linear association between English proficiency and level of self-esteem is vaguely discernible in the scatterplots presented in Figures 6.6 to 6.10. This is particularly so in the cases of Year 3 (1992), Year 4 (1992) and Year 2 (1993). The correlation coefficients are :

Year 2 (1992)	0.29
Year 3 (1992)	0.46
Year 4 (1992)	0.48
Year 1 (1993)	0.23
Year 2 (1993)	0.48

In view of the modest association between English proficiency and self-esteem demonstrated by these values and by the data presented in Tables 6.8 to 6.12 (out of a total of 39 'slipped' sub-group members with self-esteem scores below the mean for their gender within the year group, only 12 had below average proficiency scores), as well as the fact that self-esteem is not one of the central constructs of the present study, the issue is not pursued further. It was, nevertheless, of value to follow this line of investigation to this point, in view of the foregoing inconclusive investigation of the 'slipped' sub-groups.

Year 2 (1992) Proficiency/Self-Esteem

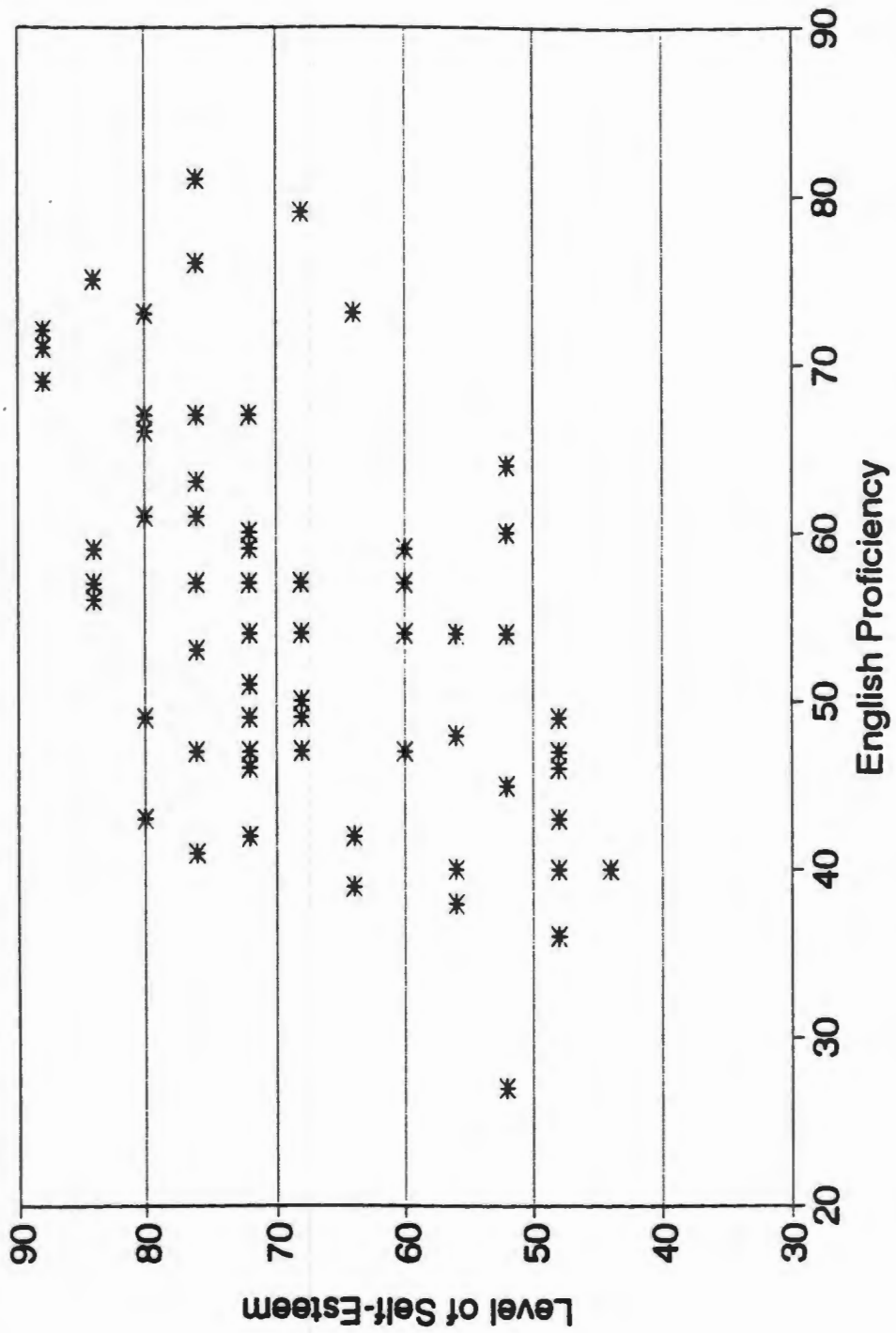


Figure 6.6

($r = 0.29$; $N = 66$)

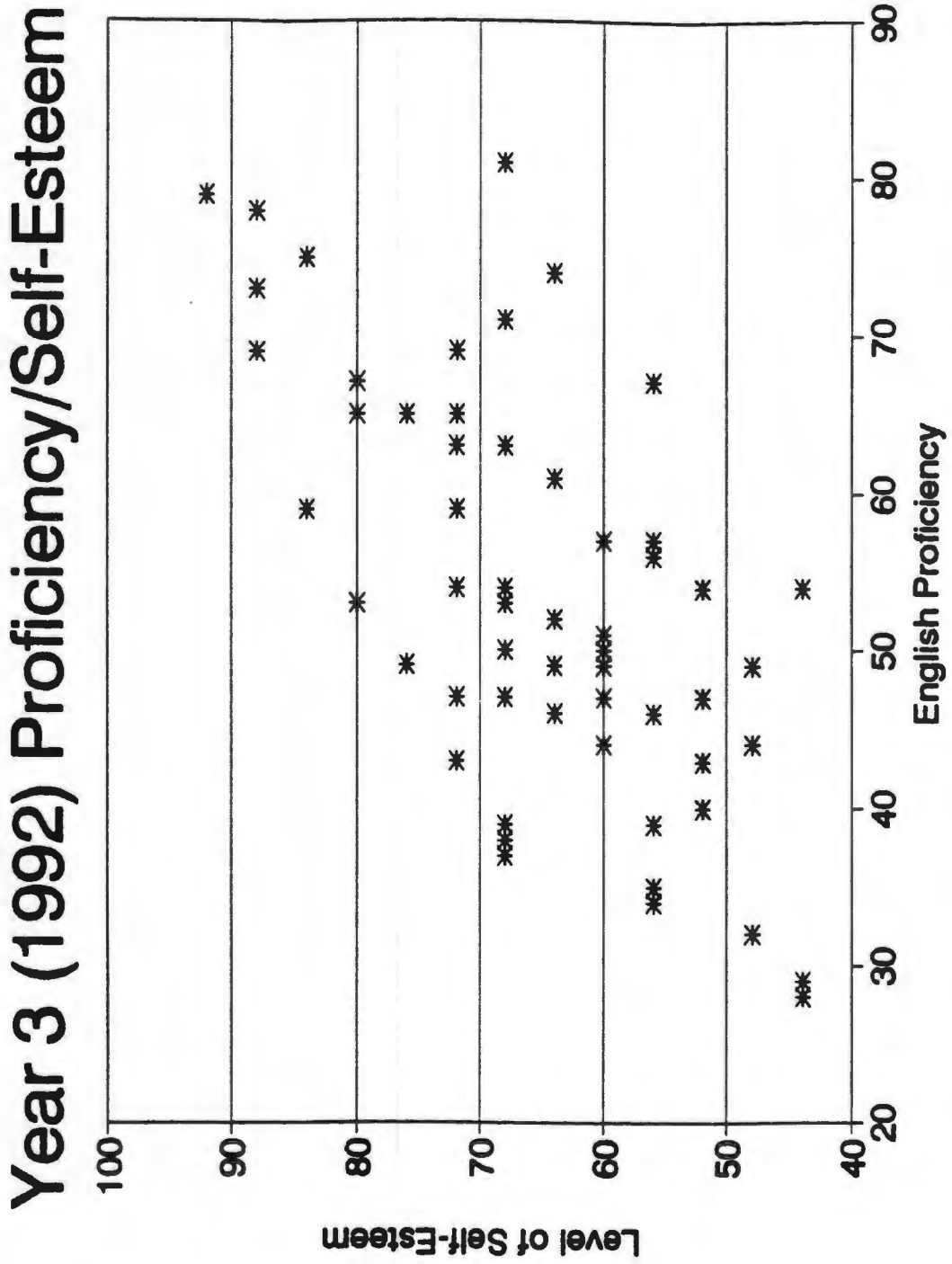


Figure 6.7

($r = 0.46$; $N = 58$)

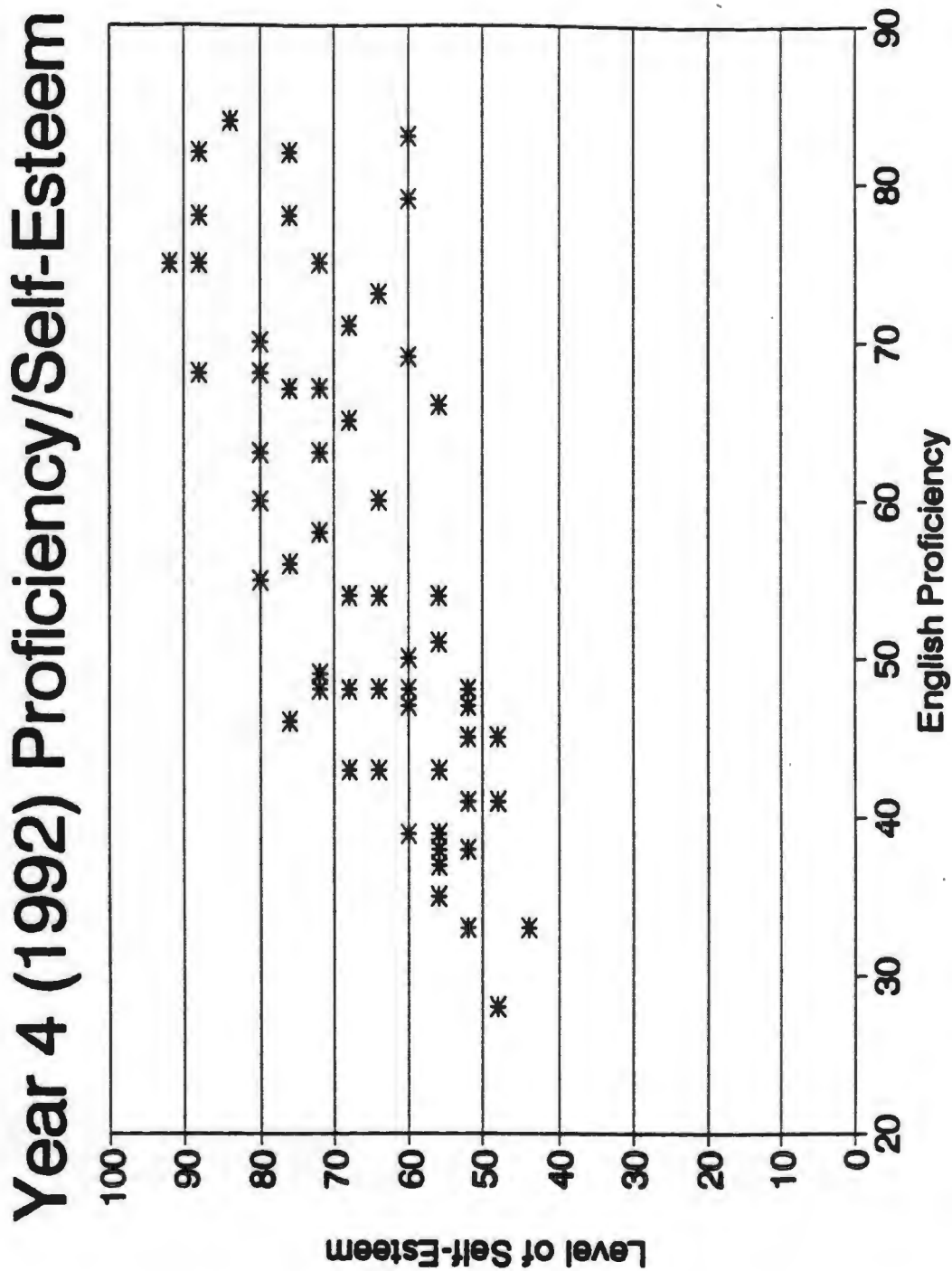


Figure 6.8

($r = 0.48$; $N = 61$)

Year 1 (1993) Proficiency/Self-Esteem

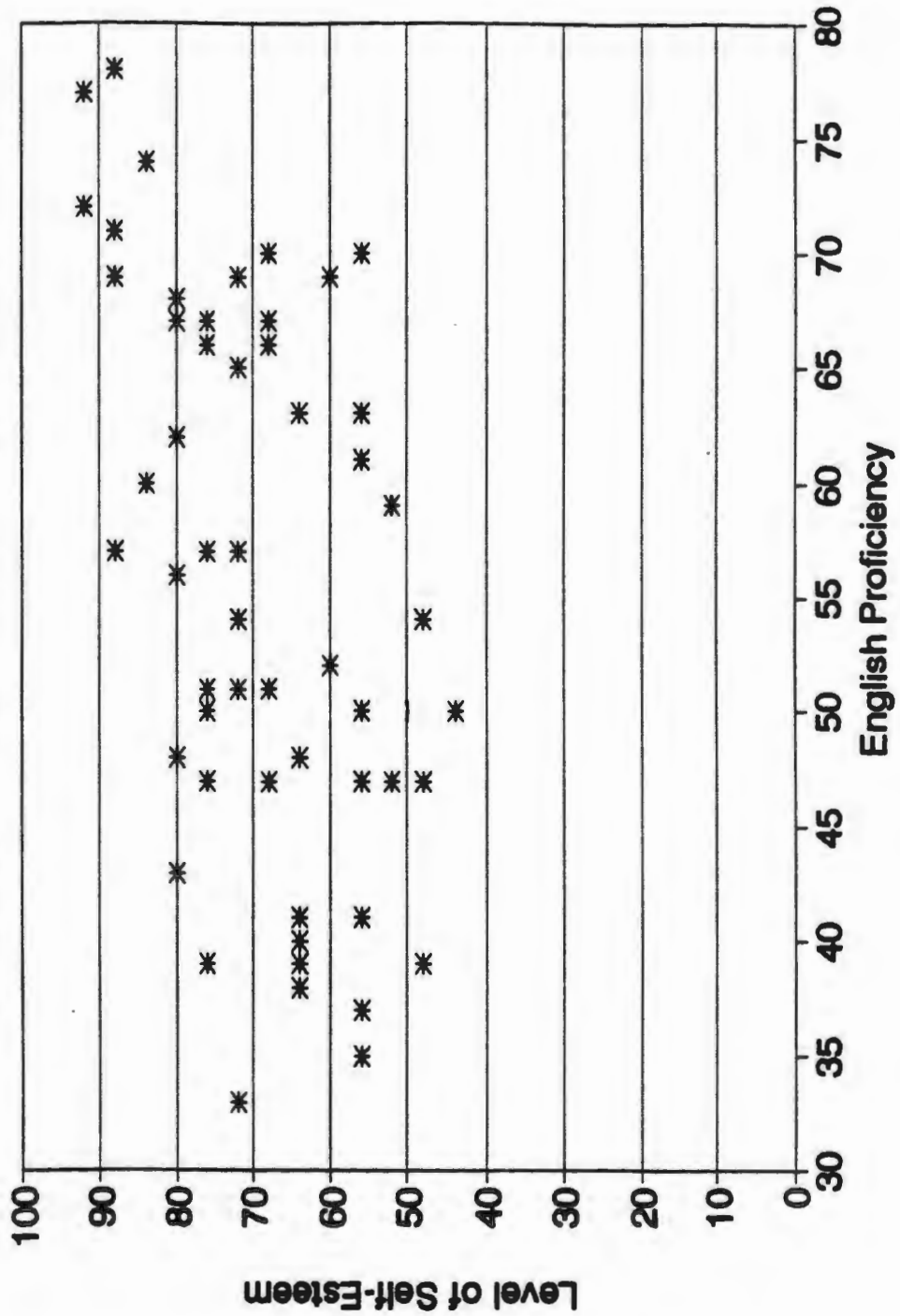


Figure 6.9

($r = 0.23$; $N = 61$)

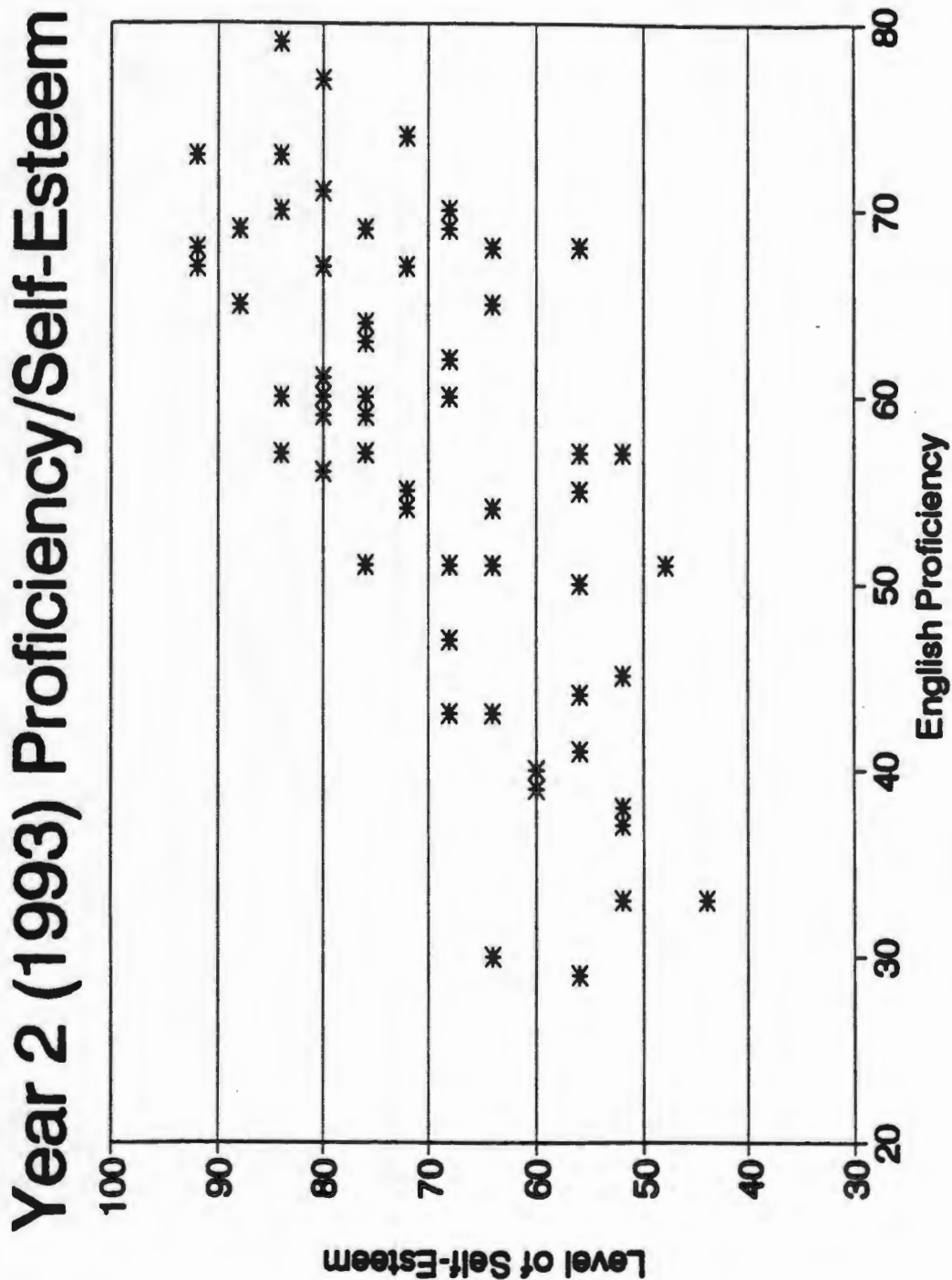


Figure 6.10

($r = 0.48$; $N = 61$)

6.3.3 Self-esteem and learning outcome scores

A more obvious positive linear association between level of self esteem and learning outcome is demonstrated in the scatterplots presented in Figures 6.11 to 6.15. The association is least discernible in the Year 2 (1992) scatterplot. The correlation coefficients are :

Year 2 (1992)	0.45
Year 3 (1992)	0.52
Year 4 (1992)	0.60
Year 1 (1993)	0.51
Year 2 (1993)	0.69

These values indicate a far less obscure association between self-esteem and learning outcome than that indicated between proficiency and self-esteem. The scatterplots and correlation coefficients provide evidence in support of the association between self-esteem and learning outcome reported in the literature (Shavelson, *et al.*, 1976). Of particular interest to the present study is the extent to which the Coopersmith Self-esteem Inventory scores and the learning outcome scores of students confirm this already established association.

6.4 MULTIPLE REGRESSION ANALYSIS

In an attempt to elucidate the main source, or sources, of variability in the learning outcome scores of individuals, multiple regression analysis of variance was carried out. This analysis incorporated, as explanatory factors, all the variables of interest to the present study, including gender, the study area of individuals (humanities or sciences), orchestration categorisations in both English and Chichewa where available, proficiency in English, level of self-esteem and student lecture-rating scores. Although there are likely to be extraneous factors which introduce a degree of the variability observed in outcome scores, it was considered that such an investigation would provide an indication of constructs that account for a substantial amount of the variance.

Year 2 (1992) Self-Esteem/Outcome

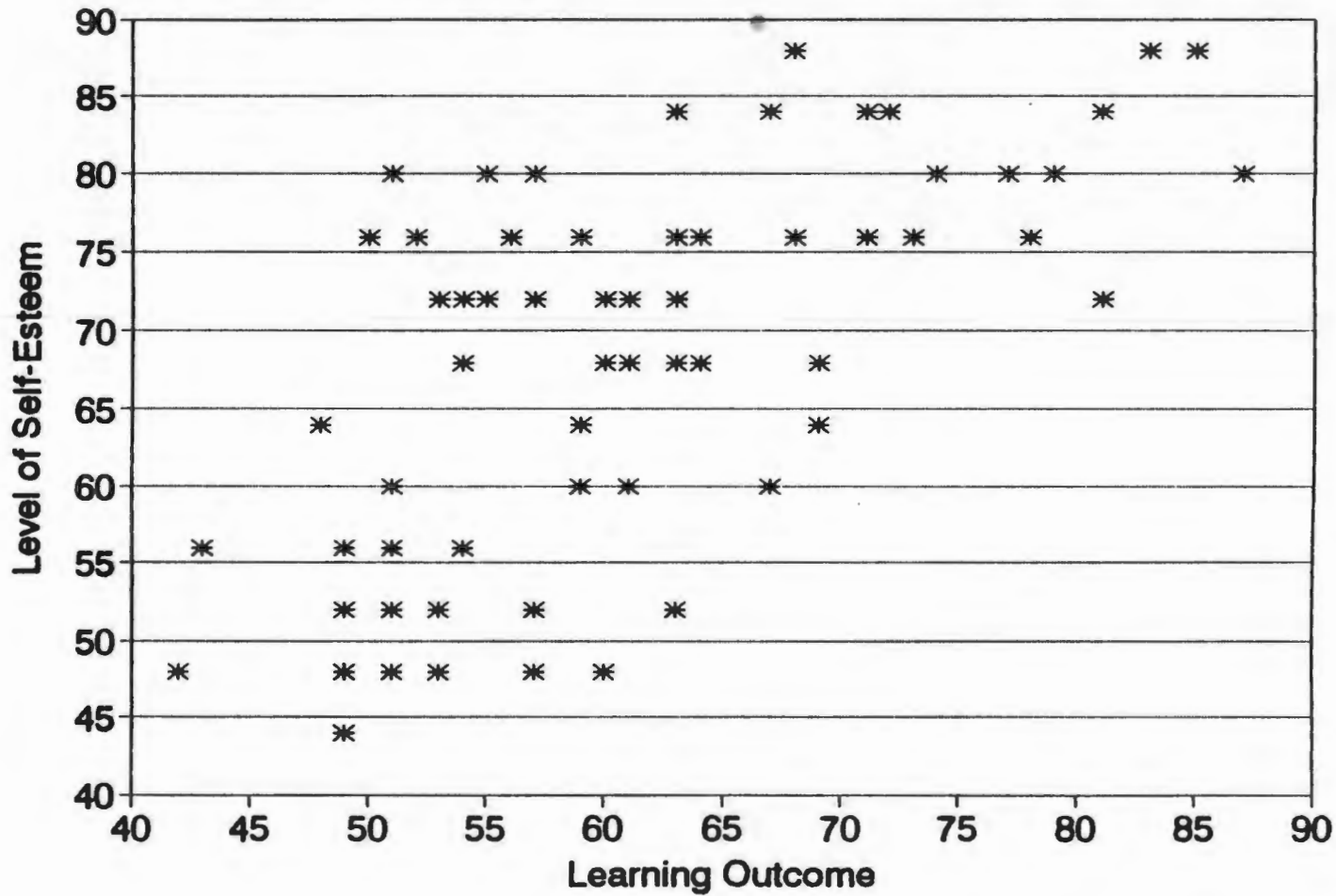


Figure 6.11

($r = 0.45$; $N = 66$)

Year 3 (1992) Self-Esteem/Outcome

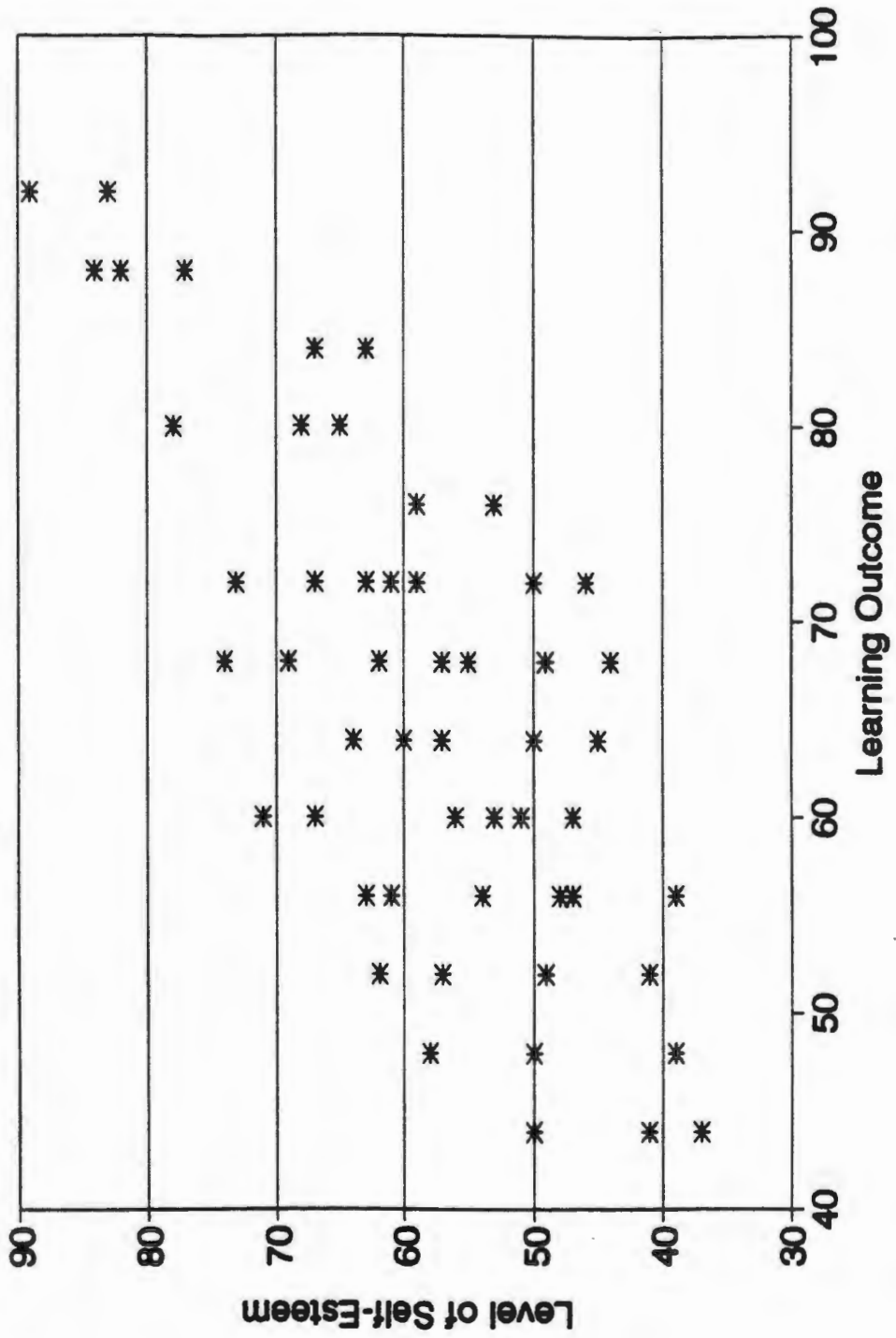


Figure 6.12

($r = 0.52$; $N = 58$)

Year 4 (1992) Self-Esteem/Outcome

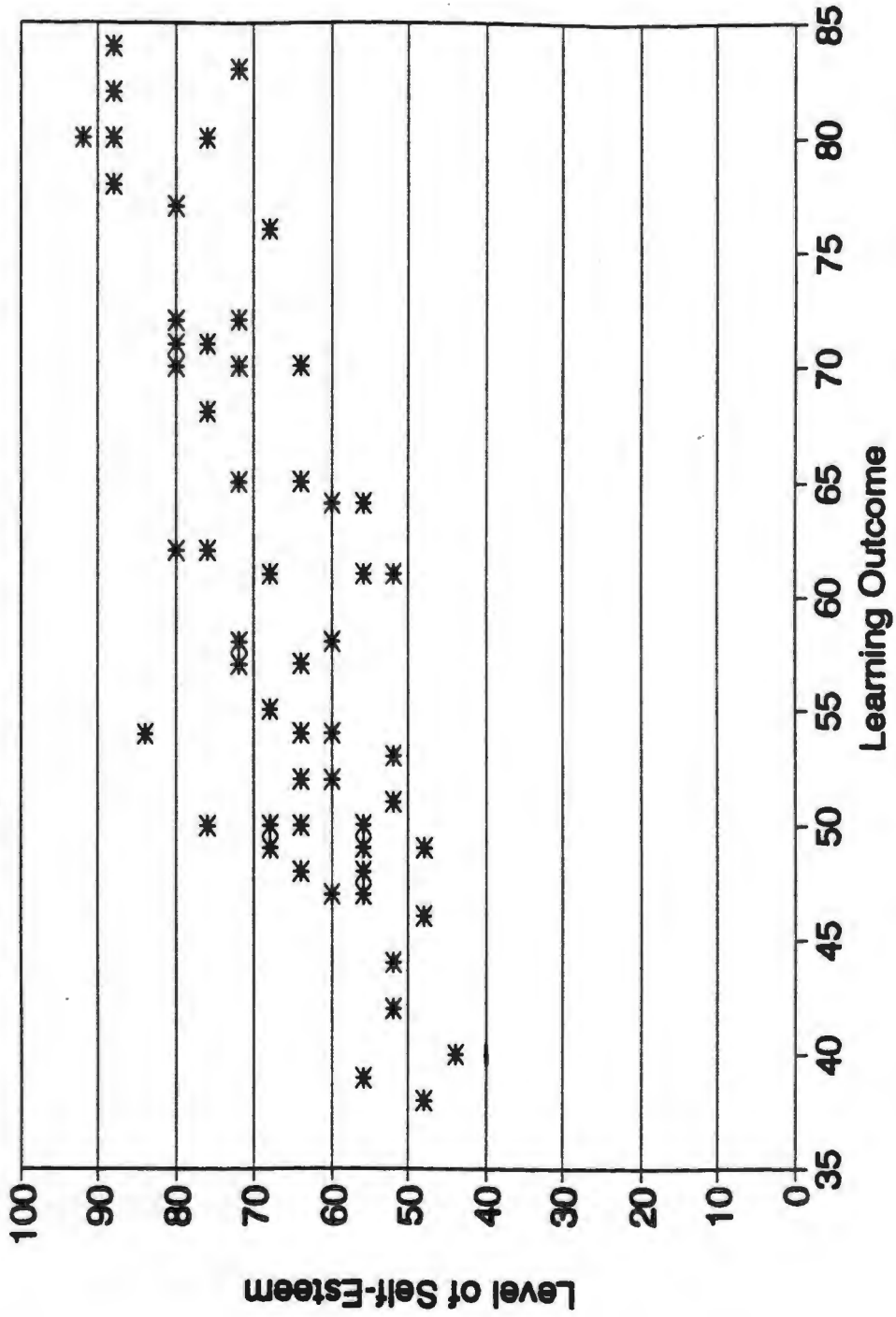


Figure 6.13

($r = 0.60$; $N = 61$)

Year 1 (1993) Self-Esteem/Outcome

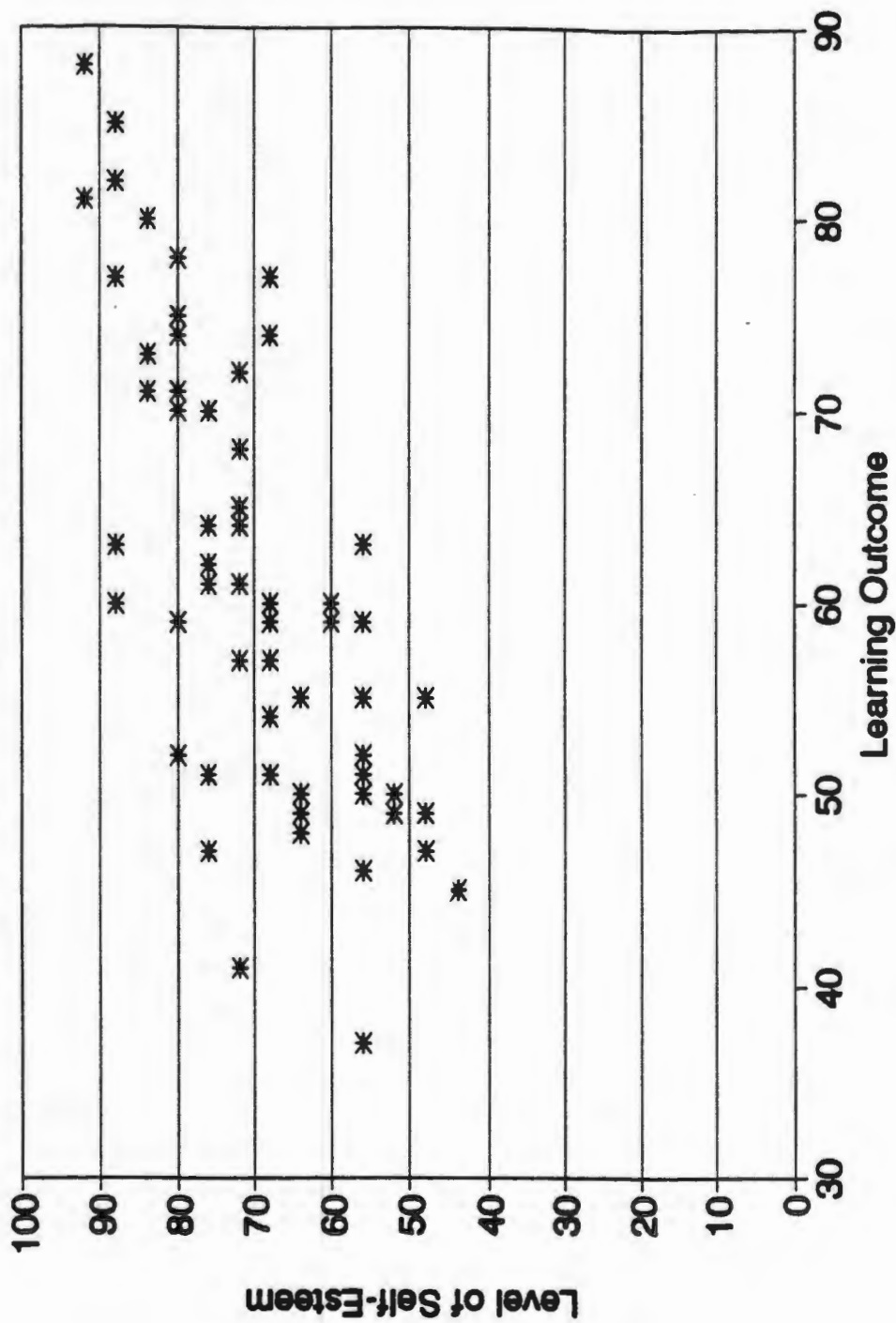


Figure 6.14

(r = 0.51 ; N = 61)

Year 2 (1993) Self-Esteem/Outcome

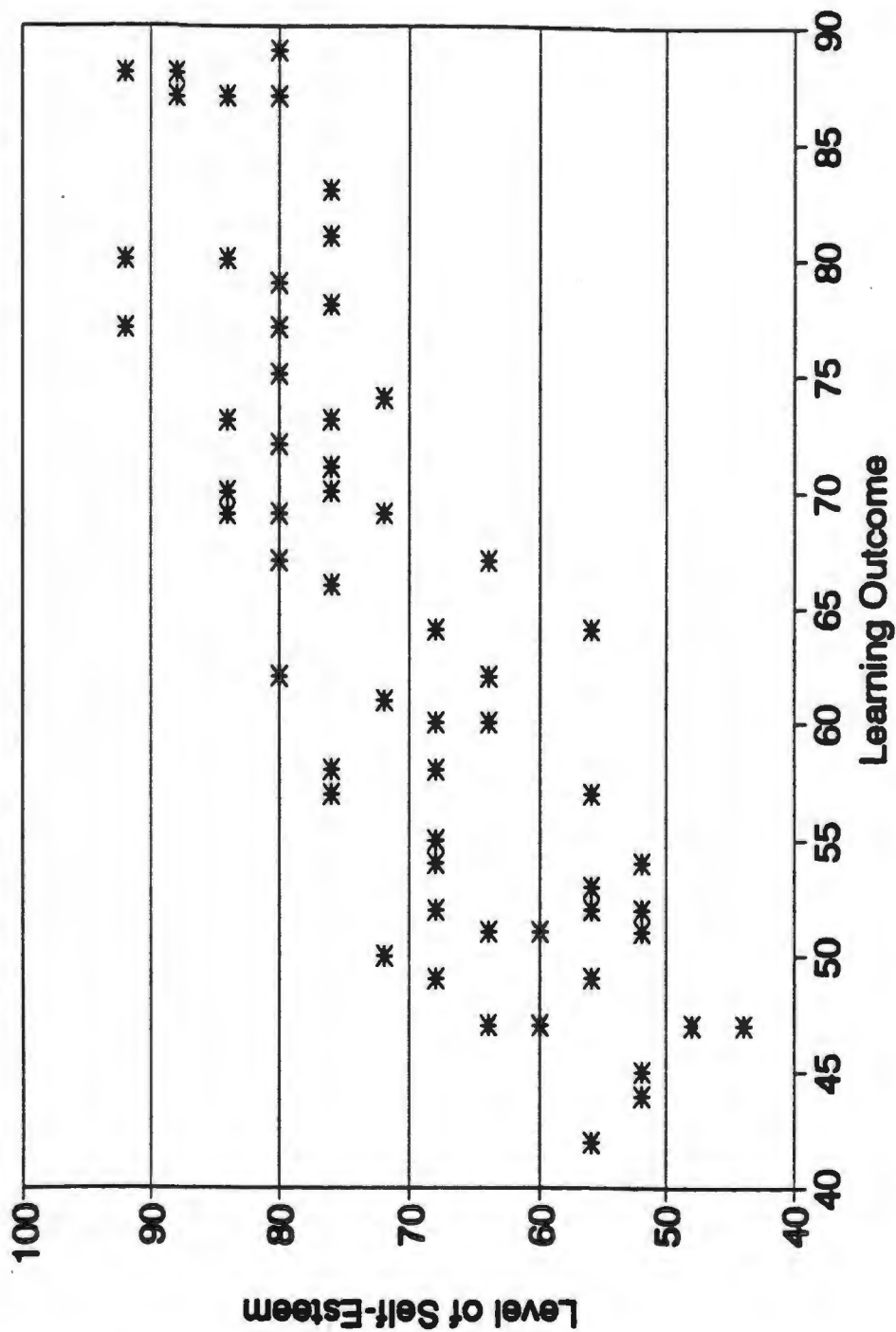


Figure 6.15

($r = 0.69$; $N = 61$)

Of the constructs of interest to the present study (as listed above) the multiple regression model indicated both level of self-esteem and either proficiency in English or the lecture-rating scores of individuals as accounting for between 55% and 75% of the variability. However, proficiency in English and lecture-rating scores are inextricably linked to one another, by virtue of the fact that the perceptions of individuals of the comprehensibility of lecturer input are likely to be very much coloured by the level of proficiency in the language of instruction. On this basis, English proficiency, rather than the rating of the comprehensibility of lectures by students, was considered a central construct in the present study and, as such, was considered to be accounting for the variability observed in conjunction with level of self-esteem.

The year-group correlation coefficients indicating the extent to which English proficiency and self-esteem account, in tandem, for the variability in learning outcome scores are as follows:

	<i>r</i> values	<i>r</i> ² (fraction of variation explained)
Year 2 (1992)	0.74	0.54
Year 3 (1992)	0.77	0.60
Year 4 (1992)	0.80	0.65
Year 1 (1993)	0.86	0.75
Year 2 (1993)	0.86	0.74

The only other variable of importance was gender. In two of the year groups (Year 4, 1992 and Year 1, 1993) it appeared to be the source of a downward adjustment of approximately 10% to the outcome scores of males. A possible explanation of the gender effect was that observed and discussed by the author at the outset of the present study. In support of this phenomenon, males had self-esteem scores which were consistently higher than those of females, as was previously pointed out.

The orchestration masks were meant to highlight a single precondition for academic success and whose absence was believed to be associated with almost certain failure. It is therefore possible that an alternative approach to using the inventory 'Experiences of Teaching and Learning', using a binary indicator (0,1) variable as an indicator of the presence of the 'at risk' condition

(0 = absence; 1 = presence of masks 1 to 12, inclusive) may, like gender, exhibit explanatory power, for the learning outcome variable. This view has been explored and appears to be generally demonstrable for all but one of the data sets. In Table 6.11, t-statistics are reported for the inclusion of the 'at risk' binary variable (masks 1 to 12) after proficiency and self-esteem.

Year Group	Difference	t-statistic	Degrees of freedom	Significance level (one tail)
Year 2 1992	-6.11	-2.38	62	< .025
Year 3 1992	-9.43	-4.32	54	< .005
Year 4 1992	-8.12	-3.14	57	< .005
Year 1 1993	-1.72	-0.77 not significant	57	> .10
Year 2 1993	-7.28	-2.63	57	< .01

Table 6.13 t-statistics for the inclusion of the 'at risk' binary variable after proficiency and self-esteem

The only difference between 'at risk' and 'not at risk' sub-groups, in terms of learning outcome, that is not statistically significant, as indicated by Table 6.11, is that pertaining to the Year 1 (1993) group of students.

6.5 SUPPLEMENTARY INVESTIGATION

The supplementary investigation involved undergraduate Education students studying Geography as a specialisation. Two balanced groups of students from each of the second, third and fourth year cohorts made a total of 54 such students, identified as follows:

Second year students	Group 2a (n=11)	Group 2b (n=11)
Third year students	Group 3a (n=7)	Group 3b (n=7)

Fourth year students Group 4a (n=9) Group 4b (n=9)

The groups A and B were constructed by random allocation of individuals within subgroups of each year of study defined on the basis of similarity in ability, gender and general subject choices. It was not possible to reduce these subgroups to precise pairwise matchings, because of the small numbers of geography students available. Such a design would have given optimal precision for comparisons of groups A vs B, but the described non-optimal procedure does permit the usual assumption of balance for the matched group factors.

A single instruction lecturer, fluent in both languages, with an established reputation as a facilitator of learning, agreed to make every attempt to keep significant aspects of the teaching environment and teaching effectiveness constant, within separate language presentations of each of two topics in the syllabus of each year group. These aspects included time of day, classroom and teaching aids used, teaching style, and level of lecturer enthusiasm, *inter alia*.

For each year group two topics within a common element of the syllabus were selected on the basis of being of apparently similar complexity.

Second year students were presented with the topic 'Factors that influence natural vegetation' over two one hour lectures and were subsequently tested for understanding - Group 2a were taught and tested in English, the language of instruction, and Group 2b in the mother-tongue, Chichewa.

Upon presentation of a second topic, 'Shifting cultivation', again taught over two lectures, the language of presentation and assessment was switched, with Group 2a taught and tested in Chichewa and Group 2b in English. The ordering of groups a. and b. was randomly assigned to the pairs of balanced groups.

This procedure was replicated with the third and fourth year groups, but with topics selected from their own syllabuses. Results are recorded in Tables 6.14 to 6.16.

Year 2**First Topic****Group 2a (English)**

Student	Score
1.	80
2.	70
3.	88
4.	66
5.	86
6.	76
7.	72
8.	72
9.	68
10.	72
11.	84

$\bar{X} = 75.82$
 $SD = 7.56$

Group 2b (Chichewa)

Student	Score
1.	74
2.	70
3.	88
4.	78
5.	70
6.	84
7.	82
8.	93
9.	82
10.	68
11.	82

$\bar{X} = 79.18$
 $SD = 7.98$

Second Topic**Group 2a (Chichewa)**

Student	Score
1.	90
2.	76
3.	88
4.	78
5.	90
6.	61
7.	75
8.	88
9.	88
10.	82
11.	85

$\bar{X} = 81.91$
 $SD = 8.87$

Group 2b (English)

Student	Score
1.	65
2.	62
3.	75
4.	76
5.	72
6.	95
7.	70
8.	72
9.	75
10.	71
11.	55

$\bar{X} = 71.64$
 $SD = 10.02$

Table 6.14 Balanced groups from Year 2
Language of Instruction versus Mother-tongue.

Year 3**First Topic****Group 3a (English)**

Student	Score
1.	66
2.	88
3.	62
4.	70
5.	64
6.	70
7.	82

$$\bar{X} = 71.71$$

$$SD = 9.69$$

Group 3b (Chichewa)

Student	Score
1.	80
2.	72
3.	78
4.	82
5.	86
6.	84
7.	72

$$\bar{X} = 79.14$$

$$SD = 5.52$$

Second Topic**Group 3a (Chichewa)**

Student	Score
1.	71
2.	81
3.	68
4.	63
5.	72
6.	62
7.	71

$$\bar{X} = 69.71$$

$$SD = 6.37$$

Group 3b (English)

Student	Score
1.	71
2.	60
3.	58
4.	70
5.	61
6.	71
7.	60

$$\bar{X} = 64.43$$

$$SD = 5.91$$

Table 6.15 Balanced groups from Year 3
Language of Instruction versus Mother-tongue.

Year 4**First Topic****Group 4a (English)****Group 4b (Chichewa)**

Student	Score	Student	Score
1.	78	1.	87
2.	51	2.	67
3.	69	3.	78
4.	84	4.	73
5.	64	5.	95
6.	89	6.	64
7.	73	7.	93
8.	80	8.	75
9.	71	9.	72

$$\bar{X} = 73.22$$

$$SD = 11.38$$

$$\bar{X} = 78.22$$

$$SD = 11.08$$

Second Topic**Group 4a (Chichewa)****Group 4b (English)**

Student	Score	Student	Score
1.	70	1.	79
2.	58	2.	60
3.	75	3.	69
4.	80	4.	75
5.	71	5.	90
6.	83	6.	52
7.	80	7.	80
8.	90	8.	67
9.	81	9.	62

$$\bar{X} = 76.44$$

$$SD = 9.26$$

$$\bar{X} = 70.44$$

$$SD = 11.74$$

Table 6.16 Balanced groups from Year 4
Language of Instruction versus Mother-tongue.

Consequently it appears reasonable to ascribe consistent observed differences in test performance to the language of instruction. This inference is more plausible from a corresponding argument for an interaction between language and topic that might result in some syllabus material being easier for students to comprehend in one of the languages, and other material in the second language.

Tables 6.14 to 6.16 show that the mean scores on a measure of understanding of each of the two balanced groups, in the second, third and fourth years of study, were higher after studying in Chichewa, the mother-tongue, than was the case when studying in English. This phenomenon does not universally apply on a student by student basis, but, overall, understanding of the concepts taught appears to have been better when learning in the first language.

The simple observed pattern of consistently higher Chichewa scores within 6 groups is significant at better than the 5% level ($p < 1/32$). This test is minimal in that it ignores the further evidence of language differences that is available in the observed differences between the means of the 6 topic comparisons. There is no simple way to combine the overall statistical evidence in the means and standard deviations to assess more fully the significance of these differences, but the minimalist argument above exhibits the claimed effect of language of instruction.

Although groups were balanced on ability, gender and other subject choices, and aspects of the teaching/learning situation were kept constant, factors such as student receptiveness on the day the teaching was done, and to the topic taught, are likely to have introduced variability in the overall pattern. Nevertheless, 41 students, out of a total of 54, demonstrated a higher level of understanding in the measure of learning outcome, after being taught and tested in Chichewa. The consistency of the pattern and the size of the differences leads to an expectation that similar studies of balanced groups will confirm superior first language performance, possibly as a result of superior proficiency in that language.

6.5.1 Summary

These consistent results over three years of study provide a substantial indication that the level of comprehension of spoken and written material presented in lectures is higher when the mother-tongue, Chichewa, is the language of instruction. When learning in Chichewa, most students in the present study were better able to demonstrate understanding in a measure of learning outcome than was the case when learning in English.

6.6 REVIEW

Exploration of the quantitative data revealed differences between categorisations of orchestration after administration of the English and Chichewa versions of the inventory 'Experiences of Teaching and Learning'. This appears to provide evidence of differences in understanding between the language of instruction and the mother-tongue.

The fact that orchestrations improve slightly over the years, as proficiency in English improves, despite the possibility that perceptions of an excessive workload, assessment procedures and fear of failure, *inter alia* may be having the opposite effect, provides an additional indication that proficiency and orchestration are related. As reported in the literature review, Kember and Gow (1990) in Hong Kong, and Watkins and Regmi (1990) in Nepal, found that as learners experience heavier workloads, didactic teaching styles and assessment demands that are perceived by them to signal that reproduction of course content will be the measure of their competence, so they adopt reproductive learning strategies.

The scatterplots provide consistent evidence that 'at risk' orchestrations to learning tend to occur in tandem with reduced levels of proficiency in the language of instruction. The learning orchestrations of random samples of 'not at risk' students from each year group are accompanied by above average levels of proficiency in the language of instruction in all but one case. Differences in performance levels of 'at risk' and 'not at risk' sub-groups on proficiency and

outcome were shown to be statistically significant in all but one year group on proficiency alone.

Of the constructs of interest to the present study, the multiple regression model indicated both level of self-esteem and proficiency in English as accounting for between 55% and 75% of the variability in learning outcome scores. In view of the already established association between orchestration and learning outcome reported in the literature (Meyer, *et al.*, 1990), proficiency and orchestration appear to have an underlying relationship.

The consistent results of the supplementary investigation in each year of study provide a substantial indication that the level of comprehension of spoken discourse and written texts presented in lectures is higher when the mother-tongue is the language of instruction. Such a phenomenon might be a further indication of a relationship between proficiency in the language of instruction and the quality of learning orchestration.

CHAPTER 7

ANALYSIS OF QUALITATIVE DATA

In this chapter, the responses of all interviewees are presented under categories of description and discussed. Subsequently, the collective responses of a number of individuals whose learning orchestrations range from 'at risk' to those that are normally associated with success in learning outcomes, are focused upon. Following this development, responses concerning the lack of student questioning and contribution to lectures are presented and discussed.

Finally, a number of individuals become the centre of attention, taking into account all of the constructs that are of interest to the present study.

7.1 INTERVIEW RESPONSES

Upon inspection, the interview responses of students appear to supplement the findings of the orchestration categorisation procedure, reported in Chapter 6. Students whose learning orchestrations were categorised as 'at risk' or undesirable appear to have quantitative conceptions of learning and of knowledge, and describe their own activity in lectures as the passive taking of notes. Many individuals describe themselves as disorganised and reproductive learners and prefer a very structured course with precise instructions for assignments and other tasks. The workload is seen as excessive by an overwhelming majority of students in general, many of whom are concerned about examinations, prefer questions requiring recall of course content and rely substantially on memorisation to pass examinations.

A range of typical interview responses, giving rise to these conclusions, is recorded below under phenomenographically derived categories and sub-categories of description, which indicate significant differences in the ways in which individuals conceptualise or perceive aspects of their learning situation.

Phenomenographic research methodology investigates the qualitatively different ways in which people experience, conceptualise, perceive or think about phenomena and the relations that exist between them and the phenomena. The phenomenographer attempts to provide relational, experiential, content-oriented and qualitative descriptions of aspects of the environment as conceptualised by individuals (Marton, 1986a). The categories of description are drawn from the responses of individuals about the phenomena of interest; there is no attempt to 'fit' the data into predetermined categories.

"The categories are based on the most distinctive features that differentiate one conception from another ... (and) are presented in the form of a hierarchy of conceptions, reflecting increasing levels of understanding and displaying the relation between the conceptions." (Dall'Alba, Walsh, Bowden, *et al.*, 1989)

All the responses, gathered as part of the present study, were tape-recorded verbatim and were then written out in full by the author. Speech hesitations, such as 'um' and 'er', and some convoluted expressions were edited out, to provide clarity for the reader. Spelling errors, which might have appeared had interviewees written their responses, naturally do not appear in the responses as recorded here. As a result, respondents appear a little more proficient in English than is actually the case. On the other hand, it is important not to lose sight of the fact that, in interviews, respondents were speaking of their personal experiences, using expressions with which they were familiar. A low level of proficiency is not as obvious in this context, as in learning situations of an academic nature.

In response to the criticism of Fleming (1986) that using categories of description, on the basis of the interpretations of the interviewer, imposes unacceptable assumptions on the data, the author attempted to select categories that appeared to represent the most obvious common denominators of groups of responses. In addition, categories of description were judged, in terms of their appropriateness, by an independent observer.

In addition to what follows, responses are recorded in Appendix I and separated into those of students 'at risk' and those of students 'not at risk', in order to demonstrate the contrast, between these two sub-groups, of perceptions of the context and content of learning.

7.1.1 Conceptions of Learning, Knowledge and Understanding

At the outset, responses of all interviewees are grouped in terms of the conceptions they have of learning, knowledge and understanding. It appears that they see them as closely related to one or more of the following, which provides evidence in support of Säljö's (1979) findings, reported in Section 2.2.1 of Chapter 2. In addition, it will be seen, when the collective responses of individual interviewees are presented, these different conceptions lead to the

adoption of strikingly different study processes, which provides evidence in support of van Rossum and Schenk's (1984) study.

The accumulation of facts
 Something that happens to one, rather than something one does
 The reproduction of content material
 A change in behaviour
 A change in cognition
 A change in perception
 Being able to relate ideas
 Being able to apply ideas

Following each response, in parentheses, is the student's number, year group and orchestration categorisation.

The accumulation of facts.

Learning

Learning is adding new facts to already existing facts in the mind. (Student No. 34; Year 3, 1992; 12.1)

Learning is an exercise of taking in new information from somebody else; I understand it by using a little bit of memory. (Student No. 41; Year 4, 1992; 7.4)

Learning is collecting all the facts that the lecturer gives us to remember. (Student No. 54; Year 3, 1992; 2.3)

Learning means adding new knowledge to what you already know. (Student No: 35; Year 2, 1992; 1.6)

Knowledge

I perceive knowledge as an accumulation of facts which help to improve someone. (Student No. 22; Year 4, 1992; 1.1)

Knowledge refers to a bundle of facts related to a specific discipline. (Student No. 40; Year 3, 1992; 11.5)

Knowledge is a set of facts thought to be very important by authorities above the learner. (Student No. 39; Year 2, 1992; 2.8)

Knowledge is all the stuff that you have learnt since you started. (Student No. 54; Year 3, 1992; 2.3)

I think of knowledge as big chunks of things about a subject; not simple things. (Student No. 46; Year 4, 1992; 5.8)

Knowledge is the sum total of the person's experiences. (Student No. 52; Year 4, 1992; 13.7)

Knowledge is the mass of ideas which someone possesses in his mind and can be passed to someone. (Student No. 35; Year 2, 1992; 1.6)

Knowledge is something you remember. (Student No. 18; Year 3, 1992; 16.3)

Knowledge is bits of information acquired through learning. (Student No. 15; Year 4, 1992; 10.2)

Knowledge is a band of facts pertaining to a certain area of study. (Student No. 38; Year 4, 1992; 6.4)

Knowledge is what you will be able to keep; people who remember more have more knowledge. (Student No. 33; Year 4, 1992; 17.8)

Knowledge is all the facts that you can use in an exam; if you can answer a question you have the knowledge. (Student No. 41; Year 4, 1992; 7.4)

Understanding

Understanding means that I have grasped a substantial amount of facts which I remember. (Student No. 52; Year 4, 1992; 13.7)

Understanding means that I have grasped an amount of facts, which can be kept for a long period. (Student No. 27; Year 2, 1992; 8.1)

(Orchestration categorisations range from 1.1 at worst to 17.8 at best)

Something that happens to one, rather than something one does.**Learning**

Learning is being in a class where someone is teaching. (Student No. 58; Year 2, 1992; 9.6)

Learning is the punching into the pupil already existing ideas. (Student No. 9; Year 3, 1992; 12.4)

Learning is a process through which someone is fed with knowledge. (Student No. 39; Year 2, 1992; 2.8)

Knowledge

Knowledge is what we are given by the lecturer. (Student No. 2; Year 2, 1992; 5.3)

(Orchestration categorisations range from 2.8 to 12.4)

The reproduction of content material.**Learning**

Learning is acquiring skills to be reproduced later. (Student No. 58; Year 2, 1992; 9.6)

Learning is acquiring new facts for immediate and future use and to be able to reproduce them when required. (Student No. 40; Year 3, 1992; 11.5)

Learning is the development of a body of facts for use later and can be done through the memory; you remember how it is done. (Student No. 9; Year 3, 1992; 12.4)

Understanding

Understanding means that I can conceptualise the topic in question and can reproduce it. (Student No. 40; Year 3, 1992; 11.5)

(Orchestration categorisations range from 9.6 to 12.4)

A change in behaviour.**Learning**

Learning is a permanent change in behaviour, attitudes and values due to experiences. (Student No. 56; Year 3, 1992; 14.8)

Learning is a relatively lasting change in behaviour at the cognitive level. (Student No. 43; Year 3, 1992; 19.13)

Learning is a system whereby we internalise skills which lead to a change in behaviour. (Student No. 38; Year 4, 1992; 6.4)

Knowledge

When I have more knowledge I will be able to do things differently, more skillfully. (Student No. 32; Year 2, 1992; 16.6)

(Orchestration categorisations range from 6.4 to 19.13)

A change in cognition.**Learning**

If a person learns something he changes his cognition of that thing. (Student No. 32; Year 3, 1992; 0.9)

Learning is the process of cognitive understanding of new material. (Student No. 43; Year 4, 1992; 0.18)

Knowledge

Knowledge is all the ideas and experiences that exist in the cognitive structure of the individual. (Student No. 4; Year 4, 1992; 0.19)

Understanding

Understanding means that the new information has been grabbed with concern right in the cognitive. (Student No. 17; Year 3, 1992; 18.5)

(Orchestration categorisations range from 18.5 to 0.19, none of which is 'at risk'.)

A change in perception.**Learning**

Learning is making sense of a concept which remains with me and changes my perception of the world. (Student No. 33; Year 4, 1992; 17.11)

Learning is the acquisition of knowledge and skills which normally lead an individual to have a wider perception of the world. (Student No. 34; Year 2, 1993; 18.13)

Learning is developing knowledge and skills that will enable you to face a new situation differently. (Student No. 30; Year 3, 1992; 18.8)

When I learn I begin to see how and why things are the way they are. (Student No. 36; Year 2, 1993; 0.15)

Knowledge

Knowledge is what you can now see after a new experience. (Student No. 43; Year 4, 1992; 0.18)

Knowledge is an idea that can be expressed in a way that makes sense to other people. (Student No. 34; Year 2, 1993; 18.13)

Understanding

If I understand I can see the logic and reasoning and can express it in my own words. (Student No. 56; Year 3, 1992; 14.18)

Understanding is the ability to see somebody's different stand-point. (Student No. 4; Year 4, 1992; 0.19)

Understanding means that I have made good sense out of what was said. (Student No. 34; Year 2, 1993; 18.13)

When I understand I recognise the meaning of something. (Student No. 43; Year 4, 1992; 0.18)

Understanding is perceiving something correctly. (Student No. 33; Year 4, 1992; 17.8)

(Orchestration categorisations range from 17.8 to 0.19, none of which is 'at risk'.)

Being able to relate ideas.**Learning**

Learning is incorporating new ideas into what you already know. (Student No. 52; Year 4, 1992; 13.7)

Knowledge

New knowledge is something that is useful when you can add it to your previous knowledge. (Student No. 32; Year 1, 1993; 15.16)

Understanding

I understand when I can relate the new idea to an existing one. (Student No. 10; Year 4, 1992; 18.15)

When I understand I can relate what I am taught to what I already know. (Student No. 36; Year 2, 1993; 0.15)

(Orchestration categorisations range from 13.7 to 0.15, none of which is 'at risk'.)

Being able to apply ideas.**Learning**

Learning is getting to know how to apply things in real life. (Student No. 49; Year 4, 1992; 19.18)

Learning is when you understand something and can apply it in real situations. (Student No. 10; Year 4, 1992; 18.15)

I would describe learning as a relatively lasting change in behaviour and attitudes which results from experience and which is later used in making adjustments to the environment. (Student No. 4; Year 4, 1992; 0.19)

Learning is when a concept is processed in the mind and we select meaningful things for use in the future. (Student No. 66; Year 2, 1992; 15.15)

Some subjects require recall; others require analysis and application. (Student No. 7; Year 4, 1992; 17.15)

Just as Meyer, *et al.* (1990) maintain, the sciences require more of an emphasis on detail and procedure and that a response to this requirement should not necessarily be thought of as an undesirable orchestration

Knowledge

Knowledge enables one to reason, think, remember logically and evaluate situations. (Student No. 10; Year 4, 1992; 18.15)

Knowledge refers to the possession of sensible ideas about a certain concept that are well organised and can be used to explain the phenomenon. (Student No. 49; Year 4, 1992; 19.18)

Knowledge is what you need in your day to day encounter with the physical and social environment. (Student No. 36; Year 2, 1993; 0.15)

Understanding

Understanding is when I comprehend and am happy with the new concept because I can put it into practice. (Student No. 49; Year 4, 1992; 19.18)

(Orchestration categorisations range from 15.15 to 0.19, none of which is 'at risk'.)

7.1.1.1 Summary

In summary, the responses so far recorded appear to indicate that conceptions of learning, knowledge and understanding of those students with orchestrations categorised as 'at risk' or undesirable tend to be quantitative in nature. While those with orchestrations categorised as 'not at risk' and normally associated with success in learning outcomes have conceptions which are markedly more qualitative. As research to date has indicated (van Rossum and Schenk, 1984; Marton, 1988; Meyer and Muller, 1990a), students who differ in their conceptions of learning also differ in the study processes they adopt.

7.1.2 Perceptions of the Demands of the Learning Situation

What follows are the responses of students relating to their perceptions of the demands of the learning situation. There are those who experience difficulty with the content material, the pace of presentation or the language of instruction. There are those who perceive the workload to be excessive and who express a deep concern for examinations, because of the fear of failure, as indicated by the responses recorded under the following categories of description:

7.1.2.1 Perceptions of the demands of learning

Learners who perceive the content to be too abstract
 Learners who perceive the pace to be too rapid
 Learners who experience difficulty with English
 Perceptions of an excessive workload
 Perceptions of the demands of examinations
 Fear of failure

7.1.2.2 Strategies and preferences adopted as a consequence of perceptions of the demands of learning

Learners who perceive a need to write down everything the lecturer says
 Learners who perceive memorisation to be an appropriate strategy
 Learners who prefer questions requiring recall of course content
 Learners who prefer a very structured course and precise instructions for assignments
 Evidence that the mother-tongue is used to explain
 A perception that difficult content is not worth tackling

7.1.2.3 Strategies and preferences of students with more positive perceptions of the demands of learning

'Main point' seekers
 Learners who strive to construct meaning
 Learners who read around the subject

- A preference for choice in learning
- A preference for problem-solving questions
- A more positive attitude towards exams

7.1.2.4 Other influences

- Learners who adopt a strategic approach
- Learners who perceive knowledge as that which is 'passed down from the wise'

All responses recorded are accompanied by the respective student number, year group and orchestration categorisation.

7.1.2.1 Perceptions of the demands of learning

Learners who perceive the content to be too abstract.

The workload is too much and too theoretical. (Student No. 40; Year 3, 1992; 11.5)

The content is too abstract, therefore they don't ask questions. (Student No. 46; Year 1, 1992; 12.8)

Most of the subjects are not practical they are theoretical. (Student No. 56; Year 3, 1992; 14.8)

The content is too abstract. (Student No. 13; Year 2, 1992; 19.19)

They have a problem with the language and the content is too abstract. (Student No. 56; Year 2, 1992; 0.16)

(Orchestration categorisations range from 11.5 to 19.19)

Learners who perceive the pace to be too rapid.

It is because too much is exposed to students within a few minutes. (Student No. 1; Year 4, 1992; 19.8)

The time is too limited to grasp the information. (Student No. 15; Year 3, 1992; 18.8)

The lecture method is too fast for thinking. (Student No. 22; Year 2, 1992; 19.6)

There is no time to concentrate on the information. (Student No. 7; Year 3, 1992; 3.2)

Some lecturers speak too fast, so students don't understand. (Student No. 55; Year 2, 1992; 17.9)

We are covering too much material in a short time. (Student No. 27; Year 2, 1992; 8.1)

I never have time to consolidate what I learn. (Student No. 33; Year 4, 1992; 17.11)

(Orchestration categorisations range from 3.2 to 19.8)

Learners who experience difficulty with English.**Those unable to understand**

Because they don't fully understand what is being taught and because they don't want to be laughed at. (Student No. 51; Year 4, 1992; 0.15)

They do not fully understand so there is no basis to ask. (Student No. 16; Year 4, 1992; 0.15)

It may mean that they've understood everything or have got nothing. (Student No. 3; Year 4, 1992; 19.1)

I personally feel it is because the material given to the students is incomprehensible to some. (Student No. 30; Year 4, 1992; 0.8)

Either they've understood or they haven't heard anything. (Student No. 23; Year 2, 1992; 15.3)

Whatever the lecturer teaches is not clear so they cannot ask a question on what they have not understood. (Student No. 15; Year 2, 1992; 10.9)

- Because they do not understand. (Student No. 23; Year 4, 1992; 19.19)
- Because they can't understand what's going on. (Student No. 38; Year 2, 1992; 15.6)
- It is because of misunderstanding of the lecture. (Student No. 15; Year 4, 1992; 10.2)
- Others are lost and don't know where to start. (Student No. 52; Year 4, 1992; 13.7)
- Many do not understand what the lecture offers. (Student No. 24; Year 4, 1992; 12.4)
- Sometimes because they don't understand anything. (Student No. 4; Year 2, 1992; 16.15)
- It's either they have understood or have not understood completely. (Student No. 17; Year 2, 1992; 19.15)
- Some understand fully what the lecturer is teaching, some understand nothing. (Student No. 42; Year 2, 1992; 6.6)
- Maybe they haven't understood and can't ask anything. (Student No. 2; Year 2, 1992; 5.3)
- Some they are not understanding while some are daydreaming. (Student No. 57; Year 2, 1992; 4.1)
- In lectures many people don't understand what is being taught so they keep themselves busy with taking notes. (Student No. 29; Year 4, 1992; 0.19)
- Because they have not understood, also because they fear the lecturer. (Student No. 15; Year 2, 1992; 10.9)
- They don't understand the content being taught. (Student No. 31; Year 3, 1992; 2.1)
- Normally it is because we do not know what the lecturer is teaching and so we fear we may make mistakes. (Student No. 56; Year 3, 1992; 14.8)
- Because the students don't understand what the lecturers teach. (Student No. 50; Year 2, 1992; 17.5)
- Either one understands clearly or one doesn't know. (Student No. 4; Year 2, 1992; 16.15)
- They are not following what is going on. (Student No. 12; Year 4, 1992; 18.7)

They don't understand or follow. (Student No. 59; Year 4, 1992; 9.18)

They don't understand what the lecturer is saying. (Student No. 51; Year 4, 1992; 0.15)

Some just copy what is said, they don't understand the content matter. (Student No. 18; Year 4, 1992; 19.18)

Those unable to express themselves

We fail to come up with concrete questions. (Student No. 40; Year 2, 1992; 8.8)

They fail to design questions of their own. (Student No. 56; Year 4, 1992; 19.4)

The majority don't know how to formulate questions or express their ideas. (Student No. 46; Year 4, 1992; 5.8)

It may also be because of lack of communication skills. (Student No. 7; Year 2, 1992; 18.19)

Some fail to express themselves. (Student No. 4; Year 2, 1992; 16.15)

It is difficult to construct grammatically correct questions. (Student No. 16; Year 2, 1992; 19.18)

Those who refer to a 'language barrier'

Many are having problems with English. Sometimes Malawian lecturers help us in Chichewa. (Student No. 50; Year 3, 1992; 1.1)

Because of the language barrier, it is a second language. (Student No. 53; Year 4, 1992; 0.16)

It is due to poor command of English. (Student No. 29; Year 3, 1992; 19.13)

(Orchestration categorisations range from 1.1 to 0.19. However, a number of these responses are those of students 'not at risk' referring to students, their peers, in general, in response to the question, "During lectures, very few students question or contribute to what they hear. Why do you think this is?")

These responses provide substantial evidence that difficulty with the language of instruction is widely experienced. In addition, in view of the finding of Kember and Gow (1990) that students with low levels of proficiency in English tend to

focus on the requirements of learning tasks, have a preference for clear guidelines and structure, fear failure and tend to be concerned about the pressure of work, one can almost anticipate the categories of description which are to follow:

Perceptions of an excessive workload.

There is just too much stuff to learn in a year. (Student No. 21; Year 3, 1992; 3.1)

The second year workload was just too much for comfort. (Student No. 18; Year 3, 1992; 16.3)

You get the feeling that the quantity of work here is better than the quality. (Student No. 10; Year 4, 1992; 18.15)

There is too much work for students, some is irrelevant. (Student No. 43; Year 4, 1992; 0.18)

We have to take too many courses at once. (Student No. 46; Year 4, 1992; 5.8)

The workload is just too much and the choice too limited. (Student No. 52; Year 4, 1992; 13.7)

The coverage of the courses is too wide and general; they should be narrow and specific. (Student No. 49; Year 4, 1992; 19.18)

Students who experience a lack of organisation as a result

I fail to do things because of pressure of academics and the panic of pressure. (Student No. 41; Year 4, 1992; 7.4)

I am given too much work to be organised and I just give up because there is too much to learn. (Student No. 31; Year 3, 1992; 2.1)

All the work that is expected of us is just too much to manage. (Student No. 40; Year 3, 1992; 11.5)

I am not organised because there is too much to cover; I just wait for exams and then learn the notes. (Student No. 26; Year 4, 1992; 10.1)

I am not organised because of the pressure of work. (Student No. 15; Year 2, 1993; 19.3)

There's too much to be done; I can't organise myself. (Student No. 2; Year 3, 1992; 8.1)

Courses are very demanding and there is not enough time to prepare; also relations with the lecturer matter too. (Student No. 34; Year 4, 1992; 19.15)

Students who experience an inability to learn as a result

There's so much to revise that I feel I won't be able to make it, and that scares me. (Student No. 33; Year 4, 1992; 17.11)

The workload should change because it is difficult to know such a lot. (Student No. 58; Year 2, 1993; 7.2)

Lecturers give us too much work; as a result we perform poorly; not because we are dull but because there is simply too much on our part. (Student No. 35; Year 2, 1992; 1.6)

Students are behind since they have no time to revise the previous lesson, then linking is difficult. (Student No. 15; Year 2, 1992; 10.9)

The workload should be reduced to increase understanding. (Student No. 4; Year 4, 1992; 0.19)

Having a limited number of courses would be better because then we could dedicate our time to our special field, which would benefit us in exams and after we finish here. (Student No. 36; Year 2, 1993; 0.15)

Because of too much work the passmark should be changed to 35%. (Student No. 54; Year 3, 1992; 2.3)

It would be better to learn a little in a year than to fill our heads with facts that are forgotten after the exam. (Student No. 38; Year 4, 1992; 6.4)

Even during exam time there is too much to do; it is difficult to prepare adequately for exams. (Student No. 4; Year 4, 1992; 0.19)

Students who refer to factors other than their ability to cope

There is so much work and lecturers seem not to care. (Student No. 39; Year 2, 1992; 2.8)

There are just too many assignments to do. (Student No. 13; Year 4, 1992; 0.6)

Lecturers should have a specific number of assignments to give and not just give as they please; we are being overworked. (Student No. 54; Year 3, 1992; 2.3)

The workload has got to be reviewed; sometimes lecturers are unable to finish their syllabuses! (Student No. 41; Year 4, 1992; 7.4)

There are too many assignments to do and not enough flexibility in terms of choice. (Student No. 33; Year 4, 1992; 17.8)

The workload should be reduced and related to the needs of the student and the requirements of Malawi. (Student No. 34; Year 2, 1993; 18.13)

People shouldn't give so many courses; it turns out to make everyone too averaged. (Student No. 39; Year 2, 1992; 2.8)

(Orchestration categorisations range from 1.6 to 0.19)

Perceptions of the demands of examinations.

I don't like exams because I don't feel they are part of true learning. (Student No. 4; Year 4, 1992; 0.19)

It's a terrible thought to think about reading for a long time preparing for things you'll be through with in 3 hours. (Student No. 18; Year 4, 1992; 17.6)

Learners who refer to an excessive workload

Exams worry me because there is too much to do, so there is no thorough preparation. (Student No. 35; Year 2, 1992; 1.6)

Learners who indirectly refer to the importance given to examinations

Our learning is so much centred on exams that one can't help but worry about them. (Student No. 40; Year 3, 1992; 11.5)

They worry me because the existence of a student here is determined by the exam. (Student No. 35; Year 2, 1992; 1.6)

Exams worry me. It seems they determine one's stay here. (Student No.52; Year 4, 1992; 13.7)

The university is exam oriented, forcing students to memorise and not understand for the sake of the exam. (Student No. 33; Year 4, 1992; 17.8)

Learners who refer to factors other than their ability to cope

Exams worry me because lecturers can trick you in a question and you can fail to know what is required. (Student No. 41; Year 4, 1992; 7.4)

The worst is to be asked the first term's work at the end of the year. (Student No. 54; Year 3, 1992; 2.3)

After writing exams you forget the content at once and some lecturers ask difficult questions. (Student No. 11; Year 4, 1992; 5.2)

I worry about exams because examiners make mistakes. (Student No. 38; Year 4, 1992; 6.4)

Learners with a negative attitude towards examinations

I must confess I have never got used to writing exams; they are always new. (Student No. 33; Year 4, 1992; 17.8)

They worry me so much. Sometimes I can't reason or think. (Student No. 27; Year 2, 1992; 8.1)

(Orchestration categorisations range from 1.6 to 0.19)

Fear of failure.

There is always fear of failing, which would affect me psychologically and demoralise my relatives and well-wishers. (Student No. 33; Year 4, 1992; 17.8)

There's never enough time for me to prepare properly, so I am afraid of failing and being weeded. (Student No. 26; Year 3, 1992; 19.2)

I worry, because if I fail that's the end. (Student No. 54; Year 3, 1992; 2.3)

Exams worry me because if I fail I'll be weeded. (Student No. 39; Year 2, 1992; 2.8)

I can't sleep and I worry because of failure. (Student No. 40; Year 3, 1992; 11.5)

Malawians have been made to fear exams. Our learning is so much centred on exams. (Student No. 36; Year 2, 1993; 0.15)

(Orchestration categorisations range from 2.3 to 0.15)

7.1.2.2 Strategies and preferences adopted as a consequence of perceptions of the demands of learning

In a context perceived as indicated by the responses above, students are likely to have various perceptions of how best to confront such demands, as well as preferences for certain aspects of the learning context, as indicated below. As reported by Marton and Säljö (1976), van Rossum and Schenk (1984) and Marton (1988), there is a strong association between perceptions of the demands of the learning situation and the strategies adopted in engaging learning. Meyer and Muller (1990a:46) also make it clear that "...qualitatively different categories (of perceptions of learning contexts) are associated at an individual level with qualitatively different study orientations."

Learners who perceive a need to write down everything the lecturer says.

Students who do so because of a lack of understanding

Some just copy what is said, they do not understand the content matter.
(Student No. 47; Year 3, 1992; 19.17)

Once I miss a point I am miserable because I can't look it up in a book; how am I going to find it if I don't know anything about it? (Student No. 54; Year 3, 1992; 2.3)

Students who do so because of a perceived need to recall course content

They are unable to notice where to ask questions because they are too busy writing notes. (Student No. 48; Year 3, 1992; 15.9)

Students concentrate on copying notes and fear missing points from the lecturer.
(Student No. 21; Year 4, 1992; 16.12)

Because they concentrate on note-taking and so when they miss a point they are out. (Student No. 9; Year 2, 1993; 12.19)

They concentrate on copying notes. (Student No. 14; Year 3, 1992; 6.6)

I listen and write as fast as I can. (Student No. 25; Year 3, 1992; 0.1)

I listen and take down every bit of information within my note-taking speed.
(Student No. 40; Year 3, 1992; 11.5)

I try to comprehend what the lecturer is saying and write down all the notes.
(Student No. 44; Year 1, 1993; 6.4)

In lectures I always try to grasp what the lecturers are saying in order to have the knowledge in the head; taking notes is always in process. (Student No. 38; Year 4, 1992; 6.4)

In lectures, I try to get everything that the lecturer is teaching. (Student No. 53; Year 2, 1993; 2.3)

In lectures, I listen and take notes as quickly as possible. (Student No. 35; Year 2, 1992; 1.6)

I write down whatever the lecturer is saying. (Student No. 39; Year 2, 1992; 2.8)

Some lecturers are very fast; we write from the first minute to the sixtieth.
(Student No. 39; Year 2, 1992; 2.8)

In lectures, I listen and take as much notes as I can, whether relevant or irrelevant. (Student No. 54; Year 3, 1992; 2.3)

I take down all the notes to learn so that I can pass the exam and not be weeded.
(Student No. 24; Year 3, 1992; 18.5)

I pay much respect to listening and note-taking. (Student No. 22; Year 4, 1992; 1.1)

I copy almost everything the lecturer says, even useless things, rather than make my own notes from books; then I can recall the lecture. (Student No. 41; Year 4, 1992; 7.4)

I listen and write down in short form whatever I hear. (Student No. 21; Year 3, 1992; 3.1)

Students who refer to imposed demands

There is too much concentration on students to take down everything, so little understanding is done. (Student No. 17; Year 3, 1992; 18.5)

(Orchestration categorisations range from 1.1 to 19.17)

Learners who perceive memorisation to be an appropriate strategy.

I am assured of passing an exam if I recall exactly what was taught. (Student No. 41; Year 4, 1992; 7.4)

I usually recall what I have learned on a topic in lectures and think very seriously on that topic. (Student No. 21; Year 4, 1992; 16.12)

Recall is easier; I do not find it difficult; but sometimes problems are not familiar to me. (Student No. 44; Year 4, 1992; 19.1)

I prepare by going through my notes twice or more. If I find a simple book, I add reading but normally my notes do me some favour. (Student No. 31; Year 1, 1993; 19.6)

Rote-learners

- I make lists of main points and go over them many times to activate my memory. (Student No. 40; Year 2, 1992; 8.8)
- Whenever I don't understand, I take down notes and study them hard. (Student No. 35; Year 4, 1992; 16.6)
- I go through the notes many times with friends. (Student No. 41; Year 4, 1992; 7.4)
- Sometimes you learn something which is difficult and you can pass it by memorising. (Student No. 20; Year 4, 1992; 13.7)
- I start to panic and begin to memorise things. (Student No. 40; Year 3, 1992; 11.5)
- I only read the notes many times when the exams are very near so that I remember easily. (Student No. 57; Year 3, 1992; 14.8)
- I normally start reading in advance, summarising what I learnt and memorising the facts. (Student No. 33; Year 4, 1992; 17.8)
- I start far in advance so that I memorise well. (Student No. 54; Year 3, 1992; 2.3)
- It is easier to put on paper things that are memorised. (Student No. 38; Year 2, 1993; 3.5)
- I memorise just to get a pass and then forget. (Student No. 35; Year 2, 1992; 1.6)
- Many courses we can't manage and it's difficult to concentrate so we just memorise. (Student No. 18; Year 3, 1992; 16.3)
- I commit things to memory by re-reading and re-reading. (Student No. 39; Year 2, 1992; 2.8)
- I remember things because I keep on reading the material until it sticks in my mind, such that remembering becomes easy. (Student No. 35; Year 2, 1992; 1.6)
- I pick out the key points and memorise them, especially when the information is difficult to understand. (Student No. 27; Year 2, 1993; 0.6)
- I underline main points in the notes and when reading; later I go straight to the notes underlined and read them repeatedly. (Student No. 56; Year 4, 1992; 19.4)

I always revise after each lecture to refresh my memory; those which are hard to understand, I memorise. (Student No. 21; Year 2, 1993; 19.8)

I study late at night and make sure that I exhaust all the notes. (Student No. 56; Year 3, 1992; 14.8)

When exams are near, I study hard each and every topic. (Student No. 34; Year 3, 1992; 18.13)

I always put things in my own simple world and revise them many times. (Student No. 45; Year 2, 1992; 8.6)

I like questions asking for recall of course content, because I am good at committing things to memory. (Student No. 41; Year 4, 1992; 7.4)

I memorise as much as possible because in most of the exams they ask us to recall. (Student No. 39; Year 2, 1992; 2.8)

My friends say that if you repeat what the lecturer said, you cannot be wrong. (Student No. 41; Year 4, 1992; 7.4)

The use of 'aides memoires'

I write important facts on a sheet of paper, which is hung on my room wall and I see them during my free time. (Student No. 41; Year 4, 1992; 7.4)

I normally go over the material we have covered and summarise it, so the main points stand out. (Student No. 34; Year 2, 1993; 18.13)

It is easier to remember than to get answers to problems and, with problems, my stories are not always helping. (Student No. 50; Year 3, 1992; 1.1)

As the exams approach, I devise songs of important ideas. (Student No. 13; Year 3, 1992; 3.1)

I pick out important points under each heading and take only the first letters of each word and form a word which represents meaningful things. (Student No. 39; Year 2, 1992; 2.8)

I read my notes many times and sometimes make stories with the first letters of each thing to remember. (Student No. 50; Year 3, 1992; 1.1)

I usually design something that will help me remember. (Student No. 43; Year 1, 1993; 0.8)

I use mnemonics pinned on my wall. (Student No. 54; Year 1, 1993; 9.9)

I form my own abbreviations for facts and rearrange the notes to fit my understanding. (Student No. 35; Year 3, 1992; 15.2)

The main points in my notes are my framework for remembering things.
(Student No. 27; Year 2, 1992; 8.1)

I learn by using analogies and memorising the main points. (Student No. 19;
Year 4, 1992; 13.7)

I remember by memorising things. I read, write down main points, which are usually sub-headings, and then later on I use them for helping me to remember whatever came under that sub-heading. (Student No. 40;
Year 3, 1992; 11.5)

I study much more seriously for exams and write down important points, just before the exam, as reminders. (Student No. 38; Year 4, 1992; 19.8)

I reduce the notes to abbreviations so that each letter stands for the initial letter of the important fact and then I commit them to memory. (Student No. 40;
Year 3, 1992; 11.5)

(Orchestration categorisations range from 1.1 to 18.13)

Learners who prefer questions requiring recall of course content.

I like questions asking for recall, because I am good at committing things to memory. (Student No. 41; Year 4, 1992; 7.4)

Learners who express apprehension of problem solving

I prefer questions asking for recall of course content because that has a direct relation to what I have covered; I lack confidence with problems.
(Student No. 35; Year 2, 1992; 1.6)

I prefer recall questions because they save my time; I just don't waste much time with thinking. (Student No. 54; Year 3, 1992; 2.3)

I prefer recall questions; I am better at memory than solving problems.
(Student No. 39; Year 2, 1992; 2.8)

Problem solving questions are too time consuming because they require reasoning. (Student No. 41; Year 4, 1992; 7.4)

It is easier to put on paper things that are memorised. (Student No. 40; Year 3, 1992; 11.5)

Learners who appear to perceive recall of course content as an end in itself

- I prefer questions asking for recall of course content, because then I know whether I have understood what was taught or not. (Student No. 38; Year 4, 1992; 6.4)
- Recall is better because you can give specific answers. (Student No. 27; Year 2, 1992; 8.1)
- If questions come as we were taught then recall is better. (Student No. 12; Year 4, 1992; 18.7)
- I prefer to have questions requiring recall of course content, because if they don't ask from the notes, there is always fear of failing. (Student No. 57; Year 3, 1992; 19.8)
- I like recall questions because then I know myself if I am keeping in touch with the learning process. (Student No. 40; Year 3, 1992; 11.5)

(Orchestration categorisations range from 1.6 to 19.8)

Learners who prefer a very structured course and precise instructions for assignments.

Students who perceive a need for guidance

- In learning, choice is inapplicable, because you end up learning irrelevant material. (Student No. 40; Year 3, 1992; 11.5)
- Precise instructions give me guidance on how to do the assignment. (Student No. 49; Year 3, 1992; 10.15)
- I have to be told what to write. (Student No. 32; Year 4, 1992; 1.5)
- I prefer a structured course; if I choose topics, I will choose only interesting things that may be contrary to the skills I'm expected to have. (Student No. 37; Year 2, 1993; 12.12)
- I am used to being given detailed instructions and prefer it that way. (Student No. 7; Year 4, 1992; 17.15)
- I like a very structured course, because those who structured it know the prerequisites of studying them. (Student No. 61; Year 2, 1993; 16.8)
- I am not an organised learner; sometimes I don't know what to do. (Student No. 60; Year 1, 1993; 4.5)

- A very structured course is best because the lecturer is in the best ability to know what we need. (Student No. 41; Year 4, 1992; 7.4)
- I like to be told precisely what to do in assignments so that I don't wander away from what I'm supposed to produce. (Student No. 23; Year 2, 1992; 15.3)
- I like a very structured course; to choose is very difficult. (Student No. 39; Year 2, 1992; 2.8)
- I prefer a well structured course because those who prepared it know why it is needed. (Student No. 35; Year 3, 1992; 15.2)
- I need to be told exactly what to do in assignments to get enough guidance. (Student No. 30; Year 1, 1993; 14.14)
- I like to be told what to do; to choose may be different from the lecturer's objective. (Student No. 9; Year 2, 1992; 0.15)
- I like to be told exactly what to do to my projects. (Student No. 40; Year 3, 1992; 11.5)
- I like a very structured course because I am not sure if I can choose what I need. (Student No. 35; Year 2, 1992; 1.6)

Students concerned about assessment

- I like to be told precisely what to do in assignments for uniform assessment. (Student No. 38; Year 4, 1992; 6.4)
- I like to be told precisely what to do in assignments because then you know what exactly will be graded. (Student No. 54; Year 3, 1992; 2.3)
- Precise instructions for assignments are good, because then you know what the lecturer wants. (Student No. 26; Year 2, 1992; 19.12)

Students who perceive a need for goal directedness

- I prefer a structured course because then you can see it. (Student No. 1; Year 3, 1992; 18.13)
- I prefer a structured course, then I know where I am going. (Student No. 19; Year 4, 1992; 13.7)
- I like a very structured course because then I see something in front of me that has a sense of direction. (Student No. 35; Year 2, 1992; 1.6)

Students intent on completing the task requirements

I like to be told exactly how much should be done. (Student No. 39; Year 2, 1992; 2.8)

I prefer to know exactly what I should do. (Student No. 56; Year 4, 1992; 19.4)

(Orchestration categorisations range from 1.5 to 0.15)

Evidence that the mother-tongue is used to explain.

Many are having problems with English. Sometimes Malawian lecturers help us in Chichewa. (Student No. 50; Year 3, 1992; 1.1)

When something is difficult, I lose peace of mind and rush to a friend; if he is also ignorant, I consult any relevant book, but I don't ask the lecturer for help, because then he will know that I haven't got the understanding. (Student No. 38; Year 4, 1992; 6.4)

When something is difficult to understand I read about the topic and have discussions with friends in our own language about it. (Student No. 10; Year 4, 1992; 18.15)

I go through my work time and again and if I fail to understand, I ask my friends to explain in our language. (Student No. 35; Year 2, 1992; 1.6)

When something is difficult, I ask friends or just give up because there is a choice in exams. (Student No. 11; Year 4, 1992; 5.2)

I consult friends when something is difficult; not the lecturer, because then he knows I don't understand. (Student No. 52; Year 4, 1992; 13.7)

I must be disorganised, because when I compare my notes with those of friends, I find they are different and change them. (Student No. 40; Year 3, 1992; 11.5)

I fail to ask the lecturer the concept I have not understood in my study, because then he knows about it. I discuss with friends instead. (Student No. 24; Year 4, 1992; 18.13)

I browse through the notes and ask friends where I don't understand. (Student No. 43; Year 4, 1992; 0.18)

I don't prepare much for the subjects I find easy; with others, I read my notes and discuss topics in Chichewa with my roommate, who is doing the same course. (Student No. 4; Year 4, 1992; 0.19)

(Orchestration categorisations range from 1.1 to 0.19)

A perception that difficult content is not worth tackling.

When something is difficult, I don't spend much time on it; I give up and go on to the next thing. (Student No. 32; Year 2, 1992; 16.6)

Sometimes I don't understand the material we have to learn, then I just neglect it. (Student No. 58; Year 2, 1992; 9.6)

When something is difficult, I just leave it. (Student No. 39; Year 3, 1992; 4.8)

(Orchestration categorisations range from 4.8 to 16.6)

7.1.2.3 Strategies and preferences of students with more positive perceptions of the demands of learning

In contrast to students with the perceptions and preferences as indicated above, are those who do not perceive the demands of the learning situation as precluding some of the more desirable aspects of a learning orchestration. There are those who strive to construct meaning, who read around the subjects they study and prefer a choice in learning. There are those who prefer problem solving to recall of course content and who have a more positive attitude towards examinations. Despite the idiosyncratic nature of perception, empirical research has identified qualitatively different orchestrations which broadly typify distinctive categories of orchestration, as previously described. A reproducing orchestration was described as being associated with an impoverished perception of the learning environment, disorganised study methods, external motivational influences, such as fear of failure, and an over-reliance on memorisation; the

main intention of the learner being to aggregate rather than to transform information. Many of the responses recorded thus far appear to reflect elements of a reproducing approach.

A meaning orchestration, on the other hand, was described as being associated with deep and holistic perceptions of the learning environment and a conscious, intrinsically motivated intention to extract personal meaning from what is being learned. Many of the responses that follow appear to be associated with such an orchestration.

'Main point' seekers.

I first evaluate the lecture, if it is not easy material I take notes and try to get the main points. (Student No. 17; Year 2, 1992; 19.15)

My notes are always very condensed, consisting of the main points only. (Student No. 10; Year 4, 1992; 18.15)

I always look for the important points, but this is difficult; in books they should underline these. (Student No. 33; Year 4, 1992; 17.8)

I sometimes try to participate but usually just listen. I only take notes of the main points when the subject is totally new. (Student No. 4; Year 4, 1992; 0.19)

I listen attentively and try to get down the main points. (Student No. 51; Year 2, 1992; 19.13)

I listen and make a few short notes of important points. (Student No. 37; Year 3, 1992; 18.19)

If the lecture is interesting I fail to take notes. If not, I get down the important bits. (Student No. 34; Year 2, 1992; 18.13)

I observe, listen and record the main points. (Student No. 53; Year 4, 1992; 0.16)

When not daydreaming, I listen to the lecture and take down the main points. (Student No. 43; Year 4, 1992; 0.18)

(Orchestration categorisations range from 17.8 to 0.19, none of which is 'at risk'.)

Learners who strive to construct meaning.

I always try to grasp the meaning of what the lecturer is saying. (Student No. 2; Year 4, 19)

I always try to attach meaning to the new ideas. (Student No. 36; Year 2, 1993; 0.15)

Learners who collaborate with others to construct meaning

Sometimes I discuss quietly with my desk-mates what the lecturer is talking about. (Student No. 49; Year 4, 1992; 19.18)

I listen, make notes and sometimes ask questions. (Student No. 28; Year 3, 1992; 16.19)

I listen and occasionally ask a question if I don't understand. (Student No. 36; Year 2, 1992; 0.15)

When the group is small I like to discuss things with the lecturer. (Student No. 27; Year 4, 1992; 17.19)

Learners who relate new material to previous knowledge

I try to relate what the lecturer is saying to what I already know. If I can't do this, I take notes. (Student No. 52; Year 4, 1992; 13.7)

I find it difficult to relax until I understand and can apply what we have been told. (Student No. 49; Year 4, 1992; 19.18)

Learners who develop a personalised interpretation of new material

When the teacher is active in class, I put the things he says in my own images to understand them. (Student No. 10; Year 4, 1992; 18.15)

I listen to what the lecturer is saying, interpret it in my own understanding and then write notes. (Student No. 49; Year 4, 1992; 19.18)

Learners who persevere with that which has not been understood

In the evenings, I go over any area giving me problems during the day, until I understand. (Student No. 36; Year 2, 1992; 0.15)

When something is difficult to understand, I keep on trying and usually succeed at last. (Student No. 66; Year 2, 1992; 15.15)

(Orchestration categorisations range from 13.7 to 0.19, none of which is 'at risk'.)

Learners who read around the subject.

I read widely for exams and specialise in some areas. (Student No. 2; Year 4, 1992; 0.19)

I read a lot about the concepts I have learnt about. (Student No. 49; Year 4, 1992; 19.18)

The extra references we are given in class have been helpful in reading about what we have covered. (Student No. 13; Year 2, 1992; 19.19)

I check the course outline and jot down the main points from each topic using my notes and books. (Student No. 33; Year 2, 1992; 18.14)

I enjoy making extra notes in the library. When something is difficult to understand I normally arrange to see the lecturer. (Student No. 4; Year 4, 1992; 0.19)

I take notes, collect handouts, compare with others and check in books when not getting it. (Student No. 33; Year 4, 1992; 17.8)

I start reading widely long before exams. During exams I don't study. (Student No. 23; Year 4, 1992; 0.15)

When doing an assignment, I usually scrutinise the question, make a skeleton answer, look for relevant material in the library, make a draft and then a final copy. (Student No. 36; Year 2, 1993; 0.15)

I read extensively and ask myself questions about the topics covered. (Student No. 52; Year 4, 1992; 13.7)

I try as much as possible to understand using several simplified books or I ask friends, but not the lecturer. (Student No. 58; Year 3, 1992; 19.14)

I always try to supplement lectures with text book information. (Student No. 18; Year 4, 1992; 19.18)

I spend a lot of time in the library reading books on what we have learnt about. (Student No. 54; Year 4, 1992; 0.19)

(Orchestration categorisations range from 13.7 to 0.19, none of which is 'at risk'.)

A preference for choice in learning.

I'd like to choose but with guidelines. (Student No. 51; Year 1, 1993; 19.17)

I like a structured but flexible course. (Student No. 10; Year 4, 1992; 18.15)

I like not too much dependence, because then I know I will not need my lecturer all my life, and not too much independence. (Student No. 4; Year 4, 1992; 0.19)

I would like to choose a project of my own. (Student No. 22; Year 2, 1993; 19.19)

The workload is alright but students should be able to make up any combination of subjects. (Student No. 36; Year 4, 1992; 16.15)

There isn't enough freedom to choose here. (Student No. 28; Year 3, 1992; 16.19)

In first year I preferred a very structured course but nowadays I am in a position to choose. (Student No. 49; Year 4, 1992; 19.18)

I like a structured course but to choose my own projects for assignments. (Student No. 61; Year 2, 1992; 19.18)

I'd prefer a choice of what to study and what to do for assignments. (Student No. 34; Year 2, 1993; 18.13)

I would prefer to choose some of what we study and the assignments. (Student No. 45; Year 1, 1993; 18.15)

Learners who are motivated by choice

I work harder on something I have chosen for myself and if I fail I can't blame anyone but me. (Student No. 57; Year 4, 1992; 0.19)

I would rather choose what interests and motivates me. (Student No. 7; Year 4, 1992; 17.15)

Being told precisely what to do is somehow limiting. (Student No. 36; Year 2, 1993; 0.15)

Experience has shown me that I like to learn what I like. (Student No. 26; Year 2, 1992; 19.12)

Choosing for yourself gives you much morale. (Student No. 28; Year 3, 1992; 16.19)

I would like a choice because I would choose according to my interests and likes. (Student No. 13; Year 2, 1993; 19.16)

I find choosing for myself is very motivating. (Student No. 49; Year 4, 1992; 19.18)

I like to choose so that I can study with interest. (Student No. 58; Year 3, 1992; 19.14)

I would like to choose because it would be interesting and of future use. (Student No. 33; Year 4, 1992; 17.8)

Learners who indirectly refer to a desire to avoid some areas of study

There are too many compulsory subjects to do and not enough choice. (Student No. 56; Year 3, 1992; 14.8)

You can get more information with your own choice; with set assignments you can run dry of facts. (Student No. 52; Year 4, 1992; 13.7)

A very structured course forces you to take some material that you don't like. (Student No. 56; Year 3, 1992; 14.8)

To choose is better because I can write more of what I know. (Student No. 48; Year 2, 1992; 0.14)

Choice of a topic is better; I would feel more relaxed with it. (Student No. 37; Year 3, 1992; 18.19)

Some material seems irrelevant, so to be given a choice would be better. (Student No. 17; Year 2, 1993; 16.16)

(Orchestration categorisations range from 13.7 to 0.19, none of which is 'at risk'.)

A preference for problem solving questions.

I like to spend my time trying to solve problems. (Student No. 55; Year 3, 1992; 0.16)

I prefer problems to solve because I am for the cognitive theory of learning. (Student No. 33; Year 4, 1992; 17.8)

Students who claim not to be good at memorisation

Problem solving questions are better; recall questions require you to remember things in detail and I am not good at memorisation. (Student No. 36; Year 2, 1993; 0.15)

Problems require reasoning and, anyway, I am not good at memorising. (Student No. 4; Year 4, 1992; 0.19)

Students who see a need to be able to apply ideas and principles in real situations

Problem solving questions are better, because when I am able to apply it shows I really learnt the material. (Student No. 56; Year 3, 1992; 14.8)

Problems train a person to think and find a solution in a real world situation. (Student No. 34; Year 2, 1993; 18.13)

Problem solving develops skills to solve real-life problems. (Student No. 47; Year 4, 1992; 19.14)

Reasoning and evaluation are used in solving problems and I am assured of using my knowledge in real world situations. (Student No. 31; Year 4, 1992; 19.15)

Problems require application. I prefer that, because it stimulates my reasoning power. (Student No. 49; Year 4, 1992; 19.18)

Students who value ideas of their own

I prefer to think than to repeat what someone has said. (Student No. 4; Year 4, 1992; 0.19)

With problem solving you answer a question critically and by using your own ideas; recall restricts one's knowledge. (Student No. 10; Year 4, 1992; 18.15)

I dislike putting down other peoples ideas, I too might have a good answer. (Student No. 52; Year 4, 1992; 13.7)

Problems let you express your own views freely. (Student No. 33; Year 4, 1992; 17.8)

Students who perceive memorisation to be an inferior form of learning

Problem solving questions are much more challenging. (Student No. 58; Year 4, 1992; 0.16)

If you can solve a problem you have shown that you understand. (Student No. 66; Year 2, 1992; 15.15)

Recalled material is always forgotten straight after the exam; problems to solve are what we need. (Student No. 19; Year 3, 1992; 19.18)

Problems broaden your mind; recall narrows it. (Student No. 27; Year 4, 1992; 17.19)

With recall, it seems that you haven't really learnt anything. (Student No. 52; Year 4, 1992; 13.7)

Problem solving is good; it really exercises the brain. (Student No. 50; Year 4, 1992; 0.14)

(Orchestration categorisations range from 13.7 to 0.19, none of which is 'at risk'.)

A more positive attitude towards exams.

I normally just take them as they come and don't have a specific preparation. (Student No. 43; Year 4, 1992; 0.18)

I am usually sure I can answer most questions and, anyway, there is a choice. (Student No. 34; Year 2, 1993; 18.13)

Exams are part and parcel of the courses here; they have become a routine. (Student No. 56; Year 3, 1992; 14.8)

It is through the exams that we get our degrees, so I don't mind them. (Student No. 49; Year 4, 1992; 19.18)

Exams don't worry me because I always pass. There is no reason to get worried after having learnt the things which are examined. (Student No. 40; Year 4, 1992; 0.19)

I usually feel confident about exams because I am usually well prepared.
(Student No. 60; Year 4, 1992; 0.16)

Usually the exams require things which I have learnt so I don't worry much about them. (Student No. 43; Year 4, 1992; 0.18)

I love exams; it's a way of showing what I know. (Student No. 22; Year 3, 1992; 0.19)

No! Exams don't worry me. Remember after learning for some time you have to reassure the lecturers what you have got from their courses. (Student No. 10; Year 4, 1992; 18.15)

Exams don't worry me much; I am used to them and get prepared for them.
(Student No.27; Year 4, 1992; 17.19)

(Orchestration categorisations range from 14.8 to 0.19, none of which is 'at risk'.)

7.1.2.4 Other influences

Before moving on to a slightly different method of analysis of interview data, there are two categories of response which are of interest to the present study since they provide evidence in support of some of the findings reported in the literature.

Learners who adopt a strategic approach.

I spend most of my time here doing academic work. I want to do as well as I can. (Student No. 34; Year 2, 1993; 18.13)

I study the material seriously and go through past exam papers in order to know what the questions look like. (Student No. 38; Year 4, 1992; 6.4)

I go over the main examinable concepts to make sure I understand them.
(Student No. 56; Year 3, 1992; 14.8)

I prepare for exams by attempting sample questions several weeks ahead. I want to get the best mark possible. (Student No. 49; Year 4, 1992; 19.18)

I read my notes, books and practice problems similar to the expected ones.
(Student No. 10; Year 4, 1992; 18.15)

I spend most of the time in the library to get ideas that others will not have.
(Student No. 38; Year 4, 1992; 6.4)

I try as much as possible to get past papers and pay much respect to those
examinable areas. (Student No. 39; Year 2, 1992; 2.8)

It is in my nature to try to get the best mark possible. (Student No. 35; Year 3,
1992; 15.2)

(Orchestration categorisations range from 2.8 to 19.18)

This approach has been described by Ramsden (1979), Entwistle (1981), Entwistle and Ramsden (1983), Biggs (1987), Meyer *et al* (1992, 1993) and Meyer (1994). It seems appropriate, for the convenience of the reader, to repeat the illuminating description provided by Meyer (1994). He describes it as "...a hybridised form of study behaviour ... characterised by an intention to succeed academically, a competitive motivation and an eclectic appropriation of whatever processes are perceived to be necessary for this purpose." Meyer goes on to explain that such an orchestration appears to incorporate both deep and surface strategies which most successfully marry effort to the reward system, as perceived by the student.

Learners who perceive knowledge as being that which is 'passed down from the wise'.

Students consider the lecturer to be the only truth bearer. (Student No. 60;
Year 2, 1992; 19.14)

Students take what lecturers say as gospels. (Student No. 39; Year 2, 1992;
2.8)

If you argue with lecturers that's dangerous. (Student No. 46; Year 4, 1992;
5.8)

(Orchestration categorisations range from 2.8 to 19.14)

These responses concur with the findings of Murphy (1987) in respect of Chinese students in Hong Kong, cited by Kember and Gow (1990).

7.1.3 The Collective Responses of Individuals

In an attempt to consolidate or refute the impression that appears to be evolving, of a relationship between student perceptions of the demands of the learning situation and the quality of learning orchestration, all the responses of a number of interviewees are presented below. Each student's number, year group, orchestration categorisation and learning outcome score are provided at the head of their respective responses and the cases are presented in an ascending qualitative order, as determined by orchestration categorisation.

(1)
Student No.35; Year 2 (1992);
Orchestration categorisation 1.6
('at risk' and not normally associated with success in learning outcomes)
Learning outcome score 51 ($\bar{x} = 61.71$)

Learning means adding new knowledge to what you already know.

Knowledge is the mass of ideas which someone possesses in his mind and can be passed to someone.

In lectures I listen and take notes as quickly as possible.

Lecturers give us too much work; as a result we perform poorly; not because we are dull but because there is simply too much on our part.

I like a very structured course because I am not sure if I can choose what I need.

I like a very structured course because then I see something in front of me that has a sense of direction.

I remember things because I keep on reading the material until it sticks in my mind, such that remembering becomes easy.

I memorise just to get a pass and then forget.

I prefer questions asking for recall of course content because that has a direct relation to what I have covered; I lack confidence with problems.

Exams worry me because there is too much to do, so there is no thorough preparation.

They worry me because the existence of a student here is determined by the exam.

(2)

Student No.54; Year 3 (1992);

Orchestration categorisation 2.3

('at risk' and not normally associated with success in learning outcomes)

Learning outcome score 50 (\bar{x} = 58.93)

Learning is a collection of all the facts that the lecturer gives us to remember.

Knowledge is all the stuff that you have learnt since you started.

In lectures, I listen and take as much notes as I can, whether relevant or irrelevant.

Once I miss a point I am miserable because I can't look it up in a book; how am I going to find it if I don't know anything about it?

I like to be told precisely what to do in assignments because then you know what exactly will be graded.

Lecturers should have a specific number of assignments to give and not just give as they please; we are being overworked.

Because of too much work the passmark should be changed to 35%.

I start far in advance so that I memorise well.

I prefer recall questions because they save my time; I just don't waste much time with thinking.

The worst is to be asked the first term's work at the end of the year.

I worry, because if I fail that's the end.

(3)

Student No.39; Year 2 (1992);

Orchestration categorisation 2.8

('at risk' and not normally associated with success in learning outcomes)

Learning outcome score 42 (\bar{x} = 61.71)

Learning is a process through which someone is fed with knowledge.

Knowledge is a set of facts thought to be very important by authorities above the learner.

Understanding means that I have grasped an amount of facts, which can be kept for a long period.

Some lecturers are very fast; we write from the first minute to the sixtieth.

People shouldn't give so many courses; it turns out to make everyone too averaged.

There is so much work and lecturers seem not to care.

I like a very structured course; to choose is very difficult.

I like to be told exactly how much should be done.

I try as much as possible to get past papers and pay much respect to those examinable areas.

I pick out important points under each heading and take only the first letters of each word and form a word which represents meaningful things.

I memorise as much as possible because in most of the exams they ask us to recall.

I prefer recall questions; I am better at memory than solving problems.

Exams worry me, because if I fail I'll be weeded.

(4)

Student No.38; Year 4 (1992);

Orchestration categorisation 6.4

('at risk' and not normally associated with success in learning outcomes)

Learning outcome score 50 (\bar{x} = 58.90)

Knowledge is a band of facts pertaining to a certain area of study.

Learning is a system whereby we internalise skills which lead to a change in behaviour.

In lectures I always try to grasp what the lecturers are saying in order to have the knowledge in the head; taking notes is always in process.

When something is difficult, I lose peace of mind and rush to a friend; if he is also ignorant, I consult any relevant book, but I don't ask the lecturer for help, because then he will know that I haven't got the understanding.

I like to be told precisely what to do in assignments for uniform assessment.

I revise every area I am told will be examined and jot down the main points and learn them.

I spend most of the time in the library to get ideas that others will not have.

I study the material seriously and go through past exam papers in order to know what the questions look like.

I prefer questions asking for recall of course content, because then I know whether I have understood what was taught or not.

It would be better to learn a little in a year than to fill our heads with facts that are forgotten after the exam.

The University is very exam-oriented but I try not to get demoralised.

I worry about exams because examiners make mistakes.

(5)

Student No.41; Year 4 (1992);

Orchestration categorisation 7.4

('at risk' and not normally associated with success in learning outcomes)

Learning outcome score 48 (\bar{x} = 58.90)

Learning is an exercise of taking in new information from somebody else; I understand it by using a little bit of memory.

Knowledge is all the facts that you can use in an exam; if you can answer a question you have the knowledge.

I copy almost everything the lecturer says, even useless things, rather than make my own notes from books; then I can recall the lecture.

A very structured course is best because the lecturer is in the best ability to know what we need.

The workload has got to be reviewed; sometimes the lecturers are unable to finish their syllabuses!

I fail to do things because of pressure of academics and the panic of pressure.

I write important facts on a sheet of paper, which is hung on my room wall and I see them during my free time.

I go through the notes many times with friends.

Problem solving questions are too time consuming because they require reasoning.

I am assured of passing an exam if I recall exactly what was taught.

I like those asking for recall, because I am good at committing things to memory.

My friends say that if you repeat what the lecturer said you cannot be wrong.

Exams worry me because lecturers can trick you in a question and you can fail to know what is required.

(6)
 Student No.40; Year 3 (1992);
 Orchestration categorisation 11.5
 ('at risk' and not normally associated with success in learning outcomes)
 Learning outcome score 62 (\bar{x} = 58.93)

Learning is acquiring new facts for immediate and future use and to be able to reproduce them when required.

Knowledge refers to a bundle of facts related to a specific discipline.

Understanding means that I can conceptualise the topic in question and can reproduce it.

I listen and take down every bit of information within my note-taking speed.

In learning, choice is inapplicable, because you end up learning irrelevant material.

The workload is too much and too theoretical.

I like to be told exactly what to do to my projects.

I reduce the notes to abbreviations so that each letter stands for the initial letter of the important fact and then I commit them to memory.

I like recall questions because then I know myself if I am keeping in touch with the learning process.

It is easier to put on paper things that are memorised.

Our learning is so much centred on exams that one can't help but worry about them.

I can't sleep and I worry because of failure.

7.1.3.1 Summary

The 6 students, the collective responses of whom have so far been presented, appear to have what Meyer, *et al.* (1990) describe in the literature as an impoverished perception of the learning context, a surface approach, syllabus-boundness, fear of failure and, in some cases, disorganised study methods. Their main intention appears to be to aggregate rather than to transform information, to complete the task requirements and to memorise information and procedures for assessment. This places them 'at risk' and as potential failures in terms of learning outcomes.

(7)

Student No.52; Year 4 (1992);

Orchestration categorisation 13.7

(Undesirable and not normally associated with success in learning outcomes)

Learning outcome score 55 (\bar{x} = 58.90)

Understanding means that I have grasped a substantial amount of facts which I remember.

Learning is incorporating new ideas into what you already know.

Knowledge is the sum total of the person's experiences.

I try to relate what the lecturer is saying to what I already know. If I can't do this, I take notes.

You can get more information with your own choice; with set assignments you can run dry of facts.

The workload is just too much and the choice too limited.

I consult friends when something is difficult; not the lecturer, because then he knows I don't understand.

I read notes by organising facts on every topic.

I read extensively and ask myself questions about the topics covered.

I dislike putting down other people's ideas, I too might have a good answer.

With recall it seems that you haven't really learnt anything.

Exams worry me. It seems they determine one's stay here.

(8)

Student No.56; Year 3 (1992);**Orchestration categorisation 14.8****(Undesirable and not normally associated with success in learning outcomes)****Learning outcome score 73 (\bar{x} = 58.93)**

Learning is a permanent change in behaviour, attitudes and values due to experiences.

Knowledge refers to competence which enables you to do something in life.

If I understand I can see the logic and reasoning and can express it in my own words.

In lectures I write notes, gain knowledge, but seem to lose the desire to learn.

A very structured course forces you to take some material that you don't like.

The courses are too wide and general; they should be more specialised.

There are too many compulsory subjects to do and not enough choice.

Exams are part and parcel of the courses here; they have become a routine.

I go over the main examinable concepts to make sure I understand them.

Problem solving questions are better, because when I am able to apply it shows I really learnt the material.

(9)

Student No.33; Year 4 (1992);**Orchestration categorisation 17.8****(Undesirable and not normally associated with success in learning outcomes)****Learning outcome score 47 (\bar{x} = 58.90)**

Learning is making sense of a concept which remains with me and changes my perception of the world.

Knowledge is what you will be able to keep; people who remember more have more knowledge.

Understanding is perceiving something correctly.

I take notes, collect handouts, compare with others and check in books when not getting it.

I always look for the important points, but this is difficult; in books they should underline these.

There are too many assignments to do and not enough flexibility in terms of choice.

I would like to choose because it would be interesting and of future use.

When I am not pressurised I tend to relax, only to work under panic when there is much to do.

I prefer problems to solve because I am for the cognitive theory of learning.

I normally start reading in advance, summarising what I am learning and memorising the facts.

Problems let you express your own views freely.

I must confess I have never got used to writing exams; they are always new.

There is always fear of failing, which would affect me psychologically and demoralise my relatives and well-wishers.

The university is exam oriented, forcing students to memorise and not understand for the sake of the exam.

7.1.3.2 Summary

Student Nos.7, 8 and 9 have orchestrations that are not categorised as 'at risk', but are, nevertheless, undesirable and not normally associated with success in learning outcomes. These students have a marginally more qualitative conception of learning, prefer some freedom to choose what they learn and see the value of questions requiring solutions to problems. Even so, they have a tendency to rely on memorisation, do not appear to be organised in their study methods, fear failure and perceive the workload to be excessive.

In some cases students described learning and knowledge in sophisticated terms picked up in education lectures, yet indicated a reliance on reproductive learning strategies.

(10)**Student No.34; Year 2 (1993);****Orchestration categorisation 18.13****(normally associated with success in learning outcomes)****Learning outcome score 51 (\bar{x} = 64.15)**

Learning is the acquisition of knowledge and skills which normally lead an individual to have a wider perception of the world.

Knowledge is an idea that can be expressed in a way that makes sense to other people.

Understanding means that I have made good sense out of what was said.

If the lecture is interesting I fail to take notes. If not, I get down the important bits.

I spend most of my time here doing academic work. I want to do as well as I can.

I'd prefer a choice of what to study and what to do for assignments.

The workload should be reduced and related to the needs of the student and the requirements of Malawi.

I am usually sure I can answer most questions and, anyway, there is a choice.

Problems train a person to think, and find a solution in a real world situation.

I check the course outline and jot down the main points from each topic using my notes and books.

(11)**Student No.10; Year 4 (1992);****Orchestration categorisation 18.15****(normally associated with success in learning outcomes)****Learning outcome score 58 (\bar{x} = 58.90)**

Knowledge enables one to reason, think, remember logically and evaluate situations.

Learning is when you understand something and can apply it in real situations.

I understand when I can relate the new idea to an existing one.

When the teacher is active in class, I put the things he says in my own images to understand them.

My notes are always very condensed, consisting of the main points only.

When something is difficult to understand I read about the topic and have discussions with friends in our own language about it.

I like a structured but flexible course.

You get the feeling that the quantity of work here is better than the quality.

No! Exams don't worry me. Remember after learning for some time you have to reassure the lecturers what you have got from their courses.

With problem solving you answer a question critically and by using your own ideas; recall restricts one's knowledge.

I read my notes, books and practice problems similar to the expected ones.

(12)

Student No.49; Year 4 (1992);

Orchestration categorisation 19.18

(normally associated with success in learning outcomes)

Learning outcome score 71 ($\bar{x} = 58.90$)

Knowledge refers to the possession of sensible ideas about a certain concept that are well organised and can be used to explain the phenomenon.

Learning is getting to know how to apply things in real life.

Understanding is when I comprehend and am happy with the new concept because I can put it into practice.

I listen to what the lecturer is saying, interpret it in my own understanding and then write notes.

Sometimes I discuss quietly with my deskmates what the lecturer is talking about.

I find it difficult to relax until I understand and can apply what we have been told.

I read a lot about the concepts I have learnt about.

In first year, I preferred a very structured course but nowadays I am in a position to choose.

The coverage of the courses is too wide and general; they should be narrow and specific.

It is through the exams that we get our degrees, so I don't mind them.

Problems require application. I prefer that, because it stimulates my reasoning power.

I prepare for exams by attempting sample questions several weeks ahead.

(13)

Student No.36; Year 2 (1993);

Orchestration categorisation 0.15

(normally associated with success in learning outcomes)

Learning outcome score 79 (\bar{x} = 64.15)

When I learn, I begin to see how and why things are the way they are.

Knowledge is what you need in your day to day encounter with the physical and social environment.

When I understand I can relate what I am taught to what I already know.

I listen and occasionally ask a question if I don't understand.

I always try to attach meaning to the new ideas.

When doing an assignment, I usually scrutinise the question, make a skeleton answer, look for relevant material in the library, make a draft and then a final copy.

In the evenings, I go over any area giving me problems during the day, until I understand.

Being told precisely what to do is somehow limiting.

Having a limited number of courses would be better because then we could dedicate out time to our special field, which would benefit us in exams and after we finish here.

Malawians have been made to fear exams. Our learning is so much centred on them.

Problem solving questions are better; recall questions require you to remember things in detail and I am not good at memorisation.

I like to work towards exams with a discussion group made up of my friends.

(14)**Student No.43; Year 4 (1992);****Orchestration categorisation 0.18****(normally associated with success in learning outcomes)****Learning outcome score 58 (\bar{x} = 58.90)**

Learning is the process of cognitive understanding of new material.

Knowledge is what you can now see after a new experience.

When I understand I recognise the meaning of something.

When not daydreaming, I listen to the lecture and take down the main points.

I really don't mind being given a choice or not; either way I am prepared to do it.

There is too much work for students, some is irrelevant.

I browse through the notes and ask friends where I don't understand.

I normally just take them as they come and don't have a specific preparation.

Usually the exams require things which I have learnt so I don't worry much about them.

(15)**Student No.4; Year 4 (1992);****Orchestration categorisation 0.19****(normally associated with success in learning outcomes)****Learning outcome score 84 (\bar{x} = 58.90)**

Knowledge is all the ideas and experiences that exist in the cognitive structure of the individual.

I would describe learning as a relatively lasting change in behaviour and attitudes which results from experience and which is later used in making adjustments to the environment.

Understanding is the ability to see somebody's different stand-point.

I sometimes try to participate but usually just listen. I only take notes if the subject is totally new.

I enjoy making extra notes in the library. When something is difficult to understand I normally arrange to see the lecturer.

I like not too much dependence, because then I know I will not need my lecturer all my life, and not too much independence.

Even during exam time there is too much to do; it is difficult to prepare adequately for exams.

The workload should be reduced to increase understanding.

I don't like exams because I don't feel they are part of true learning.

Problems require reasoning and, anyway, I am not good at memorising.

I prefer to think than to repeat what someone has said.

I don't prepare much for the subjects I find easy; with others, I read my notes and discuss topics in Chichewa with my roommate, who is doing the same course.

7.1.3.3 Summary

The final 6 cases represent desirable to highly desirable learning orchestrations, in that they are characterised by a richer, more holistic perception of the learning context, a deeper approach, relating ideas and use of evidence. The main intention of such learners is to understand what is learned, to relate and distinguish new ideas and previous knowledge, to relate concepts to everyday experience and to relate and distinguish evidence and argument.

The foregoing provides evidence in support of the finding that the way in which an individual engages learning is determined by the qualitative perceptions the individual has of the demands of the learning situation (Marton and Säljö, 1976b; Entwistle and Ramsden, 1983) and the conclusion of Meyer, et al., (1990) that learning outcome is associated with categorisations of individual orchestrations. In some cases, however, other influences on learning outcomes may obscure such an association.

7.1.4 Interview Responses Concerning a Lack of Student Questioning and Contribution to Lectures

Of particular interest to the present study are responses to the question, "During lectures, very few students question or contribute to what they hear. Why do you think this is?" The following is a range of typical student responses, grouped in terms of the reason given for a lack of contribution to lectures. The responses of students 'at risk' are recorded in italics, the orchestration categorisation of the respondent is given in parentheses at the end of each response and responses are ranked, with those accompanied by the least desirable orchestration appearing first.

Responses are as follows :

A lack of understanding

- They don't understand the content being taught. (2.1)*
Some they are not understanding while some are daydreaming. (4.1)
Maybe they haven't understood and can't ask anything. (5.3)
They don't understand or follow. (9.18)
Some understand fully what the lecturer is teaching, some understand nothing. (6.6)
It is because of misunderstanding of the lecture. (10.2)
Whatever the lecturer teaches is not clear so they cannot ask a question on what they have not understood. (10.9)
Many do not understand what the lecture offers. (12.4)
- It may mean that they've understood everything or have got nothing. (19.1)
 Others are lost and don't know where to start. (13.7)
 Either they've understood or they haven't heard anything. (15.3)
 Because they can't understand what's going on. (15.6)
 They are not following what is going on. (18.7)
 Either one understands clearly or one doesn't know. (16.15)
 Sometimes because they don't understand anything. (16.15)
 It's either they have understood or have not understood completely. (19.15)
 Some just copy what is said, they do not understand the content matter. (19.17)
 Because they do not understand. (19.19)
 They do not fully understand so there is no basis to ask. (0.15)
 Because they don't fully understand what is being taught and because they don't want to be laughed at. (0.15)

A pre-occupation with the taking of notes

- They concentrate on copying notes. (6.6)*
Because they concentrate on note-taking and so when they miss a point they are out. (12.19)

They are unable to notice where to ask because they are too busy writing notes. (15.9)

Students concentrate on copying notes and fear missing points from the lecturer. (16.12)

In lectures many people don't understand what is being taught so they keep themselves busy with taking notes. (0.19)

A perception that the content is too abstract

The content is too abstract, therefore they don't ask questions. (12.8)

Most of the subjects are not practical they are theoretical. (14.8)

I personally feel it is because the material given to the students is incomprehensible to some. (0.8)

The content is too abstract. (19.19)

A perception that too much material is covered in a lecture

There is no time to concentrate on the information. (3.2)

Students are behind since they have no time to revise the previous lesson, then linking is difficult. (10.7)

There is too much concentration on students to take down everything, so little understanding is done. (18.5)

The time is too limited to grasp the information. (18.8)

It is because too much is exposed to students within a few minutes. (19.8)

The lecture method is too fast for thinking. (19.16)

Direct reference to the lecturer

Because they have not understood, also because they fear the lecturer. (10.9)

Normally it is because we do not know what the lecturer is teaching and so we fear we may make mistakes. (14.8)

Because the students don't understand what the lecturers teach. (17.5)

Some lecturers speak too fast, so students don't understand. (17.9)

They don't understand what the lecturer is saying. (0.15)

A cultural view that knowledge is passed down from the wise

Students take what lecturers say as gospels. (2.8)

If you argue with lecturers that's dangerous. (5.8)

They consider the lecturer to be the only truth bearer. (19.14)

Direct reference to a low level of proficiency in the language of instruction

Many are having problems with English. Sometimes Malawian lecturers help us in Chichewa. (1.1)

The majority don't know how to formulate questions or express their ideas. (5.8)

We fail to come up with concrete questions. (8.8)

Some fail to express themselves. (16.15)

They fail to design questions of their own. (19.4)

It is due to poor command of English. (19.13)

It may also be because of lack of communication skills. (18.19)

It is difficult to construct grammatically correct questions. (19.18)

They have a problem with the language and the content is too abstract. (0.16)

Because of the language barrier, it is a second language. (0.16)

7.1.4.1 Summary

Responses to this particular question provide some compelling evidence of a lack of comprehension of the language of instruction, as well as an indication that a number of students rely on the taking of notes for regurgitation. Forty-seven out of 120 interviewees gave this type of response, of whom 12 were categorised as 'at risk' where the learning pathologies are concerned and 31 others had orchestrations categorised in terms of 'masks' 1 to 12 where the non-pathological, but nevertheless undesirable, constructs (memorisation, disorganised study methods, perceptions of a heavy workload) are indicated.

7.2 REVIEW

The orchestration profiles provide evidence that undesirable, reproducing strategies are widespread among students, while interview responses clearly show that difficulties with the language of instruction are also prevalent.

Interview responses, overall, provide an indication that students whose orchestrations are categorised as 'at risk' or undesirable and not normally associated with success in learning outcomes can be broadly characterised as follows :

they have a quantitative conception of learning and of knowledge and write down as much of what is said in lectures as they can. They perceive the workload to be excessive, describe themselves as disorganised learners and have a distinct preference for highly structured courses, precise assignment instructions and examination questions requiring recall of course content. Where examinations are concerned, they indicate a marked fear of failure and rely substantially on memorisation. The majority of these students experience difficulties with the language of instruction.

Students whose orchestrations are categorised as 'not at risk' and normally associated with success in learning outcomes can be broadly characterised as follows :

they have a somewhat more qualitative conception of learning and of knowledge and spend time in lectures trying to pick out the main points presented, as well as their meaning. They too, in many cases, perceive the workload to be excessive but describe themselves as organised learners, who read around the topics presented and may do more than is required. They indicate a preference for some choice in what they study and the assignments they do and have a marked preference for examination questions requiring solutions to problems set in realistic situations. Although some indicate concern for examinations, others recognise the value of the assessment procedures and some are stimulated by the opportunity to display their knowledge. The majority of these students have adequate levels of proficiency in the language of instruction.

7.3 ANALYSIS OF DATA AT AN INDIVIDUAL LEVEL

Using the research questions as a basic framework, it is now intended to present a detailed but concise characterisation of a number of individual learners, taking into account all of the variables of interest to the present study.

Student 35, Year 2 (1992).

This male science student has low proficiency (36) and outcome (51) scores and his orchestration to studying is categorised as 1.6 (severely 'at risk'). The three learning pathologies out-rank the 'meaning' constructs in his orchestration profile, as do perceptions of a heavy workload and syllabus boundness. Memorisation is also in a prominent position in the preference structure.

Indications are that he has a level of self-esteem below the mean for his gender within his year group (48) and finds lectures and lecture materials to be moderately facilitative of learning (107). However, he endorsed statements in the lecture rating inventory that alluded to various 'shortcomings' of presentation, such as excessive pace, coverage and difficulty level.

Several of his interview responses provide evidence of interest to this study. He described learning as the "...acquisition of a bundle of facts...and I pay much respect to note-taking and often sing them as a song many times." He likes a very structured course, to be told precisely what to do and prefers questions requiring recall of course content. "...I start reading in advance so that I memorise well. As the exams approach I devise many songs of important ideas."

This student's responses to questions in the measure of learning outcome were poorly expressed, except where it was possible to include verbatim responses.

Student 39, Year 2 (1992).

Scores below the pass mark were recorded for this female science student in both proficiency (49) and outcome (42). She is categorised as being severely 'at risk' (2.8) in terms of her study orchestration. Improvidence and globetrotting dominated all three 'meaning' constructs in her preference structure, with fragmentation in the ascendancy over use of evidence and relating ideas. Perceptions of a heavy workload, syllabus-boundness, disorganised study methods and fear of failure were also high in the profile. Interestingly, a strategic approach also took precedence over most other constructs, which appears to be related to fear of failure and her interview response that it was important to score as highly as possible by reviewing previous examination questions and "...to be on the safe side and not to be weeded."

Apart from describing learning as "...the acquisition of knowledge ... to be reproduced later ... through memorisation and the use of analogies..." this student prefers a structured course, precise instructions and maintains that "...students take what lecturers say as gospels ... if you argue with lecturers, that's too dangerous."

This student is the lowest performer in the 'slipped' group, of the Year 2 (1992) scatterplot (Fig. 6.1 and Table 6.14) and has a level of self-esteem substantially below the mean for her gender within the year group (48). Understandably, she did not rate lectures very highly (71) in terms of comprehensibility, agreeing with statements such as:

"The lecturer uses too many words that I don't understand."

"The lecturer often covers topics too quickly for me to understand."

"It is often difficult to follow the lecturer's explanations."

"The English that this lecturer uses is difficult to follow."

Student 57, Year 2 (1992).

Categorised as severely 'at risk' (4.1), this male humanities student has an exceptionally low proficiency score (27) and failed the examination (49) used as a measure of learning outcome.

Perceptions of a heavy workload, syllabus boundness, disorganised study methods, extrinsic motivation, fragmentation and memorisation appear in the top six levels of his preference structure. Relating ideas, deep approach and use of evidence are situated towards the lower end of the structure. Interview responses reflect this profile, with responses such as: "The workload is too heavy and maybe we should have some teachings in our own language ... Exams, they worry me because if I fail I will be weeded ... The main reason I came here is to get a profession and a school teacher is proud ... I sometimes make stories with the first letters of each thing to remember."

He is a member of the main group in the Year 2 scatterplot (Fig.6.1) and has a level of self-esteem below the mean for his gender within his year group (52). He rated the written content of lectures as more comprehensible than the spoken content (79 overall). This opinion should be considered in the light of the fact that a number of students in the present study worked through handouts and prescribed readings in the mother-tongue with peers, to increase their level of comprehension.

Student 11, Year 3 (1992).

In this case, a low level of proficiency in English (47) again occurs with a severely 'at risk' orchestration (1.1) and a poor learning outcome (41). The learning pathologies and other undesirable characteristics, including perceptions of a heavy workload, disorganised study methods, memorisation, fear of failure, extrinsic and achievement motivation and strategic approach all appear in the upper section of the profile, suppressing most meaning constructs.

The interview responses of this female humanities student supplement the above impressions, particularly with regard to her perceptions of a heavy workload, which, she claims, makes it difficult to be an organised learner. She has a preference for highly structured courses and precise instructions, since, as a strategic learner, this tells her "...exactly what the lecturer wants." In view of the emphasis on them, she worries about examinations and, possibly related to her English proficiency score, she prefers questions requiring recall.

"Sometimes problems are not noticed (i.e. recognised) by me."

This student appears at the lower extremity of the 'slipped' group in the Year 3 (1992) scatterplot (Fig.6.2 and Table 6.15) and has a self-esteem score below the mean for her gender in her year group (52). In the lecture rating inventory, some of the statements with which she agreed are as follows:

"What we have learned doesn't seem to have much to do with real life."

"The lecturer often covers topics too quickly for me to understand."

"The lecturer makes even simple things sound complicated."

"The lecturer thinks I have more background knowledge than I do have."

"Much of the content of these lectures is too difficult for me."

Student 31, Year 3 (1992).

The three 'meaning' constructs appear in the lowest levels of this female student's preference structure, categorised as 2.1. She has a proficiency score of 28 and a learning outcome score of 37. Of interest here is her interview response that students do not question or contribute to lectures because "...they do not understand the content being taught." This remark may well account for her perceptions of a heavy workload and her stated preference for examination questions that can be answered by recall.

Confirmation of her poor understanding of lectures presented in English are her responses to the lecture rating inventory. Those items concerning speed of presentation, content coverage, use of terminology and the lecturer's use of English generally, even those referring to the level of interest and relevance of the content, support the notion that she experiences great difficulty in simply decoding the language of instruction. On the other hand, items dealing with textbooks, handouts and assistance from friends are responded to favourably and may point to the fact that with assistance, possibly given in her mother-tongue, and given sufficient time, she is able to cope. This student attained passing grades in her assignment work, which provides some supporting evidence of this view.

She has a self-esteem score below the mean for her gender within her year group (44).

7.3.1 Summary

Difficulty with the language of instruction, evident in proficiency scores, interview responses and lecture ratings, appears to be a common characteristic of the students so far described. If it can be assumed that this difficulty increases the perceived pressures and demands which a learner has to confront in order to succeed, it becomes more likely that he or she will adopt strategies which, while less desirable, are perceived to be more likely to achieve a pass mark in a measure of learning outcome.

In striking contrast to the foregoing students are those manifesting high levels of English proficiency. Whilst a small number of these have poor learning outcome scores and 'at risk' orchestrations, most have desirable orchestrations to learning and perform well on measures of learning outcome. In an attempt to demonstrate the contrast observed here, the data collected in respect of two students of average performance and two of top performance in English proficiency are presented.

Student 7, Year 4 (1992).

This student has proficiency and learning outcome scores of 68 and 82, respectively. Although perceptions of a heavy workload dominate the preference structure (17.15), deep approach and use of evidence appear next. The third 'meaning' construct occurs in the lower half of the profile with the learning pathologies and other undesirable characteristics, such as fear of failure and syllabus boundness. Memorisation ranks lowest of all.

Interview responses indicate a preference for less structured courses, the opportunity to select topics for study and assignment work, as well as problem solving questions in examinations, since "...they do not require learning facts by committing them to memory."

Level of self-esteem was well above the mean for his gender (88) and lectures were rated favourably in terms of comprehensibility (135).

Student 31, Year 4 (1992).

An above average performance in English proficiency (69) and learning outcome (64) again occurs concurrently with a desirable orchestration (0.15). Although perceptions of a heavy workload and strategic approach appear at the top of the profile, all 'meaning' constructs are in the top half of the structure. Most negative characteristics are ranked in the lower half.

Interview responses indicate a qualitative conception of learning and of knowledge and a preference for less structured courses with some opportunity for choice of assignment topics. Examination questions requiring solutions to problems also take preference.

This female student's self-esteem score was marginally above the mean of her gender within her year group and she appears in the Year 4 (1992) 'slipped' group (Fig 6.16). Lectures received a favourable rating (126). There was no evidence apparent, in her lecture-rating inventory responses, of difficulty with the language of instruction.

Student 29, Year 4 (1992).

This student scores highly in both proficiency (82) and outcome (78). The 'meaning' constructs appear at the top of his orchestration profile (0.19) and the learning pathologies at the lower end, together with disorganised study methods, fear of failure and perceptions of a heavy workload.

In his interview responses, learning is described as "...a relatively lasting change in attitudes and behaviour, which results from experience and practice and which is later used in future adjustments to the environment, ...and in lectures, I listen and take down the main points, especially when the new learning is related to what I learned previously." He remembers and understands things "...by reading around the material ... and prefer(s) questions which require solutions to problems, because this allows me to interact with the questions spontaneously and naturally..."

No evidence of difficulty with the language of instruction was apparent in his responses to items in the lecture rating inventory (137) and his self-esteem score was above the mean for his gender (88).

Student 51, Year 4 (1992).

With proficiency and outcome scores of 78 and 80, respectively, this student is one of the top performers in terms of learning outcome. Deep approach, relating ideas and use of evidence are all in the top two levels of the orchestration profile as a result of administration of both mother-tongue and English versions of the inventory 'Experiences of Teaching and Learning' (0.19 and 0.15, respectively). Again, there was no evidence, in her responses to the lecture rating inventory, of difficulty with the language of instruction (125) and her self-esteem score was above the mean for her gender (76).

7.3.2 Summary

The students focused upon above appear to fit into one of two categories. There are those with low levels of proficiency in English and 'at risk' orchestrations to learning. A low level of proficiency in English appears to increase the perceived demands of the learning situation to the extent that reproducing

strategies are perceived to be the most expedient for a measure of success to be achieved.

There are those with adequate levels of proficiency in English and desirable orchestrations to learning. The perceptions of the demands of the learning situation of students with adequate proficiency in English appear to enable the adoption of desirable (meaning) orchestrations.

CHAPTER 8

DISCUSSION OF THE FINDINGS, CONCLUSIONS AND RECOMMENDATIONS FOR FUTURE RESEARCH

In this final chapter, the central hypothesis and main objective are restated with a brief summary of the most significant findings. Broad conclusions are drawn from this and recommendations are made for future research, which would further elucidate the area of investigation of the present study.

8.1 THE HYPOTHESIS, THE OBJECTIVE AND THE FINDINGS OF THE PRESENT STUDY

Human behaviour cannot readily be generalised and, as such, the results of the present study apply to the samples involved in the investigation, in their particular contexts. However, although replication would be necessary to evaluate the extent to which the findings can be extrapolated to other subjects in other situations, generalisations are suggested here.

Research is conducted in order to contribute to decision-making in the area in which it is focused and the ultimate value of any research is its usefulness, its practical application in its field of endeavour. Bearing in mind the limitation mentioned above, findings are offered here, which, because of their reasonableness and their consonance with other studies discussed, warrant generalisation.

Detailed results of the study were presented in Chapters 6 and 7. The main findings are given here in generalised form and are briefly commented upon as a basis for drawing conclusions and making recommendations for future research.

The main objective of the study was to test the hypothesis that levels of proficiency in the language of instruction are related to the quality of learning approaches adopted. Although the author explored the data for evidence which would support the null hypothesis, the findings reject this.

Orchestrations were categorised differently in 46% of cases, after administration of the English and Chichewa versions of the inventory 'Experiences of Teaching and Learning'. This provides evidence of differences in understanding between the language of instruction and the mother-tongue. The fact that orchestrations, overall, improve slightly over the years, as proficiency in English improves with experience - despite the possibility that perceptions of an excessive workload, assessment procedures and fear of failure, *inter alia*, may be having the opposite effect - provides an additional indication that proficiency in the language of instruction and orchestration to learning are related. (Sixteen students were categorised as 'at risk' in the Year 1 (1993) group, whereas only nine students in the Year 4 (1992) group were categorised as such.)

Examination of quantitative data has revealed a positive relationship between English proficiency and learning outcome. In addition, most of those students scoring below their year-group mean for English proficiency have study orchestrations categorised as 'at risk' or undesirable and not normally associated with success in learning outcomes. This study has clearly illuminated a relationship between proficiency and orchestration. Only a small number of students with high levels of proficiency in English had 'at risk' orchestrations. A far greater number of those with 'at risk' orchestrations also had low levels of linguistic proficiency. On the basis of the analysis conducted, we may infer significant statistical evidence for substantially superior performances of 'not at risk' sub-groups over 'at risk' sub-groups in almost every year group on both proficiency and learning outcome. (Eighty-two per cent of students with 'at risk' orchestrations had levels of proficiency below the mean for their year

group and 77% had both proficiency and outcome scores below the mean for their year group.)

The scatterplots substantiate that most students scoring below the mean of their year group on the measure of learning outcome have a low level of proficiency in the language of instruction (Forty-four per cent of all students had levels of proficiency below the mean for their year group) and/or an undesirable learning orchestration (Fifty per cent of all students had orchestrations categorised as undesirable) and/or a low level of self-esteem, which also appears to increase the perceived demands of the learning situation. (Forty-six per cent of all students had levels of self-esteem below the mean for their gender within their year group.) Of the constructs of interest to the present study, the multiple regression model indicates both level of self-esteem and proficiency in English as accounting for between 55% and 75% of the variability in learning outcome scores.

The orchestration profiles provide persuasive evidence that undesirable, reproducing strategies are widespread among students, while interview responses clearly show that difficulties with the language of instruction are also prevalent. Interview responses, overall, provide cogent evidence that students whose orchestrations are categorised as 'at risk' or undesirable and not normally associated with success in learning outcomes can be broadly characterised, by the author, as follows:

they have a quantitative conception of learning and of knowledge and write down as much of what is said in lectures as they can. They perceive the workload to be excessive, describe themselves as disorganised learners and have a distinct preference for highly structured courses, precise assignment instructions and examination questions requiring recall of course content. Where examinations are concerned, they indicate a marked fear of failure and rely substantially on memorisation. The majority of these students experience difficulties with the language of instruction.

Students whose orchestrations are categorised as 'not at risk' and normally associated with success in learning outcomes can, similarly, be broadly characterised as follows:

they have a somewhat more qualitative conception of learning and of knowledge and spend time in lectures trying to pick out the main points presented, as well as their meaning. They too, in many cases, perceive the workload to be excessive but describe themselves as organised learners, who read around the topics presented and may do more than is required. They indicate a preference for some choice in what they study and the assignments they do and have a marked preference for examination questions requiring solutions to problems set in realistic situations. Although some indicate concern for examinations, others recognise the value of the assessment procedures and some are stimulated by the opportunity to display their knowledge. The majority of these students have adequate levels of proficiency in the language of instruction.

The evidence also justified placing the individual students focused upon in the present study into one of two categories. There are those with low levels of proficiency in English and 'at risk' orchestrations to learning. A low level of proficiency in English appears to increase the perceived demands of the learning situation to the extent that reproducing strategies are perceived to be the most expedient for a measure of success to be achieved.

There are those with adequate levels of proficiency in English and desirable orchestrations to learning. The perceptions of the demands of the learning situation of students with adequate proficiency in English appear to enable the adoption of desirable orchestrations.

The supplementary investigation showed that the mean scores on a measure of understanding of each of three sets of two balanced groups were higher after studying in Chichewa, the mother-tongue, than was the case when studying in English. This phenomenon does not universally apply on a student by student basis, but, overall, understanding of the concepts taught was better when learning in the first language. (Seventy-six per cent of students demonstrated a higher level of understanding after being taught and tested in the mother-tongue). The consistency of the pattern and the considerable size of the differences leads to an expectation that similar studies of balanced groups will confirm superior first language performance, possibly as a result of superior proficiency in that language.

8.2 CONCLUSIONS


The 361 ESL students involved in the present study have convincingly shown that where levels of proficiency in the language of instruction are adequate, learning orchestrations and learning outcomes are of superior quality, compared to cases in which the level of proficiency is inadequate. On this basis, it can safely be concluded that there is a relationship between levels of proficiency in English of ESL students and the ways in which they engage in learning, in situations where English is the language of instruction. One can expect that students scoring below their year group mean on a measure of comprehension of spoken discourse and written texts presented in lectures, will have an orchestration categorisation of 12 or below on either the learning pathologies or on the non-pathological characteristics (perceptions of an excessive workload, disorganised study methods and memorisation), which is an even more likely scenario.

It is reasonable to state, on the basis of the analysis of data presented in Chapters 6 and 7, that students who experience difficulty with the language of instruction perceive an increase in the demands of the learning situation. The pressure upon the student is arguably greater than it would otherwise have been, had he or she experienced no difficulty with the language of instruction. In the face of a workload perceived to be excessive, as a consequence of the linguistic difficulty experienced - as well as other factors - and the perceived demands of the assessment procedures, the student adopts the most expedient strategies, as perceived by him or her, to meet these demands. After scrutiny of the data collected, the 'most expedient strategies' were frequently shown to be those which circumvent the requirement to interact with, and to abstract meaning from, the content material. Strategies adopted were those which require little more than short-term memorisation of material which is perceived to be appropriate in the light of the anticipated examination.

Expressed differently, this study has identified a factor, proficiency in English, which has the potential to seriously reduce the quality of an ESL student's orchestration to learning. The potential is dependent upon the extent to which

the low level of proficiency hinders or inhibits the student's ability to comprehend spoken discourse and written texts presented in lectures. Low proficiency in English changes the perceptions the individual has of the learning situation and obstructs meaningful learning. Previous related research has already established a relationship between learning orchestration and learning outcome (Meyer, *et al.*, 1990). The finding of this investigation is that there is a convincing relationship between linguistic proficiency and orchestration to learning. A corollary to this is that linguistic proficiency is, furthermore, related to the student's ability to demonstrate understanding in a measure of learning outcome.

8.3 RECOMMENDATIONS FOR FUTURE RESEARCH



In view of the findings of the present study, and apart from replication of the procedures adopted here with other students in other situations, a worthwhile and vital avenue of enquiry is the search for ways in which to support the ESL student who suffers from a low level of proficiency in English. Academic support and educational development programmes at many South African universities, for example, could provide suitable models for the nurturance of those students at the University of Malawi who experience difficulty with the language of instruction.

An approach which immediately strikes one is to provide support in the use of spoken and written English. To do so, however, would be to increase the workload and to provide experience aside from the objectives for which students are striving. The author suggests that English proficiency be developed in discipline-specific lectures through the empathetic approach of the lecturer. This is certainly preferable to compartmentalising it - as though it were not inextricably involved, as the language of instruction, with other study areas. After all, in the present study, it was observed that students became gradually more sophisticated in their use of English as they progressed from first to fourth year courses.

In the author's view, the first and foremost research requirement to follow the present study is a componential analysis of English proficiency. The measure of proficiency in this study is a global measure, in order to establish whether or not a relationship exists between proficiency in the language of instruction and orchestration to learning. It is now necessary to identify the diagnostic points of English language proficiency, such as discourse, syntax, cohesion/coherence, sentence length, logical ordering of information, active versus passive sentences, verb-tense relationships, complex versus simple sentences and the word-concept-cognition interface, *inter alia*. An analysis such as this would pin-point areas of difficulty and of inhibition of comprehension of spoken discourse and written texts and would provide for a more tailored approach to the support of those students with low levels of proficiency in the language of instruction. This approach would, however, need to penetrate the interplay of language, cognition and learning far more deeply than the many analyses so far conducted have been able to do.

There are numerous other strategies that could gainfully be put to the test with ESL students. Learners could collaborate in a quest for commonality-of-meaning by frequent and open consultation. Less rigid, less traumatic assessment techniques could be employed. Lectures could become less subject-centred and more participative. Bilbow's (1989:96) tenet that 'vicarious' experience in learning helps to bridge surface and deep learning and encourages students to assimilate the content of lectures, could be pursued.

There are strategies that could beneficially be put to the test in the area of staff development. Acculturation classes, during induction of new lecturers, to enable appropriate contextualisation of content material, is an approach worthy of trial. Certainly, redundancy in the text of lectures, use of colloquialisms and non-literal explanation of concepts should be reduced. Appropriate handouts and conceptual models where suitable should always be provided. Concepts should consistently be defined and as many illustrative examples as possible given.

The efficacy of such approaches, and many others, are areas for future investigation. Support for ESL learners is vital if they are to qualify and not just to graduate. If they are to operate effectively as professionals in a global village, they need to be able to interact in a widely spoken language, with experts in their field. They cannot be expected to learn, at the tertiary level, in the mother-tongue, which, in the context of Africa, is sometimes obscure and esoteric.

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APPENDICES

APPENDIX A

UNIVERSITY OF MALAWI
Department of Educational Foundations

You are requested to attach this sheet to your answer papers, with the paper clip provided.

STUDENT NUMBER.....STUDENT YEAR.....
 MALE/FEMALE
 HUMANITIES/SCIENCES AGE: (18 or less) (19-21) (22-24) (25-34) (35 or more)

Question 1 (to be answered in approximately 15 minutes) (5 marks)

Explain what Morse and Gergen (1970) meant by the following:

The presence of other children in a class has a marked impact on the self-concepts of individual children in terms of increases and decreases in level of self-esteem, which, in turn, have implications for level of self-confidence and performance.

Question 2 (to be answered in approximately 15 minutes) (5 marks)

Monozygotic twins possess identical inherited characteristics, since they develop from a single fertilized ovum which splits into two. In some instances such twins have been orphaned and adopted by entirely different families.

- a. Explain why this situation presents an ideal opportunity for a research project in developmental psychology.
- b. State what the likely conclusions of such a research project would be.

Question 3 (to be answered in approximately 15 minutes) (5 marks)

There is a relationship between maturation and learning, which has important implications for teachers planning what to teach, when to teach it and to whom. Write a brief explanation of this to a parent whose child is to be held back to repeat a year.

UNIVERSITY OF MALAWI
Department of Educational Foundations

You are requested to attach this sheet to your answer papers, with the paper clip provided.

STUDENT NUMBER.....STUDENT YEAR.....
 MALE/FEMALE
 HUMANITIES/SCIENCES AGE: (18 or less) (19-21) (22-24) (25-34) (35 or more)

QUESTION 1 (to be answered in approximately 15 minutes) (6 marks)

What are the implications for you, as a researcher, of the following statement:

Just as it is almost impossible for us to live in this world without contacting micro-organisms, so, in the research environment, the researcher cannot avoid the influence and contamination of bias of one sort or another.

QUESTION 2 (to be answered in approximately 15 minutes) (6 marks)

As part of a research project, you need to draw a representative sample of 200 subjects from a target population consisting of :

people of African origin 88 %
 people of Asian origin 10 %
 people of European origin 2 %

Half of the Africans are Christians, all the others are Moslems.
 All the Asians are Moslems.
 All the Europeans are Christians.

Sex, race and religion are critical variables in your research and you are interested in two age groups (viz. 20 to 40 years of age and those over 40)

Describe the procedure you will adopt to draw your subjects and state how many of the following categories of people there will, theoretically, be in the sample :

- a. Asian women over 40 years of age
- b. African men under 40 of the Moslem faith

QUESTION 3 (to be answered in approximately 20 minutes - 10 minutes per section) (8 marks)

- a. You are responsible for the preparation, implementation and assessment of a subject at the form 1 and 2 levels of a large secondary school. You are conscious of the fact that attainment levels are generally very poor. Briefly discuss possible underlying reasons for this and then generate at least two appropriate research questions that a systematically designed action research project could answer.
- b. You wish to establish whether or not there is an association between the relationship children have with their mothers during the formative years and level of self-esteem at the primary school stage. Are these variables quantifiable? Briefly describe the data collection techniques you would use to establish whether or not a relationship exists.

NORM-REFERENCED AND CRITERION-REFERENCED MEASUREMENT

The Basic Distinction.

It is not possible to tell a norm-referenced test from a criterion-referenced test by looking at them. In fact, a criterion-referenced test could also be used as a norm-referenced test, although the reverse is not so easy to imagine. However, this truth should not be allowed to obscure the extremely important differences between these two approaches to testing.

At the most elementary level, norm-referenced measures are those which are used to ascertain an individual's performance in relation to the performance of other individuals on the same measuring device. The meaningfulness of the individual score emerges from the comparison. It is because the individual is compared with some normative group that such measures are described as norm-referenced. Most standardised tests of achievement or intellectual ability can be classified as norm-referenced measures.

Criterion-referenced measures are those which are used to ascertain an individual's status with respect to some criterion, i.e., performance standard. It is because the individual is compared with some established criterion, rather than other individuals, that these measures are described as criterion-referenced. The meaningfulness of an individual score is not dependent on comparison with other testees. We want to know what the individual can do, not how he stands in comparison to others. For example, the dog owner who wants to keep his dog in the back yard may give his dog a fence-jumping test. The owner wants to find out how high the dog can jump so that the owner can build a fence high enough to keep the dog in the yard. How the dog compares with other dogs is irrelevant. Another example of a criterion-referenced test would be the Malawi Air Wing flight test, where an individual must display certain flying skills to pass the examination, irrespective of how others perform on the test.

Since norm-referenced measures are devised to facilitate comparisons among individuals, it is not surprising that their primary purpose is to make decisions about individuals. Which student should be counselled to pursue a post-graduate qualification? Which students should be advised to attain vocational skills? These are the kinds of questions one seeks to answer through the use of norm-referenced measures. Many decisions regarding an individual can best be made by knowing more about the 'competition', that is, by knowing how other comparable individuals perform.

Criterion-referenced tests are devised to make decisions both about individuals and treatments, e.g. instructional programmes. In the case of decisions regarding individuals, one might use a criterion-referenced test to determine whether a learner had mastered a criterion skill considered prerequisite to commencing a new training programme. In the case of decisions regarding treatments, one might design a criterion-referenced measure which reflected a set of instructional objectives supposedly achieved by a replicable instructional sequence. By administering the criterion-referenced measure to appropriate learners, after they had completed the instructional sequence, one could reach a decision regarding the effectiveness of the sequence (treatment).

Although both norm-referenced and criterion-referenced tests are used to make decisions about individuals, there is usually a difference in the two contexts in which such decisions are made. Generally, a norm-referenced measure is employed where a degree of selectivity is required by the situation. For example, when there is only a limited number of openings in a company's executive training programme, the company is anxious to identify the *best* potential trainees. It is critical in such situations, therefore, that the measure permit relative comparisons among individuals. On the other hand, in situations in which one is only interested in whether an individual possesses a particular competence or not, and there are no constraints regarding how many individuals can possess that skill, criterion-referenced measures are suitable. Theoretically, at the close of many instructional programmes we might hope that all learners would display maximum proficiency on measures reflecting the instructional objectives. In this sense, criterion-referenced measures may be considered

absolute indicators. Thus, both norm-referenced and criterion-referenced tests can be focused on decisions regarding individuals - it is the context within which these decisions are made that really produces the distinction.

Variability.

The issue of variability is at the core of the difference between norm-referenced and criterion-referenced tests. Since the meaningfulness of a norm-referenced score is basically dependent on the relative position of the score in comparison with other scores, the more variability in the scores the better. With a norm-referenced test we want to be able to tell Banda from Buwa from Phiri, and we feel more secure about telling them apart if their scores are very different.

With criterion-referenced tests, variability is irrelevant. The meaning of the score is not dependent on comparison with other scores, it flows directly from the connection between the items and the criterion. It is true that one almost always gets variant scores on any test; but that variability is not a necessary condition for a good criterion-referenced test.

Item Construction

Most important, when a writer constructs items for a norm-referenced test, he wants variability and, as a consequence, makes all sorts of concessions, sometimes subtle, sometimes obvious, to promote variant scores. He disdains items which are 'too easy' or 'too hard'. He tries to increase the allure of wrong answer options. All of this he does to produce variability. Occasionally this overriding criterion may reduce the adequacy of the instrument, for even spurious factors may be incorporated in items just to produce variance.

The criterion-referenced item writer is guided by another goal. His chief rule is to make sure the item is an accurate reflection of the criterion behaviour. Difficult or easy, discriminating or indiscriminate, the important thing is to

make the item represent the class of behaviours delimited by the criterion. Those who write criterion-referenced items are usually far more attentive to defining the domain of relevant test responses and the situations in which they should be required. This rather fundamental difference in the approach on the part of the criterion-referenced and norm-referenced item writers can clearly contribute to differences in the resulting items.

A second difference associated with test construction is that although norm-referenced and criterion-referenced measures which are used to make decisions about individuals require that the same test be used with different individuals, criterion-referenced tests used for evaluating instructional programmes need not. The concept of item sampling in which different people complete different items is highly appropriate for evaluating the adequacy of treatments. For such situations a number of different test forms, each containing different criterion-referenced items, can be constructed.

Reliability.

We all should know that for a single number to be used to describe the performance of a person on a test, the items in that test should all 'measure the same thing' to some minimal extent. That is, the test should be internally consistent.

Now it is obvious that a criterion-referenced test should be internally consistent. If we argue that the items are tied to a criterion, then certainly the items should be quite similar in terms of what they are measuring. But although it may be obvious that a criterion-referenced test should be internally consistent, it is not obvious how to test the internal consistency. The classical procedures, which are dependent on score variability, are not appropriate. A criterion-referenced test should not be faulted if, when administered after instruction, everyone obtained the same score, which would lead to a zero internal consistency estimate.

If a criterion-referenced test has a high average inter-item correlation, this is fine. If the test has a high test-retest correlation this is also fine. The point is *not* that these indices cannot be used to support the consistency of the test. The point is that a criterion-referenced test could be highly consistent, both internally and from administration to administration, and yet indices dependent on variability might not reflect that consistency.

Validity.

Many of the procedures for assessing the validity of norm-referenced tests are based on correlations and thus on variability. Hence, with validity, as with reliability, the results of the procedures are useful if they are positive, but not necessarily devastating if they are negative.

Criterion-referenced measures are validated primarily in terms of the adequacy with which they represent the criterion. Therefore, content validity approaches are more suited to such tests. A carefully made judgement, based on the test's apparent relevance to the behaviours legitimately inferable from those delimited by the criterion, is the general procedure for validating criterion-referenced measures.

Item Analysis.

Item analysis procedures have traditionally been used with norm-referenced tests to identify those items that were not properly discriminating among individuals taking the test. For instance, in an achievement test, an unsatisfactory item would be one which could not properly discriminate between the more or less knowledgeable learners. Non-discriminating items are usually those that are too easy, too hard and/or ambiguous.

For criterion-referenced tests the use of discrimination indices must be modified. An item which doesn't discriminate need not be eliminated. If it

reflects an important attribute of the criterion, such an item should remain in the test. We might be interested in a non-discriminating item's ability to discriminate between those individuals who have and those who have not been exposed to the instruction.

Reporting and Interpretation.

We need to interpret test results properly in order to make the best possible decisions. With respect to norm-referenced measurement, we are interested in an individual's performance in relation to the performance of other individuals and we use such group-relative descriptors as percentile rankings or standard scores. Such indices allow us to tell, from a single score, how well an individual performed in relation to the group.

When interpreting an individual's performance on a criterion-referenced test, such group-relative indices are not appropriate. Some criterion-referenced tests yield scores which simply indicate whether or not an individual has mastered the criterion. More commonly, however, a range of acceptable performances exists. Whether or not we wish to report the degree of less-than criterion performance would depend on the context. Such gradations in reporting are only a function of the alternative courses of action available to the individual after the measurement has been taken.

Adapted from Popham, W.J. and Husek, T.R. (1989) Journal of Educational Measurement, 6, 1, 1-9.

This is not a measure of your ability to express yourself. It is a measure of your understanding of what you have just read. You may answer the questions which follow overleaf in note form if you wish.

- (1) Why are norm-referenced tests referred to in this way?
- (2) Where does the criterion-referenced test get its name?
- (3) If you wished to seat students in 'ability groups', what sort of test would you construct?
- (4) Give an example of a situation in which a criterion-referenced measure would be the more appropriate.
- (5) Why can a criterion-referenced test be used as a norm-referenced test but a norm-referenced test cannot be used as a criterion-referenced test?
- (6) You have developed an instructional programme. Why would you use a criterion-referenced test to measure the effectiveness of the programme and what would such a test actually measure, if appropriately constructed?
- (7) Variability is at the core of the difference between norm-referenced and criterion-referenced measures. Why?
- (8) What test would you use to discriminate between the performances of Banda, Buwa and Phiri? Give a reason for your choice.
- (9) Briefly explain the differences in the approaches of norm-referenced and criterion-referenced item writers.
- (10) In estimating the reliability of a criterion-referenced test, why are the classical procedures used in the case of a norm-referenced measure inappropriate?
- (11) Why should a criterion-referenced measure not be discarded on the grounds of a zero internal consistency rating?

- (12) In your own words, describe the procedure you would adopt to gauge the validity of a criterion referenced test that you had constructed.
- (13) What are group-relative descriptors, such as percentile rankings and standard scores.?
- (14) Why are group-relative indices inappropriate when interpreting an individual's performance on a criterion-referenced test?
- (15) Give an example of a situation in which an individual's score on a criterion-referenced test might be interpreted in terms of a range of acceptable performances.

APPENDIX B

Please print your student number here:

LECTURE RATING INVENTORY

The comments listed below have all been made by students about lectures they have attended. We would like to know to what extent you agree or disagree with what they have said.

Your experiences probably vary from one subject to another, but here we are interested in your honest and sincere ratings of this course (i.e.....)

Please indicate your reaction to each comment by circling the appropriate code number. This is not a test and there are no right or wrong answers. We are simply interested in how well the lectures have helped you to learn. Circle the code number to indicate your answer.

√√	5	means that you definitely agree
√	4	means that you agree, but with reservations
?	3	means that you cannot decide or that it doesn't apply
X	2	means that you tend to disagree
XX	1	means that you definitely disagree

	√√	√	?	XXX
(1) What we have learned doesn't seem to have much to do with real life.	5	4	3	2 1
(2) Lectures have followed a logical sequence.	5	4	3	2 1
(3) The lecturer usually tries to cover too much in each lecture.	5	4	3	2 1
(4) I will be able to use what I have learned in my future work.	5	4	3	2 1
(5) It is often difficult to follow the lecturer's explanations.	5	4	3	2 1
(6) The lecturer is helpful when students are confused.	5	4	3	2 1
(7) The lecturer uses too many words that I don't understand.	5	4	3	2 1
(8) I have learnt more from textbooks than from lectures on this course.	5	4	3	2 1
(9) There is too much lecturing and not enough discussion.	5	4	3	2 1
(10) The course content is presented in interesting ways.	5	4	3	2 1
(11) The lecturer often covers topics too quickly for me to understand.	5	4	3	2 1
(12) The lecturer helps me to relate course content to other things.	5	4	3	2 1
(13) The English that this lecturer speaks is difficult to follow.	5	4	3	2 1
(14) The lecturer gives good examples of concepts we are learning about.	5	4	3	2 1
(15) The lecturer goes into too much unnecessary detail.	5	4	3	2 1
(16) I usually feel free to ask the lecturer questions.	5	4	3	2 1
(17) I have to learn most of the content of this course by reading books.	5	4	3	2 1
(18) I usually have a clear idea of what I am expected to achieve.	5	4	3	2 1
(19) I feel uneasy about stopping the lecturer when I am confused.	5	4	3	2 1
(20) What the lecturer writes on the chalkboard is usually helpful.	5	4	3	2 1
(21) I have had to rely on a lot of help from friends on this course.	5	4	3	2 1
(22) The handouts we were given were useful aids to learning.	5	4	3	2 1
(23) The lecturer makes even simple things sound complicated.	5	4	3	2 1
(24) Handouts covering the lectures are frequently available.	5	4	3	2 1
(25) The lecturer thinks I have more background knowledge than I do have.	5	4	3	2 1
(26) The library books available on this subject have been helpful.	5	4	3	2 1
(27) The lecturer speaks too quickly for me to understand.	5	4	3	2 1
(28) The content of the lectures is relevant to my needs.	5	4	3	2 1
(29) Much of the content of these lectures is too difficult for me.	5	4	3	2 1
(30) I find this subject interesting.	5	4	3	2 1

Thank you for contributing to this research

APPENDIX C

Please print your name clearly: Surname:
 Christian names:

EXPERIENCES OF TEACHING AND LEARNING

The following comments have been made by students about their experiences of teaching and learning. We should like to know to what extent you agree or disagree with what they have said. The comments are necessarily rather general but each of them covers a particular aspect of teaching and learning that we would like your personal reaction to.

It is possible that your feelings may vary from one subject to another, but here we are interested in your experience of studying *this course* () at this university.

Please go through all the comments quickly indicating your immediate reaction by circling the appropriate code number. This is not a test and there are no 'right' or 'wrong' answers. We are simply interested in your own experiences and feelings about teaching and learning. Circle the code number to indicate your answer.

- ✓✓ 5 means that you definitely agree
- ✓ 4 means that you agree, but with reservations
- ? 3 means that you are not sure or that it doesn't apply
- x 2 means that you tend to disagree
- xx 1 means that you definitely disagree

IF YOU DON'T UNDERSTAND THE WORDING OF A SENTENCE,
 PLEASE ASK FOR HELP.

	✓✓	✓	?	x	xx
1. I find it difficult to organise my study time effectively.	5	4	3	2	1
2. I try to relate ideas in this course to ideas in other subjects whenever possible.	5	4	3	2	1
3. Although I have a fairly good general idea of things, my knowledge of the details is fairly weak.	5	4	3	2	1
4. I enjoy competition: I find it exciting.	5	4	3	2	1
5. I usually set out to understand thoroughly the meaning of what I am required to learn.	5	4	3	2	1
6. Ideas in books often set me off on many thoughts of my own, which are not always related to what I was reading.	5	4	3	2	1
7. I chose my present course of study mainly to give me a chance of a really good job afterwards.	5	4	3	2	1
8. Much of what I am studying seems to consist of unrelated bits and pieces.	5	4	3	2	1

	✓✓	✓	†	x	xx
9 I like to be told exactly what to do in essays, assignments or projects.	5	4	3	2	1
10. I often find myself questioning things that I hear in class or read in books.	5	4	3	2	1
11. I generally prefer to tackle each part of a topic or problem in order, working out one step at a time.	5	4	3	2	1
12. The continual pressure of work - assignments, deadlines and competition - often makes me tense and depressed.	5	4	3	2	1
13. I find it difficult to consider different ways of approaching a problem: I prefer to follow each line of thought as far as it will go.	5	4	3	2	1
14. My habit of putting off work leaves me with far too much to do before tests or exams.	5	4	3	2	1
15. It is important to me to do really well in my studies here.	5	4	3	2	1
16. Teachers seem to present things in such complicated ways.	5	4	3	2	1
17. Distractions make it difficult for me to do much effective work in my study time.	5	4	3	2	1
18. When I am doing a piece of work, I try to bear in mind exactly what that particular teacher seems to want.	5	4	3	2	1
19. I don't usually think about the things I have learned.	5	4	3	2	1
20. I look out for hints about what is likely to come up in tests or exams.	5	4	3	2	1
21. In trying to understand a puzzling idea, I let my imagination wander freely to begin with, even if I don't seem to be much nearer a solution.	5	4	3	2	1
22. My main reason for being here is that it will help me to get a better job.	5	4	3	2	1
23. I often have to learn some things several times in order to understand them.	5	4	3	2	1
24. I generally put a lot of effort into trying to understand things which at first seem difficult.	5	4	3	2	1
25. I prefer learning activities to be clearly structured and highly organised.	5	4	3	2	1
26. A poor first answer in an exam makes me panic.	5	4	3	2	1
27. I prefer to follow usual or common approaches to solving problems rather than anything too adventurous.	5	4	3	2	1
28. I am rather slow at starting work that has to be done.	5	4	3	2	1

	✓✓	✓	?	x	xx
49. Much of what I have to learn seems to be unrelated.	5	4	3	2	1
50. I need to read a lot about a subject before I'm ready to put my ideas down on paper.	5	4	3	2	1
51. Although I generally remember facts and details, I find it difficult to fit them together into an overall picture.	5	4	3	2	1
52. I tend to read very little beyond what's required for completing assignments.	5	4	3	2	1
53. I do not enjoy speaking in class in front of other people.	5	4	3	2	1
54. Puzzles or problems fascinate me, particularly where I have to work through the material to reach a logical conclusion.	5	4	3	2	1
55. I spend a good deal of my spare time in finding out more about interesting topics that we have been told about in class.	5	4	3	2	1
56. When I am presented with a new topic, I find it helpful to see in my own mind how all the ideas fit together.	5	4	3	2	1
57. I seem to be a bit too ready to jump to conclusion without thinking about all the evidence.	5	4	3	2	1
58. I hate admitting defeat, even in small matters.	5	4	3	2	1
59. I think it is important to look at problems rationally and logically without jumping to conclusions.	5	4	3	2	1
60. I find I tend to remember things better if I concentrate on the order in which they were taught or given to us.	5	4	3	2	1
61. When I'm reading an article or research report, I generally examine the evidence carefully to decide whether the conclusion is justified.	5	4	3	2	1
62. Some people think I should be more adventurous in making use of my own ideas.	5	4	3	2	1
63. I learn things by writing them over and over or by saying them to myself.	5	4	3	2	1
64. I find academic topics so interesting, I should like to continue with them in the future.	5	4	3	2	1
65. I am conscious of the way that my attitudes towards teaching and learning affect my relationships with others.	5	4	3	2	1
66. When I sit in a classroom or laboratory, I usually notice the fittings and equipment in it.	5	4	3	2	1
67. When selecting books for study purposes I try to find those that contain important information for understanding a topic.	5	4	3	2	1

	✓✓	✓	?	x	x:
68. Sometimes I don't really pay much attention to what is being said in class.	5	4	3	2	1
69. I sometimes think about things I have previously learned and change my mind about their meaning.	5	4	3	2	1
70. The educational purpose of tests is usually clear to me.	5	4	3	2	1
71. In class I usually write down what the teacher says or writes on the board.	5	4	3	2	1
72. There seems to be too much work to get through in the course here.	5	4	3	2	1
73. I enjoy some learning experiences, such as those involving learning things from other people, more than others.	5	4	3	2	1
74. The subject matter that tests actually cover is usually clear to me.	5	4	3	2	1
75. I enjoy finding things out for myself.	5	4	3	2	1
76. I usually notice the noise level in classrooms.	5	4	3	2	1
77. I don't usually have any trouble finding information in books.	5	4	3	2	1
78. I think that the workload here is too heavy.	5	4	3	2	1
79. I usually try to guess or anticipate the questions that will be asked in tests or examinations.	5	4	3	2	1
80. When I think back to some things that I did not enjoy learning at the time, I realize that they were worth learning after all.	5	4	3	2	1
81. I often copy notes out of a textbook.	5	4	3	2	1
82. The structure of the content in the subjects I am studying is usually clear to me.	5	4	3	2	1
83. I usually notice how the teacher uses the blackboards.	5	4	3	2	1
84. I appreciate guidance given to me by others.	5	4	3	2	1
85. I think there is a lot of pressure on me as a student here.	5	4	3	2	1
86. When using books for study purposes, I usually notice the manner in which subject matter is organised in them.	5	4	3	2	1
87. I usually question the relevance of the content of the subject I am studying.	5	4	3	2	1
88. I usually notice the legibility of what is written on the blackboard or on an overhead transparency.	5	4	3	2	1

	✓✓	✓	?	x	x1
29. In trying to understand new ideas I often try to relate them to real life situations to which they might apply.	5	4	3	2	1
30. When I am learning I try to memorise important facts.	5	4	3	2	1
31. I like to play around with ideas of my own even if they don't get me very far.	5	4	3	2	1
32. I generally chose my field of study more from the way it fits in with my career plans than with my own interests.	5	4	3	2	1
33. I am usually cautious in drawing conclusions unless they are well supported by evidence.	5	4	3	2	1
34. When starting on a new topic. I often ask myself questions about it which the new information should answer.	5	4	3	2	1
35. I suppose I am more interested in the qualifications I will get than in the subjects I am studying.	5	4	3	2	1
36. I often find I have to learn things that I don't really understand.	5	4	3	2	1
37. If conditions aren't right for me to study, I can generally make a plan to change them so that work is still possible.	5	4	3	2	1
38. In reporting practical work I like to try to work out several different ways of interpreting the results.	5	4	3	2	1
39. My main reason for being here is so that I can learn more about the subjects which really interest me.	5	4	3	2	1
40. In trying to understand new topics. I often explain them to myself in ways that other people wouldn't understand.	5	4	3	2	1
41. I find I have to concentrate on memorising a lot of what I have to learn.	5	4	3	2	1
42. It is important to me to do things better than other people. if I possibly can.	5	4	3	2	1
43. I find it better to start straight away with the details of a new topic or problem and build up a complete picture in that way.	5	4	3	2	1
44. Often when I'm reading books. the ideas produce pictures in my mind which sometimes take on a life of their own.	5	4	3	2	1
45. One way or another I manage to get hold of the books I need for studying.	5	4	3	2	1
46. I often get criticised for introducing irrelevant material into my answers.	5	4	3	2	1
47. I find that studying subjects here can often be really exciting.	5	4	3	2	1
48. The best way for me to understand difficult concepts is to memorize their definitions.	5	4	3	2	1

	✓✓	✓	?	x	x i
89. When using books for study purposes, I usually notice the manner in which they are illustrated.	5	4	3	2	1
90. I am conscious of the amount of subject content I have to study.	5	4	3	2	1
91. I often think about certain real life experiences I have had and how they have altered my view of life.	5	4	3	2	1
92. There is so much written work to be done, that I find it very difficult to get down to private studying.	5	4	3	2	1
93. I try to participate in discussions whenever possible.	5	4	3	2	1
94. I am aware that being tested can sometimes help me to learn.	5	4	3	2	1
95. When selecting books for study purposes, I often examine their 'search apparatus' (such as the index, list of contents, chapter headings, cross references).	5	4	3	2	1
96. I usually notice the different uses of teaching aids (such as the blackboard, overhead projector, television and so on).	5	4	3	2	1
97. I am aware of the different ways in which we can be tested (for example by writing essays, answering multiple choice questions, solving problems, presenting orals and so on).	5	4	3	2	1
98. I usually notice the individual characteristics of the students who make up my classes.	5	4	3	2	1
99. I am conscious of where I sit in the classroom.	5	4	3	2	1
100. It sometimes seems to me that the syllabus tries to cover too many topics.	5	4	3	2	1
101. I usually think very carefully about the comments the lecturer makes about my answers to test or exam questions.	5	4	3	2	1
102. When faced with real life problems I often think about experiences I may have had, or which my friends may have had, that might help me to find a solution.	5	4	3	2	1
103. I am scared that I might fail this course this year.	5	4	3	2	1
104. I never seem to have enough time to catch up on my homework.	5	4	3	2	1

(Please continue on next page)

COURSE PERCEPTIONS

This section asks more general questions about your preferences for different types of lecturing style, exam type, tutor style and course type. Please respond by circling the appropriate coded number as before.

	✓✓	✓	?	X	XX
I generally prefer lecturers who:					
a - show us how what we're learning relates to the outside world.	5	4	3	2	1
b - tell us exactly what to put down in our notes.	5	4	3	2	1
c - show us what they themselves think about a subject.	5	4	3	2	1
d - entertain us even if the content isn't particularly good.	5	4	3	2	1

I generally prefer exams which

a - give me the opportunity to show I've thought about a course for myself.	5	4	3	2	1
b - can be answered directly from the material in our lecture notes.	5	4	3	2	1
c - make it clear how much effort we're expected to put into each part of the question.	5	4	3	2	1
d - have general questions which provide opportunities to follow a number of different lines .	5	4	3	2	1

I generally prefer tutors who:

a - get us discussing ideas among ourselves.	5	4	3	2	1
b - go over the lecture to make sure we haven't missed anything.	5	4	3	2	1
c - show us very clearly what they think of our ideas.	5	4	3	2	1
d - are friendly, even if they're not so good at explaining things.	5	4	3	2	1

I generally prefer courses where

a - we're able to follow our own interests quite a lot.	5	4	3	2	1
b - it's made very clear just which books we have to read.	5	4	3	2	1
c - it's clear how important the various topics are for the exams.	5	4	3	2	1
d - we're encouraged to read around the subject a lot.	5	4	3	2	1

Thank you for your responses to the comments. Please check that you have not left any out.

Chonde lembani dzina lanu mooneka bwino:

Dzina la bambo: _____

Maina ena: _____

ZOKUMANA NAZO POPHUNZITSA NDI POPHUNZIRA

Ndemanga izi zaperakedwa ndi ana asukulu kuchokera mu zomwe amakumana nazo pophuzira ndi pophuzitsidwa. Tikufuna kuti tidziwe ngati mukugwirizana kapena kutsutsana nazo zomwe afutokozazi. Mfundo zimenezi zakambidwa mwapatalipatali koma iriyonse yafotokozako mbali yake yokhudza kuphuzitsa ndi kuphuzira komwe tikufuna maganizo anu.

Ndikotheka kuti maganizo anu akhoza kusiyana pa phunziro lililonse, koma pano tikufuna zomwe mwakumana nazo pophuzira phunziro lino (.....) pa sukulu ya ukachenjede ino.

Chonde werengani mfundozi mwamsanga ndikupereka maganizo anu polemba mozungulira nambala yokhozekayo. Awa simayeso ndiponso palibe yankho lokhoza kapena lolakwika. Tikungofuna kudziwa zomwe mwakumana nazo ndi maganizo anu pokhudzana kuphuzitsa ndi kuphuzira. Lembani mozungulira nambala yofunikayo ndikusonyeza yankho lanu.

- √√ 5 kutanthauza kuti mukuvomera kotheratu
- √ 4 kutanthauza kuti mukuvomera mokaika
- ? 3 kutanthauza kuti mukukaikira kapena kuti ndizosakhudzana
- x 2 kutanthauza kuti simukuvomerezana nazo kwenikweni
- xx 1 kutanthauza kuti mukukana kotheratu

Ngati simukumvetsa bwino momwe mau ayikidwira mchiganizo, chonde funsani chithandizo.

√√ √ ? x xx

- | | |
|--|-----------|
| 1. Ndimavutika kukonza nthawi yowerengera bwinobwino. | 5 4 3 2 1 |
| 2. Ndimayesetsa kugwiritsa ntchito zophuzira m'phunziro iri ndi za maphunziro ena pakakhala potheke | 5 4 3 2 1 |
| 3. Ngakhale ndimadziwako bwino za zinthu mwapatalipatali kudziwa kwanga kwa zinthu mwatsatanetsatane nkosakwanira. | 5 4 3 2 1 |
| 4. Ndimakonda mpikisano: umandisangalatsa. | 5 4 3 2 1 |
| 5. Ndimakonda kumvetsa bwinobwino tanthauzo la zomwe ndiyenera kuphuzira. | 5 4 3 2 1 |

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| 6. Maganizo a m'mabuku amandilotetsa zosiyana ndizomwe ndimawerenga | 5 4 3 2 1 |
| 7. Ndinankha maphunziro omwe ndikuchitawa makamaka kuti ndidzakhale ndi mwayi wantchito yabwino ndikamaliza. | 5 4 3 2 1 |
| 8. Zambiri mwa zomwe ndikuphunzira zikukhala ngati muli zidutswa zosagwirizana. | 5 4 3 2 1 |
| 9. Ndimafuna kuti ndidziuzidwa bwinobwino chenicheni chofunika kuchita polemba zimangirizo kapena ntchito zina zimene timapatsidwa kuti tichite. | 5 4 3 2 1 |
| 10. Kawirikawiri sindimangololera zimene ndimawerenga m'mabuku kapena zimene ndimamva m'kalasi. | 5 4 3 2 1 |
| 11. Ndimakonda kuunika mbali iliyonse ya mutu kapena funso mwandondomeko, kutenga gawo limodzi panthawi imodzi. | 5 4 3 2 1 |
| 12. Kuchulukana kwa ntchito mopitirira - maasainimenti, masiku otsiriza kupereka ndi kulandira maasainimenti, ndiponso mpikisano - kumandipatsa phuma ndiponso kundifoola. | 5 4 3 2 1 |
| 13. Zimandivuta kuganizira njira zosiyanasiyana zotambasulira funso; ndimakonda kutsata ganizo lililonse mpaka pomwe lithere. | 5 4 3 2 1 |
| 14. Chizolowezi changa chosiyiza ntchito chimandisiyira zochita zambiri koposa mayeso akayandikira. | 5 4 3 2 1 |
| 15. Mpo funika kwa ine kuti ndichite bwino m'maphunziro anga pano. | 5 4 3 2 1 |
| 16. Aphunzitsi amaoneka kuti akamaphunzitsa amazipanga zinthu kukhala zovuta kuti munthu amve. | 5 4 3 2 1 |
| 17. Zinthu zondisokoneza zimandilepheretsa kuchita bwino ntchito iriyonse pa nthawi yanga yowerengera. | 5 4 3 2 1 |
| 18. Ndikamachita ntchito ina yake, ndimayesetsa kudziwa zomwe aphunzitsi amaonetsa kuti akufuna. | 5 4 3 2 1 |
| 19. Nthawi zambiri sindimaganiza zomwe ndaphunzira. | 5 4 3 2 1 |
| 20. Ndimakonetsa kupeza mfundo zomwe ziri zoyembekezeka kubwera pa mayeso. | 5 4 3 2 1 |

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21. Pofuna kumvetsa maganizo ovuta, ndimaponya maganizo anga apo ndi apo poyamba, ngakhale kuti zimaoneka kuti sindipeza yankho lenleni. 5 4 3 2 1
22. Cholinga changa chachikulu chokhalira pano ndi chakuti ndi dzapeze ntchito yabwino. 5 4 3 2 1
23. Nthawi zina ndimayenera kuphunzira zinthu zina mobwerezabwereza kuti ndizimvetsetse bwino. 5 4 3 2 1
24. Ndimayesetsa kulimbikira kuti ndimvetsetse zinthu zomwe poyamba zimaoneka ngati zovuta. 5 4 3 2 1
25. Ndimafuna kuti zinthu zimene ndimaphunzira zidzikhala za dongosolo labwino. 5 4 3 2 1
26. Yankho losayenera poyamba m'mayeso limandipangitsa kuti ndikhale ndi mantha. 5 4 3 2 1
27. Ndimakonda kutsatira njira zodziwika poyankha mafunso kusiyana ndinjira zachilendo. 5 4 3 2 1
28. Ndimachedwerapo kuyamba kugwira ntchito yoyenera kuchita. 5 4 3 2 1
29. Pofuna kumvetsetsa mfundo zatsopano, kawirikawiri ndimazifanizira ndi zinthu zimene zimachitika mmoyo weniweni. 5 4 3 2 1
30. Ndikamaphunzira ndi mayesetsa kuloweza fundo zofunika. 5 4 3 2 1
31. Ndimakonda kugwiritsa ntchito maganizo anga ngakhale sandifikitsa kutali. 5 4 3 2 1
32. Chifukwa chachikulu chomwe ndinasankhira maphunziro amene ndikutenga ndi chakuti ndiogwirizana ndi nchito yodzagwira osati ndizofuna zanga. 5 4 3 2 1
33. Ndimasamala kwambiri ndiponso kupeza umboni wokwanira ndisanatsimikize mathero azinthu. 5 4 3 2 1
34. Poyamba mutu watsopano ndimayamba ndadzifunsa mafunso angapo pamutuwu kuti ndithe kuwayankha ndikafufuza bwino zambiri zamutuwo. 5 4 3 2 1
35. Ndiganiza kuti ndimakondweretsedwa kwambiri ndi kolifikeshoni imene ndizapeze kupambana maphunziro amene ndikutenga. 5 4 3 2 1
36. Kawirikawiri ndimapezeka kuti ndikuphunzira zinthu zimene sindizimvetsa. 5 4 3 2 1

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| 37. Ngati zinthu sizili bwino kuti ndingathe kuwerenga ndimazisintha kuti ntchito ichitikebe. | 5 4 3 2 1 |
| 38. Popereka ripoti la ntchito zamanja ndimakonda kuyesa njira zingapo zomasulira zotsatira zake. | 5 4 3 2 1 |
| 39. Chifukwa chenicheni chimene ndiliri pano ndikuti ndiphunzire zambiri zamaphunziro amene amandisangalatsa. | 5 4 3 2 1 |
| 40. Pofuna kumvetsetsa mitu yatsopano, ndimadzifotokozera ndekha m'njira zimene anthu ena sangathe kumvetsetsa. | 5 4 3 2 1 |
| 41. Ndimaona kuti ndimayenera kufatsirira kwambiri pakuloweza zinthu zambiri zimene ndimaphunzira. | 5 4 3 2 1 |
| 42. Ndimaona kupambana amzanga pa zochita zanga, ngati ndingathe. | 5 4 3 2 1 |
| 43. Ndimaona kuti ndi kwabwino pakakhala mutu watsopano kungoyambiratu kuona mfundo zonse zamutuwo kenaka ndikuziika pamodzi kuti thunthu la mutu onse ujano liwoneke bwino. | 5 4 3 2 1 |
| 44. Kawirikawiri ndikamawerenga mabuku, maganizo amabweretsa zithuzithuzi muntima mwanga amene nthawi zina amakhala amtundu winawina. | 5 4 3 2 1 |
| 45. Mu njira zosiyanasiyana ndimatha kupeza mabuku amene ndimaona pophunzira. | 5 4 3 2 1 |
| 46. Kawirikawiri ndimadzudzulidwa kuti ndimaonjeza zinthu zosakhudzana ndi zimene ndafunsidwa mu mayankho anga. | 5 4 3 2 1 |
| 47. Ndimaona kuti maphunziro apano angathe kukhala osangalatsa. | 5 4 3 2 1 |
| 48. Njira yabwino kwa ine yoti ndingathe kumvetsetsa zinthu zovuta ndikungoloweza matanthauzo ake. | 5 4 3 2 1 |
| 49. Zambiri mwa zimene ndimaphunzira zimaoneka kuti ndi zosakhudzana. | 5 4 3 2 1 |
| 50. Ndimaona kuwerenga kwambiri pa phunziro ndisanayambe kulemba maganizo anga. | 5 4 3 2 1 |
| 51. Ngakhale ndimakumbukira mfundo ndi dongosolo, zimandivuta kuziika pamodzi ndikupanga zinthu zomveka. | 5 4 3 2 1 |

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52. Ndimangowerenga zokhazo zimene ziri zofunika kuti nditsirize ntchito imene andipatsa kuti ndilembe. Sindikonda kupitiriza apo. 5 4 3 2 1
53. Sindimasangalatsidwa kuyankhula m'kalasi pa maso pa anthu ena. 5 4 3 2 1
54. Ndimakondweretsedwa ndi mabvuto kapena zinthu zofunikira kuzipezera mayankho makamaka zikakhala zofuna kuti tizisanthule bwinobwino tisanafike mathero ake. 5 4 3 2 1
55. Nthawi yanga yambiri yopuma ndimakhala ndikufufuzafufuza za mitu yokondweretsa imene amatuza m'kalasi 5 4 3 2 1
56. Ndikapatsidwa mutu watsopano ndimaona zothandiza kwambiri kuti ndiyambe ndasinkha bwinobwino kuti kodi mfundo zonse za mutuwo zikulumikizana bwanji. 5 4 3 2 1
57. Ndimaooneka kuti ndimathamangira kupeza yankho msanga popanda kuganizira za umboni wake wonse. 5 4 3 2 1
58. Ndimadana ndi kulolera kugonja, ngakhale pa zinthu zazing'ono. 5 4 3 2 1
59. Ndikuganiza kuti nkofunika kuganizira bwino mafunso mwandondomeko osati kungothamangira mayankho. 5 4 3 2 1
60. Ndimaoona kuti ndimakumbukira bwino zinthu ndi kamatsatira ndondomeko umene anazinenera. 5 4 3 2 1
61. Ndikamawerenga zosindikizidwa, kapena malipoti a kafukufuku ndimaunika umboni bwino lomwe kuti ndi tsimikize kuti zotsatira zake ndi zoono. 5 4 3 2 1
62. Anthu ena amaganiza kuti ndiyenera kukhala wofuna kugwiritsa ntchito maganizo anga mosaopa. 5 4 3 2 1
63. Ndimaphunzira zinthu pozilemba mobwere zabwereza kapena pozilakatula chamumtima. 5 4 3 2 1
64. Ndimasangalatsidwa ndi maphunziro a m'kalasi, ndidakakonda kuwapitiriza mtsogolo. 5 4 3 2 1
65. Ndimazindikira kuti maganizo anga pa zauphunzitsi ndi kuphunzira zingathe kusokoneza chibale changa ndi anthu ena. 5 4 3 2 1
66. Ndimaoonetsetsa zonse zokhala m'kati mwa kalasi kapena mu labolotale ndikakhalamo. 5 4 3 2 1

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67. Posankha mabuku owerenga, ndimayesetsa kupeza awo omwe ali
ndi mfundo zofunika kuti ndimvetse phunziro. 5 4 3 2 1
68. Nthawi zina sindimamvetsera kwenikweni pa zomwe
zikunenedwa m'kalasi. 5 4 3 2 1
69. Nthawi zina ndiganizira zinthu zomwe ndinaphunzira kale
ndipo ndimasintha maganizo anga pa matanthauzo awo. 5 4 3 2 1
70. Ndimamvetseta bwinobwino kufunika kwake kwa mayeso. 5 4 3 2 1
71. Kawirikawiri ndimalemba zomwe aphunzitsi akunena kapena
kulemba pa bolodi. 5 4 3 2 1
72. Ntchito yofunika kuchita kuti utsirize kozi pano
ndiyochuluka kwabasi. 5 4 3 2 1
73. Chimene ndimakonda kwambiri kuposa zonse ndikuphunzira
zinthu zina kuchokera kwa anthu ena. 5 4 3 2 1
74. Mbali ya maphunziro yomwe imafunsidwa pa mayeso
simakhala ya chilendo kwa ine. 5 4 3 2 1
75. Ndimasangalala kufufuza zinthu pa ndekha. 5 4 3 2 1
76. Kawirikawiri ndimazindikira kuchuluka kwa phokoso m'kalasi. 5 4 3 2 1
77. Kawirikawiri sindivutika kupeza mfundo m'mabuku. 5 4 3 2 1
78. Ndikuganiza kuti pano pali ntchito yolemetsa. 5 4 3 2 1
79. Kawirikawiri ndimalingalira ndi kuganizira mafunso omwe
angafunsidwe pa mayeso. 5 4 3 2 1
80. Ndikaganizira zomwe sizinkandisangalatsa pophunzira ndi
madzindikira kuti zinali zoyenera kuphunzira. 5 4 3 2 1
81. Nthawi zambiri ndimalemba manotsi kuchokera m'buku. 5 4 3 2 1
82. Ndongomeko wa mitu yoyenera kuphunzira mu maphunziro amene
ndikuchita ndimaumva bwinobwino. 5 4 3 2 1
83. Kawirikawiri ndimaonetsetsa momwe a phunzitsi
amagwiritsira ntchito mabolodi. 5 4 3 2 1

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| 84. Ndimayamikira malangizo omwe anthu ena amandipatsa. | 5 4 3 2 1 |
| 85. Monga mwana wa sukulu ndimaona kuti ndimapanikizika kwambiri ndi zinthu zofunika kuchita. | 5 4 3 2 1 |
| 86. Pogwiritsa ntchito mabuku powerenga kawirikawiri ndimaonetsetsa m'mene zinthu azisanjira m'bukumo. | 5 4 3 2 1 |
| 87. Kawirikawiri ndimaona kuti zimene ndimaphunzira ndizosakhudzana ndi zimene timafuna. | 5 4 3 2 1 |
| 88. Kawirikawiri ndimaonetsetsa kuwerengeka kwa zomwe zalembedwa pa bolodi. | 5 4 3 2 1 |
| 89. Pogwiritsa ntchito mabuku powerenga kawirikawiri ndimaonetsetsa m'mene zinthu zafotokozedwera. | 5 4 3 2 1 |
| 90. Ndimaganizira za kachulukidwe ka zinthu zoti ndiphunzire. | 5 4 3 2 1 |
| 91. Nthawi zambiri ndimaganizira zina zochitika mu umoyo weniweni zomwe ndakumana nazo ndi m'mene zasinthira maganizo anga. | 5 4 3 2 1 |
| 92. Zofuna kulemba zimachulukika ndiye zimavuta kupeza nthawi yowerengera. | 5 4 3 2 1 |
| 93. Paliponse pamene ndingathe ndimalowerera nawo mu zokambidwa. | 5 4 3 2 1 |
| 94. Ndikuzindikira kuti kufunsidwa mayeso nthawi zina kungandithandize kuphunzira. | 5 4 3 2 1 |
| 95. Ndikamasankha mabukhu ofuna kewerenga ndimayang'ana zinthu zothandizira kulipeza kapena kupeza za m'kati mwake monga dongosolo la mitu, za m'kati, mitu ndi zina. | 5 4 3 2 1 |
| 96. Kawirikawiri ndimaonetsetsa njira zosiyanasiyana zophunzitsira (monga bolodi, mafilimu, wailesi yakanema ndi zina zotero). | 5 4 3 2 1 |
| 97. Ndimadziwa njira zosiyanasiyana zimene tingayesedwera monga kulemba zimangirizo, kusankha yankho lokhoza pa mayankho angapo, mayeso ongoyankha pamaso ndi zina. | 5 4 3 2 1 |
| 98. Kawirikawiri ndimaonetsetsa mkhalidwe wa ophunzira aliyense m'makalasi anga. | 5 4 3 2 1 |

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99. Ndimakhudziwa mumtima ndi malo omwe ndimakhala mkalasi. 5 4 3 2 1
100. Nthawi zina ndimaona kuti ma silabasi amachulutsa mitu yofuna kuphunzitsidwa. 5 4 3 2 1
101. Ndimaganizira bwinobwino ndemanga zimene aphunzitsi amapereka pa m'mene ndayankhira mafunso pa mayeso. 5 4 3 2 1
102. Ndikakumana ndi mavuto eni eni a moyo, kawirikawiri ndimaganiza zomwe za ndichitikira, kapena zomwe zidakachitikira anzanga, kuti mwina zingandithandize kupeza yankho. 5 4 3 2 1
103. Ndikuda nkhwawa kuti mwina ndikhoza kulephera maphunziro. 5 4 3 2 1
104. Sindimakhala ndi nthawi yokwanira yomalizira ntchito yomwe ndapatsidwa kuti ndichitire kunyumba. 5 4 3 2 1

M'MENE NDIMAONERA ZA MAPHUNZIRO OPHUNZITSIDWA

Gawo iri likufunsa mafunso a kukonda kwanu kwa mitundu ya kaphunzitsidwe, mitundu ya mayeso, njira yophunzitsira ndi mtundu wa maphunziro. Chonde yankhani pozunguliza nambala yoyenera monga munachitira poyamba.

Makamaka ndimakonda aphunzitsi om

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- a. amationetsa momwe zomwe tikuphunzira zikugwirizanirana ndi zinthu zina. 5 4 3 2 1
- b. amatiuza chenicheni chomwe tiyenera kulemba muzolemba zanthu. 5 4 3 2 1
- c. amationetsa zomwe iwo eni akuganizira pa phunzirolo. 5 4 3 2 1
- d. amene amatisangalatsa ngakhale zophunzitsazo zikhale zosasangalatsa kwenikweni. 5 4 3 2 1

Makamaka ndimakonda mayeso amene:

- a. amandipatsa mpata woonetsa kuti phunzirolo ndimaliganizira pa ndekha. 5 4 3 2 1

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b. mayankho ake ali mu zimene timalemba m'kalasi. 5 4 3 2 1

c. amaneneratu poyera khama lomwe tiyenera kuyika m'gawo la funso lirilonse. 5 4 3 2 1

d. amakhala ndi mafunso omwe amapereka mwayi otsatira njira zosiyanasiyana. 5 4 3 2 1

Makamaka ndimakonda aphunzitsi omwe:

a. amatipangitsa kukambirana maganizo athu mwatokha. 5 4 3 2 1

b. amabwereza zimene taphunzira kuti awonetsetse kuti palibe china chimene tinalephera kumva. 5 4 3 2 1

c. amationetsa bwino kwambiri chomwe akuganiza a maganizo athu. 5 4 3 2 1

d. ali ogwirizanika ngakhale kuti samatha kulongosola zinthu bwino. 5 4 3 2 1

Makamaka ndimakonda maphunziro amene:

a. timatha kuphunzira zimene timafuna. 5 4 3 2 1

b. amaneneratu poyera mabuku omwe tiyenera kuwerenga. 5 4 3 2 1

c. amaonetseratu kufunikira kwa mitu yake pa mayeso. 5 4 3 2 1

d. amatirimbikitsa kuwerenga malo ozungulira phunziro kwambiri. 5 4 3 2 1

Zikomo chifukwa chakayakhidwe kanu pa mfundozi. Chonde yang'anani ngati simunasiye malemba ena.

APPENDIX D

INTERVIEW SCHEDULE

STUDENT NUMBER.....STUDENT YEAR.....

MALE/FEMALE

HUMANITIES/SCIENCES AGE: (18 or less) (19-21) (22-24) (25-34) (35 or more)

1) Whenever you say *I understand*, what do you mean by the word *understand*?

2) How would you describe *learning*? What is *learning*?

3) Can you describe the term *knowledge*? What exactly is *knowledge*?

4) Now tell me about some of your learning experiences:

a. What do you normally do in lectures?

b. How do you best remember things? What do you do to remember them?

c. During lectures, very few students question or contribute to what they hear. Why do you think this is?

d. How do you go about reading academic material? Describe what happens.

e. How do you spend most of your time at university? What is a typical day like?

f. Would you describe yourself as a well organised learner? Why/Why not ?

g. What do you do when something is difficult to understand?

h. If asked to put your ideas down on paper, how do you go about it?

i. Do you like a very structured course or do you prefer to be able to choose some of what you study?

j. Do you like to be told precisely what to do in assignments or do you like to be able to choose a topic or project of your own?

k. What is the main reason that you came to university?

l. Do you think you will study some subjects further after you have your degree?

m. In examinations, do you prefer questions asking for course content or questions requiring solutions to problems? Why?

n. What is your approach to examinations? How do you prepare for them?

o. Do examinations worry you? Why?

p. Is it important to you to score highly or is a passmark quite acceptable? Why?

q. What would you like to change about the courses at this university? (The workload? The subject choice? The language of instruction?) (The standards set? The teaching methods? The social climate?)

APPENDIX E

Please print your student number here :

ADULT SELF-ESTEEM INVENTORY

Below these instructions, you will find a list of statements made by students at other universities. They were talking about themselves. If a statement describes how YOU usually feel, put an 'X' in the column "Like me." If a statement does NOT describe how you usually feel, put an 'X' in the column "Unlike Me." There are no right or wrong answers. Please mark all 25 statements.

LIKE ME

UNLIKE ME

(1) Things usually don't bother me.

(2) I find it very hard to talk in front of a group.

(3) There are lots of things about myself that I would change if I could.

(4) I can make up my mind without too much trouble.

(5) I am a lot of fun to be with.

(6) I get upset easily at home.

(7) It takes me a long time to get used to anything new.

(8) I am popular with people of my own age.

(9) My family usually considers my feelings.

(10) I give up very easily.

(11) My family expects too much of me.

(12) It is not so good to be me.

(13) Things are all mixed up in my life.

(14) People usually follow my ideas.

(15) I have a low opinion of myself.

(16) There are many times when I would like to leave home.

(17) I often feel upset about my work.

(18) I am not as nice looking as most people.

(19) If I have something to say, I usually say it.

(20) My family understands me.

(21) Most people are better liked than I am.

(22) I usually feel as if my family is pushing me.

(23) I often get discouraged with what I am doing.

(24) I often wish I were someone else.

(25) I cannot be depended on.

Thank you for contributing to this research

APPENDIX F

Question 3

Read the following case study of a school development exercise and then answer the questions which follow it.

Two teachers in a primary school began to notice that the pupils coming up to their particular grade were not able to understand some of the mathematics content that is normally taught at that level. The teachers suspected that there was ineffective teaching going on somewhere in the lower grades, since the children were coming through to them lacking basic mathematical understanding. Moreover, there seemed to be a Year 4 teacher in particular whose children were not making as much progress as the children in the other two Year 4 classes. There were big gaps in their knowledge when these particular children went into Year 5.

The two teachers approached the principal and suggested that testing of the children should be carried out, to establish the level of attainment in mathematics at each level in the school. Although they didn't inform the principal directly, they believed that such testing would pinpoint the grade, and the teacher's room, where standards were beginning their decline.

The idea of testing maths across the school appealed to the principal. He knew that there had been a great deal of work done in language areas in the school, but nothing more than the normal daily work in mathematics. He appointed one of the Year 5 teachers to organise and co-ordinate the testing of Years 3 to 7. Year 3 was to be tested for basic skills and understanding. Attainment tests in counting, place value, money, decimals, fractions, spatial relations and measurement, amongst other things, were to be administered to years 4 to 7.

A relief teacher took the co-ordinator's class, while she went around the school administering the appropriate tests. Once completed, the co-ordinator presented a report to the next Staff Meeting.

The results reflected a number of things:

The Year 3 classes were all performing at stanines 4, 5 and 6, with some 10% performing at stanine 7.

The Year 4 classes were performing similarly, but there was one class where performance was poor. Almost 80% of this class were performing at the 3rd. stanine and the top 20% (6 pupils) were in the 5th. stanine. The teacher of this class, Miss Chirwa, was the very teacher whom the other teachers had suspected of not keeping the children up to standard.

The Year 5 and Year 6 classes showed results within the 4th., 5th., 6th. and 7th. stanines, but children who had come up from Miss Chirwa's class continued to perform mainly in the 3rd. stanine. By Year 7 there were signs that Miss Chirwa's ex-pupils had managed to keep up in decimals and in fractions, but their general performance was well below that of their peers. The highest stanine reached by the Year 7's was stanine 7.

At the staff meeting, the results provoked considerable discussion. The principal asked the co-ordinator to display overall distributions of stanines for each Year, but not the distribution for each class. In this way the principal was able to avoid embarrassing Miss Chirwa (or anyone else for that matter) in front of the whole staff. The display of results was as follow:

RESULTS OF MATHEMATICS ATTAINMENT TESTING

Stanine Distribution by Year Groups

Year	Stanines						
	1 - 2	3	4	5	6	7	8 - 9
3			20%	60%	10%	10%	
4		25%	15%	40%	10%	10%	
5		25%	10%	50%	8%	12%	
6		22%	10%	40%	12%	16%	
7		5%	15%	50%	15%	15%	
Norm	11%	12%	17%	20%	17%	12%	11%

In view of the fact that a drop in performance emerged in Year 4, the principal told the staff that Year 4 would be ability-grouped into Remedial, Average and Above-average, with equal numbers in each cross-set class for mathematics.

The staff could see the need to lift the performance of Year 4 and agreed to cross-setting of ability groups. Miss Chirwa was to take the remedial group, comprising the lowest 30 pupils, Mr Mkandawire would take the 30 Average pupils and Miss Saibu would take the top group of 30. It was decided also to cross-set ability classes in Year 5 and 6, with equal numbers, as far as was possible, in each of the three ability groups.

The meeting decided that fortnightly tests would be compulsory for all classes, so that teachers could keep records of every pupil's progress. Class results would be handed in to the principal every two weeks for monitoring, regrouping of pupils and identification of weak pupils.

The principal advised the staff that he would contact the Maths Advisory Officer at the Ministry of Education and Culture to arrange some in-service courses for teachers.

The staff insisted that the parents had little knowledge of how maths was taught in the school. Teachers said that parents were unable to assist their children with maths at home; the poor quality of maths homework, they said, showed this. As a result, the meeting resolved to arrange special days on which parents would be invited to observe demonstration lessons in maths, so that they would have a better idea of how to help and support their children at home. The Maths Advisory Officer would also be present at these sessions. There would be two sessions using a Year 5 class, two with a Year 6 and two with a Year 7 class.

At the conclusion of each of these six demonstration lessons, parents would be invited to stay on for morning tea, so that staff could gain feedback on their views and reactions.

The principal closed the staff meeting with the suggestion that he send a notice home to parents advising them of the dates on which the demonstration lessons would be given and requesting that parents advise the school when they would be attending, so that catering could be organised. Money for this was available from the School Development Budget, as had been the case with the relief teacher during the testing programme earlier.

The programme went into operation as planned, with six demonstration lessons for parents and regular fortnightly testing of the children's classroom work in maths.

The following questions relate to the case-study above:

- (1) In what ways is the **situational analysis** inadequate? Describe and justify better procedures. (7 marks)
- (2) Based upon an adequate situational analysis, what might emerge as the objectives of a better **programme for improvement**? List them and justify your decisions. (6 marks)

- (3) In what ways is the programme described above inadequate in its **evaluation plan**? Describe and justify the changes that you would make. (7 marks)

APPENDIX G

Stud.	Gend.	Subj.	O.Cat(E)	Profic	Outcome	SEI	Lect.Rate
41.	f	sci	0.18	40	49	44	91
23.	f	art	15.3	47	60	48	92
39.	f	sci	2.8	49	42	48	71
40.	f	sci	8.8	43	53	48	80
8.	f	sci	0.6	46	57	48	76
30.	f	sci	18.1	64	57	52	113
25.	f	sci	15.15	45	53	52	79
18.	f	sci	19.9	54	63	52	110
22.	f	sci	19.6	60	51	52	129
2.	f	sci	5.3	38	49	56	70
14.	f	hum	14.5	59	67	60	104
10.	f	art	19.1	57	61	60	102
54.	f	sci	0.15	73	69	64	126
1.	f	hum	16.6	49	63	68	85
21.	f	art	16.12	79	61	68	136
51.	f	hum	19.13	81	78	76	139
35.	m	sci	1.6	36	51	48	107
27.	m	hum	8.1	40	49	48	90
57.	m	hum	4.1	27	49	52	79
19.	m	hum	18.15	40	51	56	70
7.	m	hum	18.19	48	54	56	88
42.	m	sci	6.6	54	43	56	83
46.	m	hum	18.8	57	53	60	98
20.	m	sci	13.7	54	59	60	98
58.	m	sci	9.6	47	51	60	94
44.	m	sci	0.19	63	59	64	122
11.	m	art	0.5	42	59	64	77
63.	m	art	0.16	39	48	64	78
55.	m	hum	17.9	57	64	68	90
15.	m	sci	10.9	47	54	68	71
52.	m	sci	14.1	54	60	68	107
9.	m	sci	0.15	50	69	68	93
56.	m	hum	0.16	67	81	72	115
50.	m	hum	17.5	49	60	72	91
12.	m	sci	16.2	59	63	72	116
62.	m	sci	0.15	47	55	72	83
3.	m	hum	8.8	54	60	72	78
38.	m	hum	15.6	51	63	72	107
53.	m	hum	19.15	46	61	72	79
66.	m	sci	15.15	42	54	72	88
26.	m	sci	19.12	60	57	72	109
29.	m	hum	17.9	41	63	76	89
5.	m	sci	0.1	61	52	76	98
45.	m	sci	8.6	76	50	76	102
34.	m	hum	18.8	53	64	76	127
24.	m	sci	19.15	67	71	76	132
37.	m	art	16.4	47	56	76	113
32.	m	sci	16.6	53	64	76	108
16.	m	sci	19.18	53	68	76	98
49.	m	hum	0.18	57	73	76	111
13.	m	hum	19.19	43	51	80	93
47.	m	hum	0.19	49	57	80	109
4.	m	sci	16.15	67	74	80	110
33.	m	art	18.14	61	77	80	119
65.	m	art	16.8	61	55	80	120
61.	m	hum	19.18	73	87	80	133
59.	m	hum	0.15	66	79	80	123
6.	m	hum	0.15	59	81	84	122
31.	m	hum	0.5	56	71	84	127
28.	m	hum	19.1	59	72	84	84
60.	m	sci	19.14	57	63	84	107
48.	m	hum	0.14	75	67	84	127
17.	m	sci	19.15	71	83	88	124
43.	m	sci	0.15	69	85	88	130
64.	m	art	0.8	72	68	88	119
36.	m	sci	0.15	64	82	88	136

Stud.	Gend.	Subj	O.Cat(E)	Profic	Outco	SEI	Lect.rate
24.	f	art	18.5	54	50	44	104
31.	f	hum	2.1	28	37	44	66
18.	f	sci	16.3	49	58	48	79
22.	f	hum	0.19	54	62	52	77
11.	f	hum	1.1	47	41	52	85
10.	f	art	19.14	56	61	56	97
26.	f	sci	19.2	57	63	56	117
28.	f	hum	16.19	67	54	56	123
42.	f	hum	19.14	51	67	60	90
48.	f	hum	15.9	47	71	60	90
23.	f	sci	19.1	74	64	64	139
44.	f	sci	0.15	81	69	68	133
52.	f	sci	0.8	59	67	72	112
56.	f	sci	14.8	63	73	72	101
3.	m	sci	4.1	29	41	44	65
50.	m	hum	1.1	32	39	48	70
51.	m	sci	15.15	44	50	48	88
43.	m	sci	19.13	40	49	52	73
9.	m	hum	12.4	43	57	52	78
7.	m	hum	3.2	34	39	56	68
2.	m	sci	8.1	35	48	56	73
41.	m	sci	0.8	46	54	56	82
21.	m	hum	3.1	39	47	56	69
57.	m	sci	19.8	57	53	60	112
32.	m	hum	0.9	44	51	60	81
8.	m	sci	10.1	50	47	60	92
25.	m	sci	0.1	49	56	60	103
12.	m	sci	0.16	49	57	64	91
54.	m	hum	2.3	46	50	64	94
27.	m	sci	0.19	52	60	64	98
39.	m	sci	4.8	61	45	64	111
46.	m	hum	19.17	54	69	68	117
40.	m	sci	11.5	53	62	68	95
14.	m	hum	6.6	37	55	68	70
55.	m	sci	0.16	50	57	68	87
4.	m	hum	13.8	39	57	68	70
16.	m	art	19.15	47	57	68	81
33.	m	hum	0.19	63	74	68	113
30.	m	hum	18.8	38	49	68	74
49.	m	sci	10.15	71	44	68	130
13.	m	sci	3.1	69	46	72	112
29.	m	hum	19.13	47	67	72	85
15.	m	sci	18.8	65	59	72	126
17.	m	sci	18.5	54	63	72	96
37.	m	sci	18.19	43	50	72	88
6.	m	sci	14.6	54	61	72	87
45.	m	art	16.6	65	53	76	107
34.	m	hum	12.1	49	59	76	101
1.	m	sci	18.13	67	78	80	119
35.	m	hum	15.2	53	65	80	128
20.	m	hum	16.6	65	68	80	119
36.	m	sci	0.19	59	63	84	139
47.	m	hum	19.17	75	67	84	138
5.	m	hum	0.15	73	82	88	128
58.	m	hum	19.14	69	77	88	120
19.	m	sci	19.18	78	84	88	136
38.	m	sci	0.15	79	83	92	140
53.	m	hum	0.19	79	89	92	133

Stud.	Gend.	Subj	O.Cat(C)	O.Cat(E)	Profic	Outcome	SEI	L/R
13.	f	sci	2.1	0.6	33	40	44	67
11.	f	sci	14.3	5.2	41	46	48	78
15.	f	hum	2.2	10.2	45	49	48	98
42.	f	hum	11.6	15.8	48	61	52	90
17.	f	hum	7.6	0.16	47	53	52	98
26.	f	sci	0.16	10.1	66	61	56	120
48.	f	hum	19.18	0.1	51	47	56	97
45.	f	hum	0.19	0.19	54	64	56	111
10.	f	hum	19.1	18.15	50	58	60	88
31.	f	sci	19.15	0.15	69	64	60	126
50.	f	hum	0.19	0.14	73	70	64	119
58.	f	hum	0.1	0.16	48	65	64	90
5.	f	sci	18.15	19.15	65	76	68	117
47.	f	hum	0.19	19.14	63	72	72	120
54.	f	sci	7.1	0.19	82	68	76	140
51.	f	hum	0.19	0.15	78	80	76	125
3.	m	hum	19.1	19.1	28	38	48	60
56.	m	hum	0.6	19.4	33	42	52	76
19.	m	hum	17.13	13.7	38	53	52	83
9.	m	hum	18.1	18.3	45	51	52	91
32.	m	hum	7.15	1.5	41	44	52	94
61.	m	sci	17.3	0.16	37	48	56	78
38.	m	hum	6.4	19.8	38	50	56	82
22.	m	sci	0.19	1.1	35	39	56	69
8.	m	sci	19.16	19.1	39	48	56	78
2.	m	sci	18.9	0.19	35	49	56	66
35.	m	sci	0.19	16.6	38	49	56	90
41.	m	hum	7.4	0.19	43	48	56	96
43.	m	hum	0.16	0.18	47	58	60	101
14.	m	sci	16.6	0.12	83	47	60	141
33.	m	hum	17.8	17.11	39	47	60	82
1.	m	art	18.11	19.8	79	52	60	125
12.	m	hum	0.8	18.7	48	54	60	101
27.	m	hum	0.18	17.19	43	50	64	99
59.	m	sci	0.8	9.18	43	52	64	87
24.	m	sci	18.13	12.4	73	48	64	121
55.	m	sci	0.19	18.12	60	54	64	116
18.	m	sci	17.6	19.18	54	57	64	109
44.	m	hum	16.4	19.1	43	50	68	88
25.	m	sci	0.19	0.15	54	61	68	105
52.	m	sci	0.19	13.7	48	55	68	94
46.	m	sci	7.2	5.8	71	49	68	131
39.	m	sci	0.15	0.19	75	83	72	138
23.	m	hum	19.19	0.15	48	58	72	93
36.	m	hum	19.15	16.15	58	65	72	115
6.	m	sci	0.16	0.19	67	70	72	123
30.	m	hum	0.16	0.8	49	57	72	76
16.	m	hum	19.18	0.15	67	71	76	111
40.	m	sci	19.16	0.19	56	62	76	106
21.	m	hum	6.19	16.12	46	50	76	79
49.	m	hum	19.15	19.18	60	71	80	109
28.	m	hum	0.16	0.19	68	62	80	122
53.	m	hum	0.16	0.16	70	77	80	119
60.	m	hum	0.18	0.16	55	72	80	105
20.	m	sci	0.16	0.19	63	70	80	116
37.	m	hum	6.2	4.4	84	54	84	130
29.	m	sci	0.19	0.19	82	78	88	137
4.	m	hum	0.19	0.19	78	84	88	129
7.	m	sci	19.19	17.15	68	82	88	135
34.	m	hum	19.15	15.15	75	80	88	127
57.	m	sci	19.19	0.19	75	80	92	127

Stud.	Gend.	Subj.	O.Cat(E)	O.Cat(C)	Profic.	Outcom	SEI	L/R
54	f	hum	9.9	7.2	50	45	44	106
39	f	hum	19.19	6.5	54	49	48	100
17	f	hum	16.12	13.1	47	55	48	88
10	f	hum	19.9	17.1	39	47	48	70
43	f	sci	0.8	3.3	61	50	56	99
6	f	sci	0.19	0.16	70	63	56	117
15	f	hum	13.9	18.5	50	55	56	90
61	f	sci	1.1	18.8	41	37	56	87
22	f	sci	0.15	18.9	69	60	60	131
4	f	hum	15.3	0.16	47	54	68	77
34	f	sci	0.19	0.19	70	77	68	98
49	f	hum	19.9	19.8	51	57	72	88
24	m	sci	16.8	18.3	59	49	52	106
48	m	sci	16.16	12.8	47	50	52	93
41	m	sci	8.12	1.5	35	46	56	71
55	m	sci	2.1	0.15	37	52	56	77
9	m	sci	19.9	19.9	63	59	56	107
11	m	hum	9.8	12.6	47	51	56	91
47	m	hum	16.3	17.9	52	59	60	102
60	m	sci	4.5	2.8	39	48	64	79
25	m	hum	6.8	19.6	38	50	64	95
26	m	hum	16.15	5.6	63	55	64	133
30	m	sci	14.14	3.3	40	49	64	91
35	m	hum	0.13	13.3	48	55	64	73
42	m	hum	11.9	4.5	41	49	64	81
31	m	hum	19.6	19.14	66	51	68	121
57	m	hum	6.4	19.18	51	60	68	101
46	m	hum	12.8	16.8	47	54	68	113
27	m	hum	0.15	19.16	67	74	68	117
18	m	hum	19.15	0.15	67	57	68	120
19	m	hum	18.6	0.19	51	59	68	89
12	m	hum	16.15	18.19	69	64	72	111
44	m	sci	6.4	1.1	33	41	72	67
40	m	hum	0.19	16.9	57	61	72	98
5	m	sci	18.9	17.15	65	72	72	119
32	m	sci	15.16	15.19	57	68	72	119
56	m	hum	6.16	0.5	54	65	72	94
7	m	hum	0.16	0.15	66	70	76	123
1	m	hum	12.8	18.17	51	64	76	85
45	m	hum	18.15	18.13	57	51	76	121
14	m	sci	7.12	4.2	39	47	76	68
38	m	hum	0.9	18.15	47	64	76	76
33	m	sci	18.15	19.8	50	61	76	105
28	m	sci	18.9	19.8	67	62	76	104
58	m	hum	5.17	19.6	48	59	80	106
8	m	hum	19.12	19.19	56	78	80	97
23	m	sci	0.15	19.8	68	71	80	122
53	m	hum	0.19	19.19	67	74	80	120
16	m	hum	19.15	0.19	62	70	80	117
37	m	sci	17.5	8.8	43	52	80	84
13	m	sci	0.17	0.16	62	75	80	121
29	m	sci	0.16	0.15	60	71	84	101
2	m	hum	0.19	0.19	74	80	84	129
50	m	sci	19.16	18.15	60	73	84	131
59	m	hum	7.16	17.9	57	63	88	116
3	m	hum	19.19	18.19	69	77	88	135
36	m	hum	18.9	19.14	71	82	88	134
51	m	sci	19.17	19.9	69	60	88	122
20	m	sci	0.15	0.15	78	85	88	140
52	m	hum	0.19	0.19	72	88	92	138
21	m	hum	0.15	19.16	77	81	92	126

Stud.	Gend.	Subj.	O. Cat (E)	O. Cat (C)	Profic.	Outcome	SEI	L/R
52	f	hum	0.9	1.3	33	47	44	66
27	f	hum	0.6	11.8	51	47	48	94
51	f	sci	17.4	17.9	45	52	52	90
12	f	sci	18.6	18.9	55	52	56	103
56	f	hum	17.9	11.6	50	57	56	85
48	f	hum	19.8	19.5	41	53	56	79
4	f	sci	0.15	0.15	57	64	56	93
41	f	hum	18.19	11.12	54	67	64	107
61	f	hum	16.8	16.8	51	60	64	93
17	f	hum	16.16	16.15	65	62	64	122
45	f	hum	0.16	0.16	68	60	64	133
37	f	sci	19.16	12.12	69	64	68	119
6	f	hum	0.19	19.19	74	69	72	127
2	f	hum	19.19	19.17	79	87	84	137
34	m	sci	18.13	18.9	57	51	52	130
38	m	hum	3.5	3.5	38	45	52	88
20	m	hum	0.19	1.1	37	44	52	70
16	m	sci	15.8	8.2	33	54	52	79
53	m	hum	2.3	2.8	29	42	56	78
58	m	hum	7.2	12.4	68	49	56	117
3	m	hum	14.6	12.6	44	52	56	78
15	m	sci	19.3	19.3	40	51	60	81
8	m	hum	3.9	17.8	39	47	60	64
30	m	sci	6.4	8.1	30	47	64	72
39	m	hum	5.9	5.9	43	51	64	93
7	m	hum	4.2	1.2	60	49	68	109
32	m	sci	0.18	6.6	70	52	68	141
9	m	hum	12.19	18.19	43	55	68	77
55	m	hum	15.9	15.18	51	58	68	96
57	m	sci	19.13	19.11	62	60	68	121
59	m	sci	16.5	12.7	47	54	68	101
23	m	sci	0.19	19.19	67	74	72	116
11	m	sci	14.14	16.6	55	50	72	117
49	m	sci	15.14	16.18	54	61	72	82
44	m	hum	0.12	0.14	51	58	76	91
42	m	sci	19.18	16.16	60	57	76	125
40	m	hum	19.19	0.19	69	81	76	114
54	m	hum	0.14	0.14	59	66	76	113
18	m	sci	0.19	0.16	63	70	76	131
13	m	hum	19.16	19.16	59	73	76	121
25	m	hum	19.19	17.18	57	78	76	104
33	m	sci	19.18	19.18	63	71	76	122
28	m	hum	0.19	19.19	64	83	76	100
47	m	hum	0.15	19.16	67	62	80	116
29	m	hum	0.19	0.19	56	69	80	98
10	m	hum	16.19	0.16	71	67	80	134
22	m	hum	19.19	0.19	71	87	80	106
14	m	sci	0.19	0.6	61	75	80	111
31	m	hum	19.19	0.19	77	89	80	138
1	m	hum	0.18	19.19	59	77	80	101
43	m	hum	19.19	0.16	60	72	80	96
36	m	sci	0.15	0.15	61	79	80	105
60	m	sci	16.19	19.16	57	70	84	140
19	m	hum	0.16	0.19	70	69	84	115
50	m	sci	19.14	16.14	60	73	84	106
24	m	sci	19.18	19.17	73	80	84	140
35	m	hum	18.19	0.19	65	88	88	118
21	m	hum	19.8	19.8	69	87	88	133
46	m	sci	19.18	19.19	73	88	92	127
26	m	sci	0.19	18.19	67	77	92	127
5	m	sci	18.19	18.19	68	80	92	112

APPENDIX H

STUDENT NO.22 (Table 6.5b)

Orchestration profile after administration of the English version of the inventory 'Experiences of Teaching and Learning'.

22

MASKS= 0 15 0

	4.60	AD				
	4.60	wl				
	4.40	BD				
	4.35	ls				
5- 8	4.25	DI	DA	UE	IM	
	4.20	RD				
10-14	4.00	cs	rs	CL	LD	RI
15-18	3.75	eM	ip	Am	RE	
	3.60	ma				
	3.35	sb				
	3.25	St				
	2.75	ff				
	2.60	ds				
	2.50	gL				
	2.00	ra				

Orchestration profile after administration of the Chichewa version of the inventory 'Experiences of Teaching and Learning'.

MASKS= 18 9 0

1- 2	5.00	sb	RE		
3- 4	4.80	AD	wl		
5- 7	4.75	rs	RI	St	
	4.67	ls			
9-10	4.50	UE	DI		
11-12	4.40	ds	ma		
13-15	4.25	ip	CL	gL	
	4.20	BD			
17-19	4.00	cs	RD	DA	
	3.80	fa			
	3.75	IM			
22-23	3.50	Am	ff		
	3.33	LD			
	3.25	eM			

Study orchestration subscales and their meaning. (A sample item from each subscale is given in italics).

1. Contextual perception subscales (See Note below)

DEEP PERCEPTIONS OF BOOKS (BD): An awareness of the organisational attributes of books. Books are selected on this basis and used in relation to the value of the information they contain. *When selecting books for study purposes, I often examine their 'search apparatus' (such as the index, list of contents, chapter headings, cross references).*

DEEP PERCEPTIONS OF METHODS OF ASSESSMENT (AD): An awareness of the content, purpose, types and benefits of tests and exams, as well as the value of written feedback from teachers. *The educational purpose of tests is usually clear to me.*

DEEP PERCEPTION OF LEARNING SPACE (LD): An appreciation of the importance of the relational, rather than the functional, uses of chalkboards and the equipment in classrooms or laboratories as well as an awareness of where one sits in a classroom. *I usually notice how the teacher uses the blackboards.*

DEEP PERCEPTIONS OF HUMAN RELATIONSHIPS (RD): An appreciation that one can be helped and guided by others and that human interaction is affected by one's own attitudes. *I am conscious of the way that my attitudes towards teaching and learning affect my relationships with others.*

SURFACE PERCEPTIONS OF COURSE CONTENT (cs): Attention specifically on the detail of the content in terms of its volume, structure and perceived relevance. *The structure of the content in the subjects I am studying is usually clear to me.*

SURFACE PERCEPTIONS OF LEARNING SPACE (ls): A concentration on those aspects of the learning environment (noise, legibility, equipment) which affect the ease and accuracy of information transfer. *I usually notice the legibility of what is written on the blackboard or on an overhead transparency.*

SURFACE PERCEPTIONS OF HUMAN RELATIONSHIPS (rs): An uncritical reliance on the words of the teacher or textbook while ignoring other aspects of the teaching/learning relationship. *In class I usually write down what the teacher says or writes on the board.*

WORKLOAD (wl): A feeling that too much work is covered and expected, reflected in too many topics and too much written work, giving rise to a feeling of pressure. *There seems to be too much work to get through in the course here.*

2. Discrete study approach variables (See Note below)

DEEP APPROACH (DA): A conscious intention to understand new material even if this requires considerable effort. *I usually set out to understand thoroughly the meaning of what I am required to learn.*

INTRINSIC MOTIVATION (IM): A strong interest in, and even excitement about the subject being studied that extends beyond the demands made in class. *My main reason for being here is so that I can learn more about the subjects which really interest me.*

RELATING IDEAS (RI): Relating ideas between, as well as within, subjects, as well as a conscious attempt to relate material to real life situations and integrate it within a personal framework. *I try to relate ideas in this course to ideas in other subjects whenever possible.*

USE OF EVIDENCE (UE): The critical use of evidence in order to draw conclusions and an examination of evidence where this is used to support an argument. *When I'm reading an article or research report, I generally examine the evidence carefully to decide whether the conclusion is justified.*

COMPREHENSION LEARNING (CL): Divergent thinking or 'mapping out' a subject as part of the comprehension of new ideas. *I like to play around with ideas of my own even if they don't get me very far.*

REFLECTION (RE): The process of reflecting on past learning experiences or real life experiences and deriving fresh insights from them. *I sometimes think about things I have previously learned and change my mind about their meaning.*

STRATEGIC APPROACH (St): A strategic manipulation of resources to meet perceived academic requirements. *When I am doing a piece of work, I try to bear in mind exactly what that particular teacher seems to want.*

OPERATION LEARNING (OI): An engagement of problem solving that is reliant on factual detail and logical analysis. *I generally prefer to tackle each part of a topic or problem in order, working out one step at a time.*

ACHIEVEMENT MOTIVATION (Am): A motivation to succeed, especially in competition with others. *It is important to me to do things better than other people, if I possibly can.*

MEMORISING APPROACH (ma): A rote learning approach to studying in which important information to be "learned" (such as facts and definitions) is committed to memory by way of repeated rehearsal. *I learn things by writing them over and over or by saying them to myself.*

FRAGMENTED APPROACH (fa): An inability to see the relationships between ideas or concepts. The "learning" of material that is perceived to be fragmented and poorly understood. *Much of what I am studying seems to consist of unrelated bits and pieces.*

SYLLABUS-BOUNDNESS (sb): A narrow focus on the requirements of the task and a preference for clear guidelines and structure. *I like to be told exactly what to do in essays, assignments or projects.*

FEAR OF FAILURE (ff): A general concern with failing, but linked to exam tension, speaking in class, and pressure of work. *I am scared that I might fail this course this year.*

IMPROVIDENCE (ip): A failure to integrate detail into an overall picture and an over cautious reliance on detail and procedure. *Although I generally remember facts and details, I find it difficult to fit them together into an overall picture.*

DISORGANISED STUDY METHODS (ds): A general disorganisation reflected in poor time management (including putting off work), distractions and a backlog of important work. *I find it difficult to organise my study time effectively.*

GLOBETROTTING (gL): An inability to back up a general picture with the necessary detail, leading to unsubstantiated conclusions and the use of irrelevant material. *Although I have a fairly good general idea of things, my knowledge of the details is fairly weak.*

EXTRINSIC MOTIVATION (eM): Studying and subject choice is seen as specifically career-related and as a means to obtaining a good job. *My main reason for being here is that it will help me to get a better job.*

Impressions of disadvantage: I – school versus university study orchestration and consequences for academic support

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MASKS= 16 9

1- 2	5.00	wl	LD
	4.80	BD	
	4.67	sb	
	4.60	AD	
6- 7	4.50	DA	rs
8- 9	4.25	Am	St
	4.20	fa	
11-14	4.00	cs	OI RI ls
15-17	3.80	ma	ds RD
18-20	3.75	ff	UE IM
21-23	3.50	gL	CL RE
	3.25	ip	
	3.00	eM	

MASKS= 8 8

	4.50	St	
2- 3	4.33	ls	LD
	4.20	AD	
5- 7	4.00	cs	ma ra
	3.80	BD	
9-10	3.75	ip	rs
11-12	3.60	wl	RD
13-14	3.50	OI	RE
	3.33	sb	
	3.25	DA	
17-19	3.00	eM	Am CL
20-21	2.75	RI	UE
22-23	2.50	ff	IM
24-25	2.00	gL	ds

MASKS= 3 3

	5.00	wl	
	4.50	St	
	4.40	ds	
4- 6	4.25	eM	RE
8-10	4.00	sb	CL OI cs fa
	3.80	AD	
12-13	3.75	ff	ip
	3.67	LD	
15-17	3.50	RI	UE rs
	3.33	ls	
19-20	3.25	Am	gL
21-23	3.20	BD	RD ma
	3.00	IM	
	2.75	DA	

MASKS= 8 1

	4.50	ff	
	4.40	wl	
	4.25	eM	
	4.00	ip	
5- 6	3.80	ma	RD
7- 8	3.67	ls	sb
9-10	3.60	fa	ds
11-13	3.50	St	Am OI
	3.40	AD	
15-16	3.25	RI	rs
	3.20	BD	
18-22	3.00	UE	DA LD IM
	2.50	gL	
24-25	2.00	cs	CL

MASKS= 6 5

	5.00	wl	
	4.80	fa	
3- 4	4.67	sb	LD
5- 7	4.25	UE	ff RE
8-13	4.00	ip	CL ls cs BD ds
14-17	3.75	Am	OI DA St
	3.60	ma	
	3.50	RI	
20-21	3.25	IM	gL
	3.20	RD	
	3.00	rs	
	2.80	AD	
	1.50	eM	

MASKS= 13 8

	5.00	Am	
	4.67	LD	
3- 4	4.33	cs	sb
5- 6	4.25	OI	RE
7-10	4.00	St	BD RD wl
	3.80	ds	
12-13	3.75	DA	IM
	3.60	AD	
15-16	3.50	CL	gL
	3.33	ls	
	3.25	rs	
19-20	3.00	UE	ip
	2.80	fa	
22-23	2.75	ff	RI
	2.25	eM	
	2.00	ma	

MASKS= 3 1

1- 2	5.00	01	wl
3- 4	4.80	ma	fa
	4.75	gL	
	4.60	ds	
7- 9	4.50	ff	RI RE
10-15	4.00	ip	DA ls cs rs Am
	3.80	RD	
17-18	3.75	CL	St
	3.67	sb	
	3.60	BD	
	3.50	eM	
	3.20	AD	
23-24	3.00	UE	LD
	1.50	IM	

MASKS= 19 14

1- 3	5.00	01	ls RE
	4.80	HD	
5- 6	4.75	RI	St
7- 8	4.67	LD	sb
	4.50	ff	
	4.40	wl	
	4.25	rs	
12-13	4.00	SD	DA
14-15	3.80	RD	ma
16-18	3.75	IM	ip CL
	3.67	cs	
	3.50	UE	
	3.40	ds	
	3.25	Am	
	2.75	eM	
	2.50	gL	
	2.40	fa	

MASKS= 18 13

	5.00	UE	
2- 3	4.80	BD	wl
4- 6	4.75	IM	RI RE
7- 8	4.67	LD	sb
	4.60	RD	
	4.50	ip	
	4.40	ds	
	4.33	ls	
	4.25	St	
14-19	3.75	CL	ff rs eM gL Am
	3.67	cs	
	3.60	ma	
22-23	3.50	01	DA
	3.40	fa	
	2.80	AD	

MASKS= 16 0

1- 2	5.00	Am	cs
	4.80	BD	
4- 6	4.75	RI	01 St
7- 8	4.67	sb	LD
9-11	4.50	IM	ip RE
12-14	4.25	CL	DA UE
	4.20	AD	
16-17	4.00	rs	ma
18-20	3.80	wl	RD ds
21-22	3.75	eM	gL
	3.50	ff	
	3.33	ls	
	2.60	fa	

MASKS= 4 5

1- 2	5.00	sb	wl
	4.80	fa	
4- 7	4.75	01	ff gL RI
	4.60	ds	
9-11	4.50	CL	ip IM
12-15	4.25	eM	DA St RE
	4.20	AD	
17-20	4.00	rs	BD LD cs
	3.75	Am	
22-23	3.60	RD	ma
	3.50	UE	
	3.00	ls	

MASKS= 1 1

	5.00	wl	
2- 3	4.40	ds	ma
4- 6	4.25	01	ip IM
7- 9	4.00	fa	eM ff
10-11	3.75	Am	St
	3.67	cs	
13-14	3.50	gL	RE
	3.33	sb	
16-18	3.25	CL	RI UE
	3.20	RD	
	3.00	ls	
	2.75	DA	
	2.67	LD	

MASKS= 19 18

	5.00	RD
	4.75	Ol
	4.67	ls
4- 7	4.50	DA UE IM RE
	4.40	BD
9-11	4.25	rs St Am
	4.00	wl
	3.80	ds
14-16	3.75	ip ff RI
	3.67	sb
	3.60	AD
	3.50	CL
20-21	3.33	cs LD
	3.20	ma
	2.80	fa
	2.50	gL
	1.75	eM

MASKS= 3 1

	5.00	wl
2- 3	4.80	AD RD
	4.67	sb
	4.50	Ol
6- 7	4.33	LD ls
8-11	4.25	St Am rs RE
	4.20	ma
	3.80	BD
14-15	3.75	ip eM
	3.60	ds
	3.50	CL
	3.40	fa
19-20	3.25	RI DA
21-23	3.00	cs gL UE
	2.75	ff
	1.25	IM

MASKS= 19 14

	5.00	CL
2- 3	4.75	DA Ol
4- 5	4.60	wl RD
	4.25	UE
7- 8	4.20	AD ma
9-14	4.00	RI sb ff Am IM fa
	3.80	BD
	3.75	gL
	3.50	RE
18-19	3.33	cs ls
	3.25	St
	3.00	LD
22-23	2.75	ip rs
	2.60	ds
	2.25	eM

MASKS= 18 5

	4.80	wl
	4.40	AD
	4.33	sb
4- 7	4.25	UE CL rs St
8-11	4.00	DA ff ds RD
12-13	3.80	ma fa
14-16	3.75	Am ip Ol
17-18	3.67	cs ls
	3.60	BD
20-21	3.50	RI RE
22-24	3.00	gL eM IM
	2.67	LD

MASKS= 14 6

	5.00	wl
2- 4	4.75	IM Ol DA
	4.67	sb
	4.60	RD
	4.50	ip
8- 9	4.40	BD ma
10-12	4.33	cs LD ls
13-15	4.25	St UE ff
	4.20	fa
17-19	4.00	Am RI RE
20-22	3.75	CL gL rs
23-24	3.60	AD ds
	3.50	eM

MASKS= 3 2

	5.00	wl
	4.40	RD
	4.25	Am
	4.20	fa
5- 8	4.00	cs AD St RE
	3.80	ds
	3.75	ip
11-13	3.67	LD sb ls
14-16	3.50	Ol rs ff
	3.40	BD
18-19	3.25	eM DA
	3.20	ma
21-23	2.75	RI UE gL
	2.50	CL
	1.00	IM

MASKS= 18 8

1- 2	5.00	eM	wl
	4.60	ds	
4- 6	4.50	OI	RI Am
7-11	4.00	BD	ls cs LD RD
	3.80	AD	
	3.75	DA	
14-19	3.50	gL	rs ip UE St RE
	3.33	sb	
21-24	3.00	ff	CL ma IM
	2.60	fa	

MASKS= 16 8

	5.00	wl	
	4.25	ff	
	4.20	ds	
4- 7	4.00	sb	St ls RE
	3.80	BD	
9-13	3.75	ip	CL RI rs OI
	3.67	cs	
	3.60	RD	
16-16	3.50	DA	IM UE
	3.40	ma	
	3.33	LD	
21-22	3.20	AD	fa
	3.00	gL	
24-25	2.75	eM	Am

MASKS= 18 13

	4.75	eM	
2- 3	4.50	St	OI
4- 5	4.33	ls	LD
	4.25	DA	
7- 9	4.00	wl	Am so
10-11	3.80	AD	RD
12-13	3.75	UE	RE
	3.67	cs	
15-17	3.60	BD	ds ma
18-21	3.50	RI	gL ip rs
	3.25	ff	
	3.20	fa	
24-25	2.75	CL	IM

MASKS= 0 16

	5.00	IM	
	4.75	UE	
	4.67	cs	
	4.60	wl	
5- 6	4.50	RI	DA
	4.40	BD	
	4.25	OI	
	4.20	AD	
10-12	4.00	CL	Am RE
	3.80	RD	
	3.75	St	
15-17	3.67	LD	sb ip
	3.50	ff	
19-20	3.25	ip	rs
21-22	3.00	fa	eM
	2.80	ds	
	2.40	ma	
	2.25	gL	

MASKS= 0 15

1- 2	5.00	wl	ls
	4.80	BD	
4- 5	4.67	cs	LD
	4.60	RD	
7- 8	4.50	Am	IM
	4.40	AD	
10-11	4.25	eM	UE
12-14	4.00	DA	CL OI
15-17	3.75	St	RI RE
18-19	3.60	ds	fa
	3.50	rs	
	3.25	ip	
	2.75	ff	
	2.33	sb	
	2.25	gL	
	2.20	ma	

MASKS= 4 1

	5.00	wl
	4.67	sb
	4.60	ds
	4.50	eM
	4.40	fa
6- 7	4.20	ma RD
	4.00	AD
7-10	3.50	Ol Am
	3.33	ls
12-14	3.25	rs RI ip
	3.20	BD
16-18	3.00	LD cs RE
19-20	2.75	gL ff
21-23	2.50	DA CL St
	2.00	UE
	1.50	IM

MASKS= 19 14

1- 2	5.00	RI sb
	4.80	AD
	4.75	CL
5- 6	4.50	St Ol
7- 8	4.40	wl RD
9-10	4.33	LD ls
11-13	4.25	gL UE IM
14-15	4.20	BD ds
	4.00	DA
17-19	3.75	rs 1p RE
	3.67	cs
	3.60	ma
	3.20	fa
	3.00	Am
	2.75	ff
	2.25	eM

MASKS= 10 10

1- 5	4.00	Am fa sb wl RE
	3.75	DA
7- 8	3.50	eM RI
9-10	3.40	RD ds
11-12	3.33	ls cs
13-16	3.25	UE CL ip St
	3.20	ma
18-21	3.00	BD AD Ol gL
	2.75	ff
23-24	2.50	rs IM
	2.00	LD

MASKS= 0 19

	5.00	sb
	4.25	RE
3- 4	4.00	ls Am
	3.80	RD
	3.75	rs
7- 9	3.50	DA RI St
10-11	3.40	BD ds
	3.33	LD
13-15	3.25	IM Ol UE
16-17	3.20	AD wl
18-20	3.00	cs CL gL
	2.50	ip
	2.40	fa
	1.80	ma
	1.50	ff
	1.25	eM

MASKS= 12 4

1- 2	5.00	Ol wl
3- 4	4.25	RI rs
	4.20	AD
6-13	4.00	ff ip Am ls fa sb RD RE
14-15	3.80	ds ma
16-17	3.75	CL St
	3.67	cs
	3.60	BD
	3.33	LD
21-22	3.25	UE IM
	2.75	DA
	2.50	gL
	2.00	eM

APPENDIX I

INTERVIEW RESPONSES

Interview responses, which gave rise in part to the conclusions arrived at in the present study, are recorded below.

Conceptions of learning and of knowledge. (Students with orchestrations categorised as 'at risk' or undesirable and not normally associated with success in learning outcomes)

Understanding means that the new information has been grabbed with concern right in the cognitive.

It is the mass of ideas which someone possesses in his mind and can be passed to someone.

It is adding new facts to already existing facts in the mind.

Understanding means that I have grasped a substantial amount of facts which I remember.

Learning is acquiring new facts for immediate and future use and to be able to reproduce them when required.

Knowledge is a set of facts thought to be very important by authorities above the learner.

Learning is being in a class where someone is teaching.

Knowledge is what you will be able to keep; people who remember more have more knowledge.

Learning is the development of a body of facts for use later and can be done through the memory; you remember how it is done.

Knowledge is all the stuff that you have learnt since you started.

Learning is collecting all the facts that the lecturer gives us to remember.

Knowledge is all the facts that you can use in an exam; if you can answer a question you have the knowledge.

This is acquiring skills to be reproduced later.

Understanding means that I have grasped an amount of facts, which can be kept for a long period.

Knowledge refers to a bundle of facts related to a specific discipline.

I think of knowledge as big chunks of things about a subject; not simple things.

Knowledge is bits of information acquired through learning.

Knowledge is the sum total of the person's experiences.

Knowledge is a band of facts pertaining to a certain area of study.

Knowledge is something you remember.

Learning is a two way process through which someone is fed with knowledge.

Learning is the punching into the pupil already existing ideas.

Learning is an exercise of taking in new information from somebody else; I understand it by using a little bit of memory.

Understanding means that I can conceptualise the topic in question and can reproduce it.

I perceive knowledge as an accumulation of facts which help to improve someone.

Learning means adding new knowledge to what you already know.

Conceptions of learning and of knowledge. (Students with orchestrations categorised as 'not at risk' and normally associated with success in learning outcomes)

Learning is the acquisition of knowledge and skills which normally lead an individual to have a wider perception of the world.

Learning is a system whereby we internalise skills which lead to a change in behaviour.

Learning is developing knowledge and skills that will enable you to face a new situation differently.

Understanding means that I have made good sense out of what was said.

Understanding is perceiving something correctly.

Learning is incorporating new ideas into what you already know.

Knowledge refers to the possession of sensible ideas about a certain concept that are well organised and can be used to explain the phenomenon.

Knowledge is all the ideas and experiences that exist in the cognitive structure of the individual.

Learning is the process of understanding new material.

Learning is a permanent change in behaviour, attitudes and values due to experiences.

Learning is making sense of a concept which remains with me and changes my perception of the world.

Knowledge is an idea that can be expressed in a way that makes sense to other people.

Knowledge is what you can now see after a new experience.

Learning is when you understand something and can apply it in real situations.

If I understand I can see the logic and reasoning and can express it in my own words.

Knowledge enables one to reason, think, remember logically and evaluate situations.

I understand when I can relate the new idea to an existing one.

When I learn I begin to see how and why things are the way they are.

Learning is when a concept is processed in the mind and we select meaningful things for use in the future.

Learning is a relatively lasting change in behaviour at the cognitive level.
 When I understand I can relate what I am taught to what I already know.
 Learning is getting to know how to apply things in real life.
 Knowledge refers to competence which enables you to do something in life.
 I would describe learning as a relatively lasting change in behaviour and attitudes which results from experience and which is later used in making adjustments to the environment.
 Knowledge is what you need in your day to day encounter with the physical and social environment.
 When I understand I recognise the meaning of something.
 Understanding is when I comprehend and am happy with the new concept because I can put it into practice
 Understanding is the ability to see somebody's different standpoint.

Descriptions of activity in lectures. (Students with orchestrations categorised as 'at risk' or undesirable and not normally associated with success in learning outcomes).

Once I miss a point I am miserable because I can't look it up in a book; how am I going to find it if I don't know anything about it?
 In lectures I listen and take notes as quickly as possible.
 In lectures I listen and take as much notes as I can, whether relevant or irrelevant.
 In lectures, I try to get everything that the lecturer is teaching.
 In lectures I always try to grasp what the lecturers are saying in order to have the knowledge in the head; taking notes is always in process.
 I write down whatever the lecturer is saying.
 I listen and take down every bit of information within my note-taking speed.
 Listening and writing as fast as I can.
 Some lecturers are very fast; we write from the first minute to the sixtieth.
 I listen and write down in short form whatever I hear.
 I try to comprehend what the lecturer is saying and write down notes.
 In lectures I write notes, gain knowledge, but seem to lose the desire to learn.
 I take down all the notes to learn so that I can pass the exam and not be weeded.
 I pay much respect to listening and note taking.
 I copy almost everything the lecturer says, even useless things, rather than make my own notes from books; then I can recall the lecture.

Descriptions of activity in lectures. (Students with orchestrations categorised as 'not at risk' and normally associated with success in learning outcomes).

Whenever I don't understand, I take down notes and study them.
 I always look for the important points, but this is difficult; in books they should underline these.
 I listen and make a few short notes.
 I listen and occasionally ask a question if I don't understand.
 I sometimes try to participate but usually just listen. I only take notes if the subject is totally new.
 I always try to grasp the meaning of what the lecturer is saying.
 I listen, make notes and sometimes ask questions.
 I observe, listen and record the main points.
 I try to relate what the lecturer is saying to what I already know. If I can't do this, I take notes.
 When the group is small I like to discuss things with the lecturer.
 I listen attentively and try to get down the main points.
 If the lecture is interesting I fail to take notes.
 Sometimes I discuss quietly with my desk-mates what the lecturer is talking about.
 I like being asked by the lecturer to demonstrate on the chalkboard in lectures.
 Most of the time I sit and listen to the lecturer and jot down notes where necessary.
 I take notes, collect handouts, compare with others and check in books when not getting it.
 I listen to what the lecturer is saying, interpret it in my own understanding and then write notes.
 When not daydreaming, I listen to the lecture and take down the main points.
 I first evaluate the lecture, if it is not easy material I take notes.
 I always try to attach meaning to the new ideas.
 My notes are always very condensed, consisting of the main points only.
 When the teacher is active in class, I put the things he says in my own images to understand them.

Descriptions of themselves as learners. (Students with orchestrations categorised as 'at risk' or undesirable and not normally associated with success in learning outcomes).

When something is difficult, I lose peace of mind and rush to a friend; if he is also ignorant, I consult any relevant book, but I don't ask the lecturer for help, because then he will know that I haven't got the understanding.

- I read my notes many times and sometimes make stories with the first letters of each thing to remember.
- I remember things because I keep on reading the material until it sticks in my mind, such that remembering becomes easy.
- I commit things to memory by re-reading and re-reading.
- I usually design something that will help me to remember.
- I write important facts on a sheet of paper, which is hung on my room wall and I see them during my free time.
- When something is difficult I just leave it.
- I always revise after each lecture to refresh my memory; those which are hard to understand, I memorise.
- I remember by memorising things. I read, write down main points, which are usually sub-headings, and then later on I use them for helping me to remember whatever came under that sub-heading.
- I always put things in my own simple world and revise them.
- I underline main points in the notes and when reading; later I go straight to the notes underlined and read them repeatedly.
- I go through my work time and again and if I fail to understand, I ask my friends to explain in our language.
- I try as much as possible to understand using several simplified books or I ask friends, but not the lecturer.
- I learn by using analogies and memorising the main points.
- Sometimes I don't understand the material we have to learn, then I just neglect it.
- I fail to ask the lecturer the concept I have not understood in my study, because then he knows about it.
- When something is difficult, I don't spend much time on it; I give up and go on to the next thing.
- I pick out the key points and memorise them, especially when the information is difficult to understand.
- I form my own abbreviations for facts and rearrange the notes to fit my understanding.
- When I am not pressurised I tend to relax, only to work under panic when there is much to do.
- I make lists of main points and go over them frequently to activate my memory.
- I use mnemonics pinned on my wall.
- I must be disorganised, because when I compare my notes with those of my friends, I find they are different and change them.
- I reduce the notes to abbreviations so that each letter stands for the initial letter of the important fact and then I commit them to memory.
- I consult friends when something is difficult; not the lecturer, because then he knows I don't understand.
- When something is difficult, I ask friends or just give up because there is a choice in exams.

Descriptions of themselves as learners. (Students with orchestrations categorised as 'not at risk' and normally associated with success in learning outcomes).

I usually recall what I have learned on a topic in lectures and think very seriously on that topic.

I read a lot about the concepts I have learnt about.

I normally go over the material we have covered and summarise it, so the main points stand out.

The main points in my notes are my framework for remembering things

I like to spend my time trying to solve problems.

I enjoy studying, doing assignments and associating with friends.

I spend a lot of time in the library reading books on what we have learnt about.

I think I am well organised because I always follow a work schedule each day.

I always try to keep up to date with assignments and readings.

When something is difficult to understand, I keep on trying and usually succeed at last.

I always try to supplement lectures with text-book information.

I plan my work carefully and always have my assignments in on time.

I enjoy making extra notes in the library.

When something is difficult to understand I normally arrange to see the lecturer.

The extra references we are given in class have been helpful in reading about what we have covered.

I spend most of my time here doing academic work. I want to do as well as I can.

In the evenings I go over any area giving me problems during the day, until I understand.

When doing an assignment I usually scrutinise the question, make a skeleton answer, look for relevant material in the library, make a draft and then a final copy.

When something is difficult to understand I read about the topic and have discussions with friends about it.

I find it difficult to relax until I understand and can apply what we have been told.

Course preferences. (Students with orchestrations categorised as 'at risk' or undesirable and not normally associated with success in learning outcomes.)

- I like to be told precisely what to do in assignments because then you know what exactly will be graded.
- A very structured course is best because the lecturer is in the best ability to know what we need.
- I like a very structured course, because those who structured it know the prerequisites of studying them.
- I prefer to know exactly what I should do.
- I like to be told exactly how much should be done.
- I am used to being given detailed instructions and prefer it that way.
- I have to be told what to write.
- I prefer a well structured course because those who prepared it know why it is needed.
- I need to be told exactly what to do in assignments to get enough guidance.
- In learning, choice is inapplicable, because you end up learning irrelevant material.
- I like to be told what to do; to choose may be different from the lecturer's objective.
- I prefer a structured course; if I choose topics, I will choose only interesting things that may be contrary to the skills I'm expected to have.
- I like to be told precisely what to do in assignments so that I don't wander away from what I'm supposed to produce.
- I like to be told precisely what to do in assignments for uniform assessment.
- Precise instructions give me guidance on how to do the assignment.
- I like a very structured course because then I see something in front of me that has a sense of direction.
- I like a very structured course because I am not sure if I can choose what I need.
- I prefer a structured course, then I know where I am going.
- Precise instructions for assignments are good, because then you know what the lecturer wants.
- I prefer a structured course because then you can see it.
- I like a very structured course; to choose is very difficult.
- I like to be told exactly what to do to my projects.

Course preferences. (Students with orchestrations categorised as 'not at risk' and normally associated with success in learning outcomes.)

- In first year I preferred a very structured course but nowadays I am in a position to choose.
- I like not too much dependence, because then I know I will not need my lecturer all my life, and not too much independence.
- There isn't enough freedom to choose here.

I find choosing for myself is very motivating.
 I like to choose so that I can study with interest.
 I would prefer to choose some of what we study and the assignments.
 I would like to choose a project of my own.
 I would like a choice because I would choose according to my interests and likes.
 I like a structured course but to choose my own projects for assignments.
 I'd prefer a choice of what to study and what to do for assignments.
 To choose is better because I can write more of what I know.
 Choice of a topic is better; I would feel more relaxed with it.
 I would like to choose because it would be interesting and of future use.
 I would rather choose what interests and motivates me.
 You can get more information with your own choice; with set assignments you can run dry of facts.
 A very structured course forces you to take some material that you don't like.
 I like a structured but flexible course.
 Some material seems irrelevant, so to be given a choice would be better.
 I'd like to choose but with guidelines.
 I work harder on something I have chosen for myself and if I fail I can't blame anyone but me.
 Being told precisely what to do is somehow limiting.
 Experience has shown me that I like to learn what I like.
 Choosing for yourself gives you much morale.
 I really don't mind being given a choice or not; either way I am prepared to do it.

Perceptions of the workload. (Students with orchestrations categorised as 'at risk' or undesirable and not normally associated with success in learning outcomes.)

There is too much work for students, some is irrelevant.
 Many courses we can't manage and its difficult to concentrate so we just memorise.
 We are covering too much material in a short time.
 Lecturers give us too much work; as a result we perform poorly; not because we are dull but because there is simply too much on our part.
 The workload should change because it is difficult to know such a lot.
 I am given too much work to be organised and I just give up because there is too much to learn.
 There's never enough time for me to prepare properly, so I am afraid of failing and being weeded.
 Lecturers should have a specific number of assignments to give and not just give as they please; we are being overworked.
 People shouldn't give so many courses; it turns out to make everyone too averaged.
 There's too much to be done; I can't organise myself.
 I am not organised because of the pressure of work.

The workload is too much and too theoretical.
 There is just too much stuff to learn in a year.
 We have to take too many courses at once.
 The second year workload was just too much for comfort.
 There are just too many assignments to do.
 There is so much work and lecturers seem not to care.
 There's so much to revise that I feel I won't be able to make it, and that scares me.
 Because of too much work the passmark should be changed to 35%
 The workload has got to be reviewed; sometimes the lecturers are unable to finish their syllabuses !
 I fail to do things because of pressure of academics and the panic of pressure.
 All the work that is expected of us is just too much to manage.

Perceptions of the workload. (Students with orchestrations categorised as 'not at risk' and normally associated with success in learning outcomes.)

The workload should be reduced and related to the needs of the student and the requirements of Malawi.
 The workload is just too much and the choice too limited.
 The coverage of the courses is too wide and general; they should be narrow and specific.
 The workload should be reduced to increase understanding.
 I never have time to consolidate what I learn.
 The workload is alright but students should be able to make up any combination of subjects.
 There are too many compulsory subjects to do and not enough choice.
 There are too many assignments to do and not enough flexibility in terms of choice.
 Even during exam time there is too much to do; it is difficult to prepare adequately for exams.
 Having a limited number of courses would be better because then we could dedicate our time to our special field, which would benefit us in exams and after we finish here.
 You get the feeling that the quantity of work here is better than the quality.
 It would be better to learn a little in a year than to fill our heads with facts that are forgotten after the exam.

Concerns about examinations. (Students with orchestrations categorised as 'at risk' or undesirable and not normally associated with success in learning outcomes.)

The worst is to be asked the first terms work at the end of the year.
 Exams worry me because lecturers can trick you in a question and you can fail to know what is required.
 They worry me so much. Sometimes I can't reason or think.
 They worry me, because if I fail I'll be weeded.
 I can't sleep and I worry because of failure.
 They worry me because the existence of a student here is determined by the exam.
 The university is exam oriented, forcing students to memorise and not understand for the sake of the exam.
 I worry about exams because examiners make mistakes.
 I worry, because if I fail that's the end.
 After writing exams you forget the content at once and some lecturers asks difficult questions.
 Our learning is so much centred on exams that one can't help but worry about them.
 Exams worry me because there is too much to do, so there is no thorough preparation.

Concerns about examinations. (Students with orchestrations categorised as 'not at risk' and normally associated with success in learning outcomes.)

They worry me. It seems they determine one's stay here.
 The University is very exam oriented but I try not to get demoralised.
 Exams don't worry me much; I am used to them and get prepared for them.
 I love exams; its a way of showing what I know.
 Usually the exams require things which I have learnt so I don't worry much about them.
 I am usually sure I can answer most questions and, anyway, there is a choice.
 No. Exams don't worry me. Remember after learning for some time you have to reassure the lecturers what you have got from their courses.
 Malawians have been made to fear exams. Our learning is so much centred on exams.
 I must confess I have never got used to writing exams; they are always new.
 I usually feel confident about exams because I am usually well prepared.
 It is through the exams that we get our degrees, so I don't mind them.
 Courses are very demanding and there is not enough time to prepare; also relations with the lecturer matter too.
 Exams are part and parcel of the courses here; they have become a routine.
 I don't like exams because I don't feel they are part of true learning.
 Exams don't worry me because I always pass. There is no reason to get worried after having learnt the things which are examined.
 There is always fear of failing, which would affect me psychologically and demoralise my relatives and well-wishers.

Examination preferences. (Students with orchestrations categorised as 'at risk' or undesirable and not normally associated with success in learning outcomes.)

I prefer recall questions because they save my time; I just don't waste much time with thinking.

Problem solving questions are too time consuming because they require reasoning.

I prefer recall questions; I am better at memory than solving problems.

I am assured of passing an exam if I recall exactly what was taught.

I prefer to have questions requiring recall of course content, because if they don't ask from the notes, there is always fear of failing.

Recall is better because you can give specific answers.

If questions come as we were taught then recall is better.

Sometimes you learn something which is difficult and you can pass it by memorising.

I prefer questions asking for recall of course content, because then I know whether I have understood what was taught or not.

I prefer questions asking for recall of course content because that has a direct relation to what I have covered; I lack confidence with problems.

I like recall questions because then I know myself if I am keeping in touch with the learning process.

It is easier to put on paper things that are memorised.

Recall is easier; I do not find it difficult; but sometimes problems are not familiar to me.

It is easier to remember than to get answers to problems and, with problems, my stories are not always helping.

I like those asking for recall, because I am good at committing things to memory.

My friends say that if you repeat what the lecturer said you cannot be wrong.

Examination preferences. (Students with orchestrations categorised as 'not at risk' and normally associated with success in learning outcomes.)

Problem solving questions are better; recall questions require you to remember things in detail and I am not good at memorisation.

Problem solving questions are better, because when I am able to apply it shows I really learnt the material.

Problem solving is good; it really exercises the brain.

Problem solving questions are much more challenging.

Problem solving develops skills to solve real-life problems.

I prefer to think than to repeat what someone has said.

Problems require reasoning and, anyway, I am not good at memorising.

Problems train a person to think and find a solution in a real world situation.

Recalled material is always forgotten straight after the exam; problems to solve are what we need.

I prefer problems to solve because I am for the cognitive theory of learning.

Problems require application. I prefer that, because it stimulates my reasoning power.

Memorisation should be deleted and thinking and reasoning boosted.

Reasoning and evaluation are used in solving problems and I am assured of using my knowledge in real world situations.

Problems let you express your own views freely.

Some subjects require recall; others require analysis and application.

With problem solving you answer a question critically and by using your own ideas; recall restricts one's knowledge.

Problems broaden your mind; recall narrows it.

If you can solve a problem you have shown that you understand.

I dislike putting down other peoples ideas, I too might have a good answer.

With recall it seems that you haven't really learnt anything.

Approaches to examinations. (Students with orchestrations categorised as 'at risk' or undesirable and not normally associated with success in learning outcomes.)

I normally start reading in advance, summarising what I learnt and memorising the facts.

I try as much as possible to get past papers and pay much respect to those examinable areas.

I start to panic and begin to memorise things.

I go through the notes many times with friends.

I am not organised because there is too much to cover; I just wait for exams and then learn the notes.

I start far in advance so that I memorise well.

As the exams approach, I devise songs of important ideas.

- I memorise just to get a pass and then forget.
- I only read when the exams are very near so that I remember easily.
- I prepare by going through my notes twice or more. If I find a simple book, I add my reading but normally my notes do me some favour.
- I revise every area I am told will be examined and jot down the main points and learn them.
- When exams are near, I study hard each and every topic.
- Its a terrible thought to think about reading for a long time preparing for things you'll be through with in 3 hours.
- I read notes by organising facts on every topic.
- I study much more seriously for exams and write down important points, just before the exam, as reminders.
- I memorise as much as possible because in most of the exams they ask us to recall.
- I study the material seriously and go through past exam papers in order to know what the questions look like.
- I study late at night and make sure that I exhaust all the notes.

Approaches to examinations. (Students with orchestrations categorised as 'not at risk' and normally associated with success in learning outcomes.)

- I prepare for exams by attempting sample questions several weeks ahead.
- I like to work towards exams with a discussion group made up of my friends.
- I read my notes, books and practice problems similar to the expected ones.
- I spend most of the time in the library to get ideas that others will not have.
- I go over the main examinable concepts to make sure I understand them.
- I read extensively and ask myself questions about the topics covered.
- I don't prepare much for the subjects I find easy; with others, I read my notes and discuss topics with my room-mate, who is doing the same course.
- I prepare by solving many problems that are relevant to the subject.
- I browse through the notes and ask friends where I don't understand.
- I read widely for exams and specialise in some areas.
- I normally just take them as they come and don't have a specific preparation.
- I check the course outline and jot down the main points from each topic using my notes and books.
- I start reading widely long before exams. During exams I don't study.