CONCEPTUAL AWARENESS IN ENGLISH OF GRADE 5 LEARNERS: AN ANALYSIS

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YOU DESERVE THE HIGHEST PRAISE

ABSTRACT

Keywords: Conceptual awareness, medium of instruction, learning, mother tongue, encode and recode.

The objectives of this study were to investigate existing theory regarding the conceptual learning of young learners and to determine what core concepts Grade 5 learners need to learn. An empirical investigation as to whether these learners were familiar with the mother tongue words for the identified core concepts in syllabuses and textbooks, and to investigate whether they could recode these concepts into English (the medium of instruction in their classrooms) was also undertaken.

The role of conceptual awareness in learning was discussed based on Piaget's, Vygotsky's and Clark's theory. They explain how concepts and knowledge are acquired and also how language affects this process. Learners are required to know the concepts of what they learn and should recode the information or concepts into the language used for a specific learning task. In the case of this study it was English.

The study revealed that many learners who were investigated in this study did not possess the knowledge to encode many of the core or broader concepts in Tshivenda, their mother tongue. Learners also seemed to learn some concepts and the English encoding for them simultaneously.

The findings showed, however, that most learners in Grade 5 could not recode many of the concepts that they possessed in L1 into English the MoI. It was clear that many learners in this study were not ready to switch from mother tongue instruction to English MoI in Grade 5.

Their lack of conceptual awareness coupled with the lack of adequate English proficiency to learn the subjects in English may have been influenced by a number of possible reasons. Some reasons that were suggested were the following: a lack of prior knowledge

of concepts that occur in Grade 5 syllabuses and textbooks; poorly trained teachers who are unable to assist learners to create links between existing knowledge and new knowledge; poor socio-economic circumstances and illiteracy and teachers who may lack English proficiency and cannot teach all subjects confidently in English.

Some implications for the findings were suggested such as the following: if teachers are aware of the demands made on the conceptual framework of learners and the possible limitations that they have regarding their conceptual readiness to learn, intervention is possible. Much can be done regarding the strategies that teachers may employ to enrich, expand, reconstruct, revisit or adapt concepts for learning. Such strategies include visual scaffolding, an enriched conceptual and language programme and a planned and structured approach to teaching language across the curriculum.

OPSOMMING

Kernwoorde: konseptuele kennis, medium van onderrig, leer, moedertaal, enkodeer en herkodeer.

Die doelstellings van hierdie studie was om ondersoek in te stel na bestaande teorieë rakende konseptuele leer in jong leerders, en om vas te stel wat die kernkonsepte is wat leerders in Graad 5 moet ken. 'n Empiriese ondersoek is gedoen om vas te stel of die leerders in hierdie studie bekend was met die moedertaalwoorde van die geïdentifiseerde konsepte in hulle sillabusse en handboeke, en ook om vas te stel of hulle die konsepte kon herkodeer in Engels (die medium van onderrig in hulle skole).

Die rol wat konseptuele kennis in leer speel is gebaseer op die teorieë van Piaget, Vygotsky en Clark. Hulle verduidelik hoe konsepte en kennis verwerf word en watter rol taal in hierdie prosesse speel. Daar word van leerders verwag om bekend te wees met die konsepte wat hulle moet leer, maar hulle moet ook hierdie konsepte kan herkodeer in die taal wat gebruik word vir spesifieke leertake. In die geval van hierdie studie was die taal van herkodering Engels.

Die bevindings van hierdie studie het aangedui dat baie leeders nie die kennis gehad het om kern- of breë konsepte in TshiVenda (hulle moedertaal) te kodeer nie. Sommige konsepte en die Engelse uitdrukkings daarvoor het geblyk dieselfde tyd verwerf te word.

Die bevindings het egter aangedui dat die meeste leerders in Graad 5 baie van die konsepte wat hulle wel in die moedertaal kon kodeer, nie na Engels kon herkodeer nie. Dit het duidelik geblyk dat baie leerders in hierdie studie dus nie gereed was om in Graad 5 van TshiVenda medium van onderrig oor te skakel na Engels medium van onderrig nie.

Die gebrek aan konspetuele kennis en ook 'n gebrek aan bedrewenheid in Engels om sodoende alle vakke deur middel van Engels te leer, mag deur verskeie faktore beïnvloed word. Sommige van die faktore wat aangevoer is, is die volgende: 'n gebrek aan vorige of

bestaande kennis aangaande die konsepte wat in Graad 5 sillabusse en handboeke voorkom; onderwysers wat onopgelei is of oor gebrekkige opleiding beskik en dus nie aan leerders kan hulp verleen om bestaande en nuwe kennis te verbind nie; swak sosio-ekonomiese omstandighede en ongeletterdheid, asook onderwysers wat self nie bedrewe is in Engels nie en daarom nie alle vakke met selfvertroue deur die medium van Engels kan onderrig nie.

Sommige van die implikasies van die bevindings wat voorgestel is sluit die volgende in: onderwysers wat weet wat die eise is wat aan die konseptuele raamwerk van leerders gestel word, en wat die beperkings verstaan wat leerders in hierdie verband mag hê mag beter toegerus wees om effektiewe intervensie toe te pas. Heelwat kan vermag word om strategieë in te sluit wat relevante konsepte kan verryk, verbreed, herkonstrueer, aan te pas of te hersirkuleer. Sulke strategieë sluit visuele onderbou in, verrykte konseptuele -en taalverwerwingsprogramme en 'n beplande en gestruktureerde benadering tot die onderrig van taal in die hele skoolkurrikulum.

TABLE OF CONTENTS

CHAPTER 1

INTRODUCTION 12

1.1. ORIENTATION 12

1.2. STATEMENT OF THE PROBLEM 12

1.3. PURPOSE OF THE STUDY 15

1.4. CENTRAL THEORETICAL STATEMENT 15

1.5. METHOD OF RESEARCH 16

1.6. PROGRAMME OF STUDY 16

CHAPTER 2

THE ROLE OF CONCEPTUAL AWARENESS IN LEARNING 17

2.1. INTRODUCTION 17

2.2. KNOWLEDGE 17

2.2.1. Introduction 17

2.2.2. Knowledge and prior knowledge 17

2.2.3. Types of knowledge and the purpose of knowledge 20

2.3. CONCEPTUAL AWARENESS 22

2.3.1. Introduction 22

2.3.2. Definition of concepts 23

2.3.3. Conceptual development 24

2.3.4. Acquired knowledge and concepts 27

2.4. CONCEPTUAL AWARENESS IN LEARNING IN SOUTH AFRICAN SCHOOLS 30

2.5. SUMMARY AND CONCLUSION 33

CHAPTER 3

ENGLISH MEDIUM OF INSTRUCTION CLASSROOMS AND CONCEPTUAL AWARENESS 35

3.1. INTRODUCTION 35

3.2. CONCEPT ACQUISITION IN ENGLISH MoI CLASSROOMS 35

3.2.1 Introduction 35

3.2.2. Language proficiency 36

3.2.3. Cognition and language learning 39

3.2.3.1. Cognition 39

3.2.3.2. Piagetian and Vygotskyan theory 39

3.2.3.3. The conceptual world of target language users 40

3.2.3.4. The relevance of learning content 41

3.2.3.5. Existing cognitive learning patterns 42

3.3. ENGLISH MEDIUM OF INSTRUCTION CLASSROOMS IN SOUTH AFRICA 43

3.3.1. Introduction 43

3.3.2. Variables that influence the learner 44

3.3.2.1. Affective factors 44

3.3.2.2. General factors 45

3.3.2.3. Learning tasks and outcomes 46

3.3.3 Variables that influence the context 50

3.3.3.1. School context 50

3.3.3.2. The context outside the classroom 54

3.4. THE IMPLICATIONS OF ENGLISH MoI CLASSROOMS AND CONCEPTUAL AWARENESS FOR TEACHING 55

3.5. CONCLUSION 58

CHAPTER 4

METHOD OF RESEARCH 60

4.1. INTRODUCTION 60

4.2. EMPIRICAL STUDY 60

4.2.1. Design 60

4.2.2. Subjects 60

4.2.3. Instrumentation 60
4.2.4. Data Collection Procedure 61
4.2.5. Analysis 62

4.3. CONCLUSION 63

CHAPTER 5

RESULTS AND THE DISCUSSION OF THE FINDINGS 63

5.1. INTRODUCTION 63

5.2. CONCEPTS AND RECODING OF CONCEPTS INTO ENGLISH 63

5.2.1. Geography 64
5.2.2. General knowledge 65
5.2.3. English 67
5.2.4. Mathematics 67
5.2.5. History 69
5.2.6. General Science 71
5.2.6.1. Health Education 71
5.2.6.2. Gardening 72
5.2.6.3. Domestic Animals 73

5.3. INTERPRETATION OF THE FINDINGS 74

5.4. CONCLUSION 76

CHAPTER 6

CONCLUSIONS AND RECOMMENDATIONS 77

6.1. INTRODUCTION 77

6.2. SUMMARY AND CONCLUSIONS 77

6.3. IMPLICATIONS OF THE STUDY 80

6.4. LIMITATIONS OF THE STUDY 81

6.4. RECOMMENDATIONS FOR FURTHER RESEARCH 82

BIBLIOGRAPHY 84

APPENDIX 1 100

APPENDIX 2 101

LIST OF TABLES

Table 1: The Results for the Geography Category 64

Table 2: The Results for the General Knowledge Category 66

Table 3: The Results for the English Category 67

Table 4: The Results for the Mathematics Category 68

Table 5: The Results for the History Category 70

Table 6: The Results for the Health Education Category 71

Table 7: The Results for the Gardening Category 72

Table 8: The Results for the Domestic Animals Category 73

CHAPTER 1

INTRODUCTION

1.1 ORIENTATION

Education in South Africa has been in a crisis for a long time and it has been the hotbed of socio-political currents for many years (Desai, 1994:24; De Villiers, 1997:220). This situation seems to have impacted negatively on learning as reflected in poor matriculation examination results among especially black learners (DOE, 1999:1). Although the many complex variables responsible for the situation are beyond the scope of this study, one of the main problems seems to be that the prior knowledge of the learner as a determinant in the learning process has been underestimated (Chandler, 1989:3). Knowledge (especially learning in school contexts) is built on what learners have learnt previously, but most learning in classrooms is via language. Learners learn concepts and the language needed to encode those concepts at the same time. Wozniak (1993:232) describes this Vygotskyan principle as follows: "Words are at the heart of the child's emerging concepts".

1.2 STATEMENT OF THE PROBLEM

According to Clark et al. (1994:15), learning at school should be promoted and regulated by the knowledge that learners have developed at home and other familiar environments which shape their understanding of the world. Cognitive changes should not result from mere accretion of information, but as a result of processes involved in conceptual reorganisation. Learning with understanding is more likely to promote transfer than simply memorising information from a text or a lesson (Bransford et al., 1999:201-203). Learners need access to the language in which they will learn, but they also need knowledge of the content they will communicate about, i.e. they need language and concepts.

Vygotsky (1967:59) theorises that language and thought concepts cannot be separated and that the higher forms of human intercourse are possible only because man's thought reflects conceptualised actuality. According to him, it is impossible to conceptualise and

learn without doing so mainly through language. This is especially relevant for learning at school, because almost all the teaching-learning opportunities are mediated through language. Clark (1999:1) maintains that content (including the executive strategies, conceptual content, skills and metacognitive awareness) across all instances of learning cannot be taught without language. No meaningful learning seems possible without accessing core concepts and the language in which they are encoded.

All eleven languages of South Africa have been accorded equal official status, but English is used as a medium of instruction in many schools, tertiary institutions and government offices (Behr, 1984:39; Desai, 1994:24; Shay et al., 1994:21; De Villiers, 1997:1). Less than 9% of South Africans are English L1 users, but most learners are required to study all subjects in English as soon as they are in Grade 5 (DET, 1992:247; SSA, 2000: 24).

Learners seem to experience many difficulties in learning in English, as they do not seem to have a basic knowledge of the English language or conceptual resources to learn successfully. Chick (1992:34) states:

> The pupils are likely to be alienated by what they learn, and only dimly perceive the implications and linkages between the concepts they are presented with.

Learners also do not experience the use of English in real life situations with teachers or other people during the first years of learning English (Bongaerts et al., 1995:409). They seldom have models for English and often reach the age of ten without any prior contact with English. Even if learners have contact with English, poor prior learning coupled with few socialising opportunities in English result in poor understanding in English medium of instruction (MoI) classrooms (Swart, 1988:272; De Villiers, 1997:220-221.). Dulay et al. (1982:104) and Nwaila (1992:2) report that other problems include that black learners do not seem to have the concepts that are required by school learning, and their environment does not expose them to contact with these concepts. Therefore, little meaningful learning can take place. Even if learners have concepts that they can encode in their mother

tongues they need to recode these concepts into English, as learning takes place through the medium of English.

The matriculation examination results of 1996 -1999 in the Northern Province, for example, were unsatisfactory, as the learners only obtained an estimated 37% pass rate (HSRC, 1998a:1; HSRC, 1998b:1). Experienced teachers of Grade 9 to 12 learners say that for most learners it is, by then, too late to effectively address a lack of language and conceptual resources (Burmeister, 2000:15). It can be assumed that the matriculation examination results are symptomatic of problems that manifest much earlier. One problem seems to be that teachers make assumptions about the conceptual, cognitive and linguistic readiness of Grade 5 learners to learn all subjects through the medium of English. Such a lack of presupposed knowledge was evidenced by answers given by many Grade 12 learners in 1998 when they were asked a question relating to the prescribed poem *The Tyger* by William Blake. The question was to suggest a reason why Lamb is spelled with a capital letter. Hundreds of learners responded that it was because a lamb is the baby of a tiger (De Villiers, 1999). This response suggests that learners do not have the necessary conceptual knowledge about lambs and tigers. This confirms what Machazime (1993:62-83) and Lightbown and Spada (1993:91) assert; i.e. if sufficient knowledge is not established in the primary school years when foundational concepts are established, all subsequent learning will be impaired. The concepts and language that learners have at the time they reach grade 12, are not enough to help them cope with the final examinations (Dirven & Verspoor 1998:14).

Macdonald and Burroughs (1991:4-5) describe in a comprehensive research project that most pupils who go to Grade 5 are not ready to learn up to ten subjects through the medium of English. They found that the 'whole learning situation from Grade 1 to Grade 4 is too limited to prepare the children for the range of skills which they will need from Grade 5 onwards'. Quin and Amos (1997:189) echo these findings. South African learners also come from highly diversified backgrounds and different speech acts may have different meanings in different contexts. Teaching-learning opportunities are seldom adapted to teach language and concepts in a systematic and structured manner. Powell (1997:118)

and Schulz (1999:31) state that before new concepts are introduced to learners, teachers should employ learning strategies that will help them activate and extend each learner's level of prior knowledge, building on existing concepts.

Questions that arise are the following:

- How do young children learn concepts?
- What are the core concepts in syllabuses that Grade 5 learners need to learn?
- Is there research evidence that Grade 5 learners are familiar with these concepts?
- Can Grade 5 learners recode existing concepts into English for learning?

1.3 PURPOSE OF THE STUDY

The purpose of the study is to:

- investigate existing theory regarding the conceptual learning of young children;
- determine what the core concepts are that Grade 5 learners need to learn;
- empirically investigate whether Grade 5 black learners are familiar with the core concepts in syllabuses, and
- investigate whether Grade 5 learners can recode these concepts into English.

1.4 CENTRAL THEORETICAL STATEMENT

Learning and the language needed to learn cannot be separated.

1.5 METHOD OF RESEARCH

The initial part of the research consisted of an extensive and detailed survey of literature regarding conceptual awareness in young children, and SLA theory.

The second part of the research entailed an empirical study and the researcher determined core concepts in the Grade 5 syllabuses by a semantic and syntactical analysis of the core interim syllabuses and textbooks for Grade 5.

The accessible population was a group of twenty randomly selected Grade 5 learners from each of five schools in the Venda region (n=100). The data collected using a questionnaire were analysed and the concepts possessed and recoded into English were identified and quantified in terms of percentages. All learners were in English MoI classes in the Northern Province (Venda). The findings were discussed and the implications for teaching were considered.

1.6 PROGRAMME OF STUDY

Chapter 2 investigates the role of conceptual awareness in learning.

Chapter 3 investigates how language impacts on the acquisition of concepts and knowledge in English medium of instruction classrooms.

Chapter 4 presents the method of research used in this study. The presentation of the empirical process includes the design, subjects, instrumentation, data collection procedure, and data analysis.

Chapter 5 provides the results of the study, and the findings are discussed and interpreted.

Chapter 6 summarises the findings of the study, considers the implications of the findings, and makes recommendations for future research.

CHAPTER 2

THE ROLE OF CONCEPTUAL AWARENESS IN LEARNING

2.1 Introduction

Much has been written on how learning takes place and what knowledge is. These are complex issues, and this study undertakes to investigate the nature of knowledge, what role the forming of concepts plays in knowledge and learning, and how language impacts on these processes. This chapter investigates the following: how knowledge is defined; conceptual awareness, cognition and language learning; learning and concepts; the role of prior learning and the South African situation regarding what is known about knowledge, learning and concepts.

2.2 KNOWLEDGE

2.2.1 INTRODUCTION

In this section knowledge and pre-existing or prior knowledge are defined and the types of knowledge and the purpose of knowledge are discussed.

2.2.2 Knowledge and prior knowledge

The *Cambridge International Dictionary of English* (1995:787) defines knowledge as the understanding of, or information about, a subject which has been obtained by experience or study, and which is either in a person's mind or possessed by people generally.

Whitehead (1990:63) suggests that, based on Piaget's view, knowledge is seen like a store of successful encounters with the environment. Knowledge is what a learner already knows of a certain topic and that determines to a great extent the way in which new information is encoded and retrieved from the memory, that serves as a storehouse for knowledge (Machiels-Bongaerts et al., 1995:409). Learners acquire knowledge in their respective environments, e.g. homes, cultures, schools, friends and the like.

Powell (1997:2) points out that research on memory reveals that the storing of knowledge is what promotes learning on related issues. Learners are able to promote learning of new topics by association with knowledge already learnt and stored in their memory. What learners have in store in their memories is largely determined by their encounters with previous learning.

Understanding seems central to all effective learning. If learners do not understand something, it means that they may lack the ability to link new information with existing information, or they may lack cognitive structures that are mental operations or rules necessary for understanding. It seems that existing knowledge is the most important variable that influences current learning, as learning is largely dependent on prior knowledge.

According to Chandler (1989:6), there are two sources of individual knowledge (i.e. the private understanding that every individual possesses). These are *spontaneous* knowledge, that is, the body of informal knowledge that learners spontaneously and haphazardly acquire from their interaction as individuals with their surroundings, and *formal* knowledge, or the body of knowledge that learners acquire in a formal fashion by attending school. These two types of knowledge should be integrated for the learner to understand what happens in a learning situation and both should be present in the learners' mental structures in order to understand what happens in the learning situation. Insufficient or inappropriate previous knowledge on the learners' part disadvantages them from participating fully, and they may end up being passive learners who memorise everything that is learnt or taught. This can be addressed by the presence of sufficient and relevant knowledge that is already stored.

West et al. (1985:31) suggest that the growth of understanding only occurs when the learner actively generates his/her own private understanding or individual knowledge of some part of general knowledge, as learning gives meaning to public knowledge. Public knowledge is seen as the generic or common understanding of a topic that most people in the same learning context share. Chandler (1989:4) also supports this assertion by

indicating that prior knowledge is a cognitive foundation that facilitates learning. It may be difficult, if not nigh impossible, for effective learning to take place if learners do not have the prior knowledge of the issues under discussion.

Reid (1999:2) states that prior knowledge and experience aid the acquisition of new knowledge and the processing of new information, thus promoting retention. In cases where prior learning is erroneous learners find it difficult to master new concepts that are being learned and to retain such learning. This is partly owing to the fact that much new material falls outside the realm of learners' experiences and knowledge, and as a result they have little to build on. In this way learning is less meaningful.

When learning new material, the learners have to retrieve relevant information from their mental map. They seem to learn new material quickly and efficiently by tying it to what is known. As more prior knowledge is accumulated by an individual, less new learning is needed to attain a similar level of knowledge on a new and related topic. Learners with adequate prior knowledge of the learning task will have higher understanding of material than peers who have inadequate prior knowledge.

According to Miller (1988:154-156), understanding cannot be directly acquired from experience. It must involve a construction on the part of the learners. This construction must be based on something more than the information provided in a task or situation. The *skill* of restructuring knowledge in order to assimilate and accommodate new knowledge is, therefore, also required. Marcon (1995:19) and Malave (1991:178) both assert that learners' childhood experiences may influence how they approach learning tasks. Applications of previously learned concepts to new mastery of more complex skills and concepts may be difficult to master if learners do not have relevant background knowledge regarding new information and the restructuring process. Learners need to posses both prior content knowledge and task capability to meet the demands of formal school-based learning. Scott–Willis (1993:4) suggests that learners, therefore, cannot master material far removed from what they already know. They build formal learning also on natural learning experiences and sensory experiences from their immediate non-formal environments. These form the foundation for later more abstract learning. Chick (1992:35) states that

learners need to engage in activities that allow them to integrate new formal knowledge with what they already know, thus making new knowledge available for them.

Both Deckert (1987:19) and Chandler (1989:5) suggest that teachers can facilitate learners' generation of meaning and understanding by helping them to relate new and old conceptualisations. This facilitation also implies that teachers have to be aware of possible misconceptions inherent in the prior knowledge of learners, how these prior conceptions influence current conceptions and how it may be necessary to change, adapt, reconstruct or expand existing concepts to accommodate new learning.

In conclusion, knowledge seems to have the following characteristics: it is a system of understanding not only discrete and isolated information, but also the relatedness of information. This understanding seems to be dependent on the process of successfully integrating prior and new knowledge.

In order to investigate the role of concepts in learning, it is necessary to distinguish between the types of knowledge and the purpose of knowledge more clearly. These are discussed in the next section.

2.2.3 Types of knowledge and the purpose of knowledge

Four types of knowledge, as suggested by Clark et al. (1994:18), are generally distinguished for purposes of learning, namely:

- conceptual knowledge (knowledge about things);
- procedural knowledge (knowledge about how to do things and the ability to do them);
- representational knowledge (the ability to execute acquired knowledge, i.e. how to go about doing the everyday tasks people engage in), and
- metacognitive knowledge (knowledge and awareness about thinking, language and knowledge itself).

It is generally recognised that knowledge comprises a complex tapestry of information, skills and values and although the division of knowledge into these four types may seem artificial, it is essential to separate these entities in order to provide a theoretical basis for a conceptual framework for learning. Applied to learning and language learning in particular, all four types are prerequisites for successful learning. Das (1984:17) refers to the 'knowledge base' for learning. He maintains that knowledge is provided by the experience and education of the information processed, and he emphasises the crucial role of utilising prior knowledge in learning.

Prior knowledge is also often referred to as experiential knowledge, denoting that learning occurs through definition and experience. These experiences may lead to procedural knowledge (how to do things) or declarative knowledge (knowledge of facts and concepts) (Reid, 1999:3). Prior knowledge acts as a framework through which the learner filters new information and attempts to make sense of what is learnt. It seems that if deficient knowledge is not intercepted in the primary school years when many foundational concepts for classroom learning are established, subsequent learning will be impaired.

Bower and Hilgard (1981:2) cite research that confirms that the storing of knowledge is what enhances subsequent learning on related issues. Memory creates links with existing knowledge so that learners are able to enhance the learning of new information by association with knowledge already learned and stored in their memory. Learners learn by creating an internal representation or mental map of what is known when learning new material. They retrieve relevant information from their mental maps that presuppose links in knowledge between prior learning and new learning. This helps the learners to learn new material quickly and efficiently by tying it with what was previously known. As more prior knowledge is accumulated by an individual, less new learning is needed to attain a similar level of knowledge on a new and related topic. This implies that a basic foundation of knowledge should facilitate future learning (Powell, 1997:3). When learning is unsuccessful, it may suggest that the learner is unable to link prior knowledge and new knowledge. Powell (1999:7) emphasises that it seems that there must be an underlying systematic structure of pictures, symbols or concepts in order to create a mental map.

Both Tedick (1990:124) and Kostelnik (1993:76) also assert that comprehension is partially dependent on the relationship between the information that is learned and the learners' prior knowledge. As a result, the kinds of knowledge and skills that learners bring to a learning situation should be taken into account. Learners who have relevant prior knowledge are better experienced in learning situations. Learners with little or no exposure to a particular situation or skill cannot not be expected to perform at the same level of competence as learners whose existing system of experiences is greater.

Tedick (1990:214) reports on research that found that learners with much prior knowledge on a topic, showed higher quality of learning than learners with little prior knowledge. Malave and Duquette (1991:179) also assert that a lack of prior knowledge constitutes obstacles for learning.

Learners in this study seem to fall in the category of those with deficient systems of prior knowledge as presupposed by school syllabuses, as they come from rural backgrounds where there seems to be little chance of acquiring knowledge that is relevant to their schoolwork.

From the preceding discussion it seems that applicable prior knowledge is one of the primary aspects in the learning process. Learners are required to have initial conceptual knowledge, which is knowledge about things, so that they may be familiar with the concepts that they will encounter in the learning process. What conceptual knowledge is and how it is acquired is investigated next.

2.3 CONCEPTUAL AWARENESS

2.3.1 Introduction

This section investigates the following issues: definitions of concepts; conceptual development; and acquired knowledge and concepts.

2.3.2 Definition of concepts

Richards et al. (1992:74) define a concept as the general idea or meaning that is associated with a word or symbol in a person's mind. Concepts are the abstract meanings that words and other linguistic items represent. Linguists believe that all languages can express the same concepts, although some languages may have fewer words for some concepts than are found in other languages, or they may distinguish between concepts differently. The forming of concepts is closely related to language acquisition, and the use of concepts to form propositions is basic to human thought and communication. Language, therefore, is used as a vehicle through which information is disseminated.

Whitehead (1990:73) states that concepts are flexible ranges of options that help learners to impose some order and pattern on the complexity and diversity of raw experience. A concept may start its slow growth from a picture book label, a simple toy or the experience of being held up to look out of the window by an adult.

Swart (1988:268), who states that the most fundamental meaning of the term 'concept' is exhibited in individual behaviour, also echoes this view. The individual responds to a class of observable objects or object qualities such as those implied by words. These are, for example, colour, shape, size, heaviness and so on, or by common objects such as *cat*, *chair*, *tree* and *house*. According to him, learners acquire concepts by observation and by definition. Therefore, the experience (received within their learning contexts by means of observation and interaction with more experienced learners in their learning contexts) that learners have helps them to understand issues more easily.

Much school learning is based on second-hand experience conveyed through language, and in the case of this study, a second language. The learners in this study switch from mother tongue instruction to English medium of instruction classrooms in Grade 5. It is clear that learning and prior knowledge are inexorably linked. If learners have not developed appropriate concepts, i.e. the ability to remember, perceive, recognise and

classify, *not only* in their own mother tongue *but also* in English, by the time they are in Grade 5 their school-based learning may be expected to be unsatisfactory.

2.3.3 Conceptual development

Brown (1987:48) claims that conceptual development is a process of progressively moving from states of mental disequilibrium to equilibrium. He adds that periods of disequilibrium mark virtually all cognitive development through ages fourteen or fifteen. This is when formal operations (as delineated by Piaget) are finally firmly organised and equilibrium is reached. More importantly, he points out that language interacts with cognition to achieve equilibrium.

Whitehead (1990:73) says that the development of concepts is affected by personal life experiences, cultural traditions and the subtle process by which any new information, new experiences and new words are matched to and integrated with the already experienced, named and known. When new concepts are reconciled with existing schemes, conceptual capture takes place.

Swart (1988:27) postulates that true learning takes place when the meaning that is attached to something depends on the frame of reference with which it is approached. There should be a supporting structure around which meaning can be built. The conceptual framework of the learner should be built up throughout his life through spontaneous experiences and experiences planned by the teacher.

According to Chamot and O'Malley (1987:231–232), concepts on which meaning is based, are represented in memory as nodes that are associated with other nodes through associations or links. These interconnected nodes may be organised into propositions or assertions that show the relationships of arguments in sentences. The propositions are then organised into hierarchies (which show classification relationships with similar concepts in memory), or into larger units of memory called schemata that reveal a configuration of interrelated features that define a concept. If any of these representations

exist, the strength of associations in the link between nodes would be largely due to prior learning experiences.

It seems clear that concepts (simplified as pictures or representations) come into the learner's consciousness through experience and by being named, explained, enriched and expanded by language. The richer and more complex the existing conceptual schemata, the more easily they are integrated with new and unfamiliar concepts. The opposite is, however, also true: the poorer and more deprived the existing conceptual schemata are, the slower and more retarded the development of new concepts is going to be.

The development of concepts may be represented from its simplest to most complex form as follows:

- nodes (individual and loose standing ideas) to
- sentences (nodes linked into sentences) to
- hierarchies (classified relationships with similar concepts in memory) to
- schemata (a configuration of interrelated features that define a concept) to
- frameworks (an integrated intellectual, emotional and practical conceptual structure).

According to Swart (1988:272), the following combination of factors influences the learner's formation of conceptual frameworks:

- the values a learner encounters;
- human beings and things with which the learner identifies himself with throughout life;
- the emotional refinement and differentiation that develop;
- spontaneous maturation and growth, and
- the refinement and development of cognition.

The subjective connotation of a concept may vary from person to person. Their experiences and their life-world will influence the connotation that learners attach to any concept. A concrete object may represent fewer variations in learners' schemata because

it can be demonstrated more easily, e.g. 'rose', whereas more abstract concepts such as 'freedom' may show far more variations in understanding. This may also be owing to the fact that they have encountered varying values, role models, emotions and the like in their experiences with the concept 'freedom'.

Learning involves accommodating new insights within the existing framework of knowledge. This can lead to extending it or having to reorganise it according to new experiences that learners encounter throughout their life-long learning (Swart, 1988:269). Learners do not come to formal learning situations as Clark et al. (1994:15) point out 'tabula rasa' (without any knowledge). They enter education with the knowledge that they have developed at home and other environments. This existing knowledge is the basis on which all further learning is built.

Chandler (1989:14) maintains that the frame of reference of the learner is accumulative in nature and the first experiences in the conceptual framework influence all other experiences. The learning of concepts is, therefore, accumulative in nature. The learning of new knowledge occurs in this context and is greatly influenced by prior knowledge (Shuell, 1987:240). The personal frame of reference of a learner may be referred to as the personal construct, i.e. the learner puts together different parts of knowledge in order to form a complete idea.

Chandler (1989:7) proposes three major frameworks within which the demands of the learning process can be described according to the degree of predominance of one of these. They are the following:

- conceptual development (unstructured situation);
- conceptual resolution (minor conflict resolution), and
- conceptual exchange (conceptual conflict situation).

These three major frameworks have to be integrated in the learner's memory for meaningful learning to take place. Consequently, the relationship between new

knowledge, acquired knowledge and concepts is reviewed as it may have a far-reaching impact on the learning process.

2.3.4. Acquired knowledge and concepts

Most psychologists and psycholinguists agree that all meaning occurs with propositional intent, i.e. anything that is a symbol, sign or language that can be believed or not believed/accepted. These units of meaning can be conceptualised as large networks of interrelated basic integrated units (Gagné et al., 1993:117; Russel, 1978:42, 106). Two major models that recur in current literature on cognition in childhood will be investigated, namely those of Piaget and Vygotsky.

Piaget's genetic epistemology is essentially structuralist in approach and he maintains that logic is not inborn in children, but it develops towards a process of mental equilibration. This is an active internal process of self-regulation in which there is an organising and co-ordinating of one's own intellectual development (Hamachek, 1975:101,141; Russel, 1978:92–95). Equilibration happens through a general strategy of action or accommodation (Russel, 1978:89). The latter refers to a process of adjustment or change, correcting and restructuring existing knowledge. Initially the child is totally egocentric and it has no way of cognising the thought of others in relation to himself. As the polygenetic (or community driven meaning giving) development within the environment of his own kind takes place, reciprocity viz-à-viz other people develops.

According to Hector (1981:45), Piaget considers thought to be a basic function on which language depends. He regards thought as originating in internalised action. These internalised actions come to function as representations and this is how the symbolic function of language develops. The development of the symbolic function and actions are used as symbols at the same time as words.

Piaget acknowledges that what learners know and learn is ontogenically (self-) and polygenetically influenced by growth. Adding new knowledge to existing knowledge

sensitises educators to the process of learning. His under-emphasis, however, of the cultural transmission of knowledge creates the possibility that educators are not sensitive to the context of the mental imagery that pupils bring with them to classrooms. In this way existing and new knowledge may never connect. This is a oint raised by both Lemmer (1993:152) and Davey (1993:138), who report that learners in South African schools demonstrate a poor grasp of many academic concepts and terminology that are misinterpreted in English. They both feel that this may be owing to cultural elements inherent in a language foreign to many learners.

Whitehead (1990:66) expounds Vygotsky's claims that the higher mental processes in the individual, for example, thinking with symbols such as words and concepts, actually originate in social relationships and processes. Both Meadows (1993:236) and Blunden, (1999:1–8) feel that Vygotsky challenges the Piagetian idea that psychological structures such as operations, intelligence, memory and the like explain their behaviour. These psychological structures are often seen as invariant across cultures, settings and tasks and essentially independent of the individual's relations to other peoples, social practices and the cultural environment.

Vygotskyan theory (1967:56–60) suggests that language cannot be studied productively unless word meaning forms the basis of all study, because word meaning unites thought and speech into verbal thought. A word is already a generalisation, because it refers not only to one object, but to a class or a group of objects. Vygotsky points out that meaning is an act of thought and an inalienable part of words and, therefore, belongs in the realm of thought and language (Vygotsky, 1967:38). Young children often find new words difficult to learn, not because of the new sound involved, but because the generalised concept that ensures understanding is lacking. Britton (1994:262) points out that social behaviour implies interaction in the group whose activities have been shaped to cultural patterns. Vygotsky (1967:56–60) maintains that, as children mature, the concepts or pictures they already have in their minds are as much part of language as attaching the correct words to the concepts. If the concept does not exist in thought or is not fully matured, the young learner may hear and even become familiar with new words, but these will have little

meaning. As the young child learns he matches concepts to words. The initial matching relies heavily on real concepts or images that the young child experiences through the senses (Berlyne, 1967:259–270).

According to Meadows (1993:246), Vygotsky sees speech as the beginning of social functions early in the child's life, developing with the child's complex and rich social contacts into an increasingly powerful tool. Expressions of emotion and the maintenance of social contacts are followed by the use of language to communicate, to make references, to represent ideas and to regulate one's own actions. It starts within a context of social interaction and shared knowledge, but is increasingly independent of a social partner and of a supportive context.

Clark (1995:5) regards all acquisition of knowledge based on mental imagery, developed by the interest of the individual and his society. Academic content is mostly based on the polygenitically determined interest of learners' societies, and the teacher has the task to scaffold this interest to meet the ontogenetic interest of the pupil (Clark, 1995:5). According to him, this scaffolding takes place mainly through action and language.

In conclusion, concepts are initially based upon experience and sensory impressions that learners acquire in their immediate environments from a young age. They are exposed to such concepts and experiences as are deemed important by their immediate environments (polygenetically determined knowledge), and then they award their own interpretations to that knowledge (ontogenetically determined knowledge). These interpretations take place through a process of accommodation and assimilation, until there is little or no disequilibrium between what they want to know and what they know.

Piaget, Vygotsky and Clark represent many theorists and psycholinguists that elaborate on how concepts and/or knowledge are acquired and how language impacts on this process. Learners should know the concepts of what they learn and be able to recode the information into the language required for a specific learning task. Learners in this study are required to learn all their subjects in English, that is their second language. It seems

that they may be faced with two limitations, namely a lack of concepts and an insufficient knowledge of the relevant English vocabulary to recode the concepts for learning purposes – a process that is discussed in the next chapter.

Conceptual development in South African schools is discussed in the next section.

2.4. CONCEPTUAL AWARENESS IN LEARNING IN SOUTH AFRICAN SCHOOLS

Literature suggests a link between poor socio-economic circumstances and illiteracy. May (1998:2-3) states: "In measures of human development such as life expectancy, infant mortality and adult illiteracy, South Africa compares unfavourably with several other middle-income countries. These indicators also vary widely by race group, gender and geographical location within the country, however." She compares poverty within the nine provinces in South Africa as follows: "The Western Cape and Gauteng, as well as the white and Indian population groups, fall within the HDI (Human Development Index) range equivalent to 'high human development'. The Northern Province falls within the HDI range equivalent to 'low human development'. The other provinces, together with the coloured and African population groups and the HDI for South Africa as a whole, fall within the 'medium human development' range".

A problem for learners coming from poor socio-economic backgrounds and cultures other than the dominant one in schools is to acquire concepts. Swart (1988:276) reports research that shows that learners often have misconceptions, e.g. they may think they know what a word or symbol means, but their understanding is not appropriate in the learning situation. The following example may serve to illustrate the comprehensive nature of the lack of understanding among Grade 12 learners. As pointed out in chapter 1, the following question was asked during the national matriculation examinations relating to the prescribed poem *The Tyger* by William Blake: 'Suggest a reason why Lamb is spelled with a capital letter.' Hundreds of pupils responded that it was because a lamb is the baby of a tiger. Apart from other reasons for the wrong response (such as a lack of preparation), an analysis of this response suggests that the pupils do not seem to realise the impossibility

of their answers because they don't have the necessary conceptual knowledge about lambs and tigers. The question arises of when these pupils should have learnt concepts that are deemed part of their knowledge, i.e. what is the role of prior learning in concepts and language?

An added difficulty is that communication in the classroom is mostly via language - in the South African scenario almost 80% of all Grade 5-12 school pupils are taught in a language that is not their mother tongue (DET: 1992:247). Teachers, therefore, may have to check, revisit, adapt or create concepts in a language that few learners are proficient in. Quin and Amos (1997:186-187) state that learners with poor language skills invariably have a weak understanding of the content of subjects because of an inability to keep up with conceptual and linguistic requirements. If a learner understands relevant ideas then teaching becomes possible, but if a learner does not have conceptual knowledge, then there is no basis for the acquisition of procedural, representational and metacognitive knowledge (cf. 2.2.3).

Because of the nature of the acquisition of concepts, i.e. from the young learner's immediate environment, cultural influences will necessarily impact on what concepts he acquires and how he acquires them (cf. 2.3.5). Different communities emphasise different concepts (as these are polygenetically determined), and communities also differ in the ways in which they transmit knowledge. In South Africa, conflict between knowledge emphasised by especially traditional black communities and more western-oriented communities is not uncommon. Le Roux (1993:46) reports that many black learners have no or little social support for the formal schooling system, while Deacon and Parker (1993:127) blame premature discontinuation of schooling in areas of KwaZulu Natal on a 'foreign curriculum'. Chick (1992:34) is even more critical of the failure to make school-based knowledge relevant to black learners. He says:

> The children are likely to be alienated by what they learn, and only dimly perceive the implications and linkages between the concepts they are presented with.

Nwaila (1992:2) expresses the opinion that many black learners fail to understand much of what happens in classrooms because they lack concepts that are required by predominantly western-oriented content. De Villiers (1997:223) concludes the following:

> It is clear that pupils in English MoI (medium of instruction) schools are often not able to learn other subjects through the medium of English. This may be partly ascribed to the fact that they are not adequately prepared for the concepts and vocabulary required in other subjects.

This concern is borne out by research findings of the Threshold Project led by Macdonald (1990) who conducted research in SA primary schools to determine whether learners are ready to use English as medium of instruction in Grade 5. These were learners who had been taught in their mother tongues from Grade 1 to Grade 4 and changed to English when they reached Grade 5. It was found that learners did not master texts in English even though the level of sophistication was deemed to be lower than their current levels of L1 proficiency. It was difficult for most learners to answer factual questions after reading English texts. They not only battled with linguistic issues (such as grammar and structure), but they also showed little understanding of the English words.

It is concluded that conceptual learning in many South African classrooms is not satisfactory. This seems to be owing to the following factors:

- Teachers are not sure what conceptual knowledge learners have
- They are not sure what conceptual knowledge learners should have
- They are not sure how to bring about, revisit, strengthen or adapt conceptual knowledge, and
- The role of language is not understood in conceptual learning.

The relationship between conceptual knowledge and language seems to be crucial in learning, and especially in formal learning. This issue is investigated in the next chapter.

2.5 SUMMARY AND CONCLUSION

This chapter investigated how knowledge is defined; the role of prior learning, types of knowledge and the purposes of knowledge, conceptual awareness, conceptual development, acquiring knowledge and concepts, and conceptual awareness in learning in South African schools.

Initial learning is based upon the concrete, spontaneous experiences that any child is exposed to in his immediate environment. The more experienced members of his society usually determine what he is exposed to. These experiences are structured and formalised in school-based learning, but the learner builds the formal experiences on the spontaneous experiences outside the classroom. The more closely spontaneous and formal learning experiences are knit together, the more lasting and successful learning seems to be (cf. 2.2.2).

Conceptual knowledge forms the basis of all subsequent learning. This is also referred to as declarative knowledge and from this fundamental knowledge, procedural, representational and metacognitive knowledge develop (cf. 2.2.3). Learners mostly acquire knowledge through two modes: experience and language. The more they are exposed to both, the more adequate their bases for further learning are.

Concepts initially develop from single, unrelated items and words that are progressively integrated into more sophisticated, related sentences, hierarchies, schemata and frameworks (cf. 2.3.3). This development is influenced by affective, cognitive, emotional, social and intellectual experiences and maturation. As the learners mature and develop they become increasingly adept at resolving conceptual conflict and realigning or redefining concepts to fit into their knowledge systems.

Two theoretical perspectives on acquired knowledge and concepts that are currently emphasised in literature are those of Piaget and Vygotsky. Whereas Piaget doesn't view language as an integral part of the process of knowledge acquisition, Vygotsky does.

Piaget views language as an addition to already acquired knowledge (mostly based on cognitive development), but Vygotsky emphasises the culturally implicit contribution of language in the knowledge acquisition process (cf. 2.3.4). Vygotsky maintains that knowledge cannot be acquired without language - a perspective shared by many modern linguists.

Many learners in South Africa seem to enter formal schooling without a conceptual knowledge basis that is often presupposed in schools (such as concepts regarding shape, size, colour, space, time and the like). This problem is exacerbated by deprived language development and the use of a second language (L2) as medium of instruction after Grade 5 (cf. 2.4).

The relationship between conceptual learning, language acquisition and English MoI classrooms is investigated in the next chapter.

CHAPTER 3

ENGLISH MEDIUM OF INSTRUCTION CLASSROOMS AND CONCEPTUAL AWARENESS

3.1 INTRODUCTION

It is clear from the preceding chapter that language impacts on the acquisition of concepts and knowledge. The learners in this study are English second language (ESL) learners who switch from mother tongue instruction to English medium of instruction (MoI) classes in Grade 5. It is, therefore, necessary to investigate how English MoI classrooms impact on conceptual awareness. This chapter investigates the following issues: how ESL learners in English MoI classrooms acquire concepts, English MoI classrooms in South Africa and the implications of English MoI classrooms and conceptual awareness for teaching.

3.2 CONCEPT ACQUISITION IN ENGLISH MoI CLASSROOMS

3.2.1 Introduction

According to Ausubel (1968:337), the learning process is an interaction of what the learner is taught and his currently held ideas or concepts. A person's central concepts are the vehicle whereby a given range of phenomena become intelligible. Such concepts can be linked to prior experiences, images or models which make them appear intuitive and obvious. De Villiers (1997:223) states that conceptualisation occurs when the total meaning of what is learned is fitted into this network of information, organised in ways that are meaningful to the learners' understanding. In school-based learning, the conceptualisation and organisation of information mostly occur via language. The question arises when a learner possesses enough language in order to learn meaningfully. This section will investigate the following: what language proficiency (especially in a second language learning situation) entails, how cognition impacts on second language acquisition

and conceptual awareness, and a generic profile of Grade 5 learners in South African English Mol classrooms.

3.2.2 Language proficiency

Competence or language proficiency is not a concept that is easily defined and is closely related to the acquisition of knowledge. Bachman (1990:88) states that competence or proficiency includes the knowledge of the conventions of joining utterances together. The utterances form a text that is essentially a unit of language, spoken or written. This unit of language consists of two or more utterances that are structured according to the rules of cohesion and rhetorical organisation. Corder (1973:197), Stern (1983:345), Savignon (1983:53), Rivers (1983:14–15), Judd (1987:3-4), Strevens (1987:11-23), Clark et al. (1994:18) and others have also attempted over the years to construct a scientifically acceptable model for this nebulous idea. According to Stern (1983:346), knowing a language, competence or proficiency in the second language can be summarised as the following:

- the intuitive mastery of the forms of the language;
- the intuitive mastery of the linguistic, cognitive, affective and socio-cultural meanings, expressed by the language forms;
- the capacity to use the language with maximum attention to communication and minimum attention to form, and
- the creativity of language use.

Canale and Swain (1980:1-47) say that communicative competence in second language learning develops as a result of different factors. For a person to become competent he has to be equipped with grammar competence, socio-linguistic competence, discourse competence and strategic competence. Schulz (1999: 30) maintains that learners with prior knowledge of English possess some of these competencies and will, therefore, be more successful in current language acquisition processes. Eisterhold and Carrell

(1983:555) maintain that prior knowledge may be able to compensate for certain syntactic deficiencies.

Clark's (1994) model (cf. 2.2.3) seems to adhere to the requirements for ESL learners in English MoI classrooms. The purposes for which they need language seem to be important. Learners in English MoI classrooms need proficiency in order to progress academically - they, therefore, seem to need cognitive academic language proficiency (CALP). This refers to the knowledge of language that is required for academic proficiency. Learners who have English as a subject only need more basic interpersonal communication skills (BICS). This refers to the knowledge of language needed for communication outside the scope of academic proficiency. García-Vázquez, Vázquez, and López (2001:26) report the following research findings regarding CALP and achievement in other subjects:

> The results for language proficiency and standardised achievement tests revealed significant relations between English proficiency and all tests of the achievement battery.

It seems, therefore, that the better learners' CALP is, the better they will achieve in other areas of learning that require English. It is also clear that learners cannot succeed in MoI classrooms without CALP. Therefore, proficiency for learners in English MoI classrooms may entail meeting the purposes for which they need English, viz. cognition and communicating about their learning in English.

Moyo-Bassopo (1997:24) argues that learners who don't have the required language proficiency for a learning task may simply commit facts to memory. Memorisation requires a less demanding cognitive process than understanding material. Barnard (1997:84) adds that comprehension requires learners to draw information not explicitly contained in the material that is learned.

Both Brown (1987:129) and Quinn and Amos (1997:186–187) state that the relationship between language and knowledge is through interlocking spirals. Learners move unevenly through the spirals, but at points where language and cognition intersect the learner is capable of the articulation of knowledge. Sometimes learners may have the required vocabulary, but a lack of understanding of the concepts, and sometimes the concepts are grasped intuitively, while the vocabulary to express them is inadequate. The more learners are proficient in a language, the more concepts are readily available to be used.

Miller (1989:155) maintains that learners who fail to understand concepts are mostly unaware of their failure. He suggests that in order to help them reach a desired level of understanding, their present level of understanding is the starting point. In order to progress from the present to the desired level of understanding the cognitive structures (i.e. the mental operations or rules that are necessary for understanding) need to be changed.

For some pupils the problems of coping with academic work may not only focus on language, but may include other social and cultural factors such as lack of prior knowledge. Le Roux (1993: 152) also says that pupils learning a new language often experience difficulty with academic concepts and terminology, because these terms and ideas are more abstract and less easily understood and experienced than ideas and terms used in social interaction. Their formal learning and spontaneous learning (cf. 2.2.2) do not integrate.

In conclusion, language proficiency (especially in a second language) entails the following aspects: knowledge of concepts; processes governing the use of the target language in various situations and for various purposes and audiences, and representing this knowledge appropriately, whilst relying on linguistic information. Clark et al. (cf. 2.2.3) add metacognitive knowledge (or thinking about the process of language acquisition) to these.

The role of cognition or the *process* of knowing and language learning is examined in the next section.

3.2.3 Cognition and language learning

The following aspects on how learners acquire the process of knowing language are briefly discussed in this section: definitions of cognition, the differing perspectives of two currently acclaimed schools of thought regarding language and learning, viz. Piagetian and Vygotskyan perspectives, the conceptual world of the users of a language, the relevance of new learning tasks as perceived by learners, and the existing schemata and cognitive learning patterns that learners bring to learning.

3.2.3.1 Cognition

According to Richards et al. (1992:59), cognition refers to the various mental processes used in thinking, remembering, perceiving, recognising, classifying and the like. The National Academy Press (NAP) (1999:201–203) points out that learning is promoted and regulated by the learners' development and their environments. Cognitive changes do not result from the accretion of information, but result from processes involved in conceptual reorganisation. Learning with understanding is more likely to promote transfer of knowledge than simply memorising information from a text or a lesson.

3.2.3.2 Piagetian and Vygotskyan theory

Although Vygotsky and Piaget are concerned with language and thought, i.e. the relation of inner linguistic and cognitive structure, they have different views on the cognitive processes involved (cf. 2.3.4). Whereas Vygotsky sees the process as an intertwined acquisition of language and concepts at the same time, Piaget views language as an addition to the cognitive process of learning.

According to Slobin (1979: 144), Piaget proposes that cognitive development proceeds on its own, generally followed by linguistic development, or finding reflection in the learner's language. The learner's intellect grows through interaction with things and people in the environment. Murray-Frank (1972:94) interprets Piaget's views as emphasising that there

is a qualitative difference according to developmental levels. Encoding and decoding processes depend on the code used by the learner, and it is precisely this code that changes with cognitive development.

Meadows (1993:244) expounds Vygotsky's account of cognitive development that focuses on the role of language. Language is a psychological tool for culturally developed ways of behaving towards objects. It allows high level cognitive functioning. Other psychological tools include counting systems and mnemonic techniques such as writing, diagrams and maps. Integrating any of these into a psychological function such as memory or spatial perception transforms the mental functioning. This process of integration happens via language.

What seems clear, though, is that whether language is acquired at the same time as cognition or whether it is added to acquired cognitive structures, the learner in a second language instruction classroom may have difficulty acquiring either, as he needs the one for the other. Concepts, without the ability to recode them into the language of learning mean little, and language only (such as memorised content) without understanding the underlying concepts, also means little. The Vygotskyan perspective seems more relevant for school-based learning, especially for ESL learners who also learn through the medium of English, as greater language proficiency seems to enable them to utilise more sophisticated cognitive processes.

3.2.3.3 The conceptual world of target language users

The polygenetically determined conceptual world of language speakers seems to be as much part of the language as the linguistic system that governs its use. Dirven and Verspoor (1998:14) maintain that language resides in the minds of the speakers of that language. In order to understand the nature of language, it is critical to look at the conceptual world of users and how it has shaped the signs or symbolic system, i.e., language. The task for the learner who is instructed in a second language is far more challenging than for the mother tongue learner. He not only needs proficiency in the

mother tongue, but also a sufficient level of proficiency in the medium of instruction language to link to the conceptual frameworks in order to learn efficiently. Eisterhold and Carrel (1983:553) address learning in a second language, and say that new information, new concepts and new ideas can have meaning only when they can be related to something the individual matches to second language comprehension as easily as they are linked to comprehension in his native language.

Brown (1988:33) sees language as the immediate actuality of thought and, more importantly, as ideology or the systematic thought of a social class or group. The relationship between individuals and social behaviour on the one hand, and language on the other is a contentious issue. Le Roux (1993:47) and Brown (1988:35-40) point out that the choice of the language of MoI has always been strongly dictated by political ideology in South Africa. The choice of one language may have been interpreted as a deliberate attempt to alienate speakers of indigenous languages from their cultural heritage. This in itself, may have led to a resistance against the MoI and, indeed, all learning.

Both Steffenson et al. (1988:13) and Le Sourd (1988:13) report consistent research findings that learners understand, remember and enjoy their learning more when they posses relevant cultural knowledge. When there is a close match between schema and learning, learners recall more, learn faster and make elaboration consistent with the teacher's meaning. Learners distort culturally unfamiliar information by making modifications consistent with their own cultural values and beliefs. When the information is ambiguous, learners rely upon their cultural knowledge to produce their interpretation.

3.2.3.4 The relevance of learning content

Many authors address the relevance of learning content to learners. According to Dominicus (1991:63–66), Halliday (1994:8–14), and Clark (1999:1), if pupils are moved to action or learning mainly by that which naturally captures their interest (a view that is so deceptively obvious that its implications may not be considered sufficiently), learning content has to be presented in such a way that pupils recognise it cognitively and

functionally as of interest to them. If the content is irrelevant to the pupils, and/or provided via a vehicle (in this case English) that is inaccessible to the pupil, learning will most likely not take place. Both Collier (1989:512) and Le Roux (199:28) say that for the pupil in an English MoI school, the complexity is compounded by the fact that the formal structure of English (with all its concurrent complications associated with L2 learning) has to be mastered at the same time that the content is presented in English.

According to Meadows (1993:320), learning in school may be deeply problematic. Schooling differs from learners' informal learning in at least two cognitively relevant ways. School-based learning depends mostly on procedures that are divorced from informal learning procedures by being more algorithmic, more closed and more specific. He adds that formal learning often focuses on problems prescribed by the curriculum, rather than problems the learners spontaneously want to solve.

3.2.3.5 Existing cognitive learning patterns

Cognitively imbedded learning patterns (regarding learning in general and language learning in particular) seem to impact on current learning in English MoI classrooms. Whorf (1956:12) claims that children's habitual ways of using a language may have a limiting effect on their thinking and their progress in formal education. Whitehead (1990:62) concedes that some children are readily prepared at home with language habits and usage that teachers use at school. This helps them alleviate the linguistic demands of the curriculum, others who are not fully proficient with English may be initially confused and disadvantaged.

De Villiers (1997:30-31) also comments on the preferred learning styles and strategies of learners in the primary school. She suggests that younger learners seem to prefer strategies such as serration, classification, reversibility and the like, through concretised activities. They also seem to prefer social and interactional strategies, as opposed to older learners who seem to prefer functional practice strategies. Young learners seem to prefer listing items when learning vocabulary, for example, and older learners seem to prefer

contextualising vocabulary items. This will also pose a problem in a classroom with learners of widely ranging age groups.

The following conclusions are reached: cognition is a process describing the mental activities all users of language are engaged in when thinking and learning. The Vygotskyan perspective that language makes thought possible, especially in formal learning where language is often the vehicle and object of study, is proposed. The conceptual world of users of English is as much part of the learning of ESL learners in English MoI classrooms as is the content they have to master, because English words represent concepts from the English culture. Content that is presented to the learners has to be experienced as relevant to them - taking into account that they are not from the culture of the language, this is a crucial point (cf. 2.4). The schemata and existing cognitive learning patterns that learners bring into the learning situation are not necessarily compatible with the demands of learning tasks in school.

It is necessary to also briefly investigate other variables that influence conceptual awareness in English MoI classrooms. These variables include those that influence the learners, the learning context and the teachers.

3.4 ENGLISH MEDIUM OF INSTRUCTION CLASSROOMS IN SOUTH AFRICA

3.4.1 Introduction

Apart from those variables related to cognition and language learning, there are also other variables that influence conceptual awareness in English MoI classrooms. Literature suggests that affective factors (such as attitudes towards learning and teaching), specific teaching practices (such as visual scaffolding or task-based language teaching) and contextual support for teachers and learners may influence conceptual awareness. Variables that relate to the learner and the learning context (including the teacher) are discussed.

3.4.2 Variables that influence the learner

De Villiers (1997:21) categorises the variables that influence learners as the following: the characteristics of primary school learners, their learning tasks and the learning outcomes that they are supposed to know. The following characteristics of Grade 5 learners that may influence conceptual awareness in English MoI classrooms are discussed: affective factors and general factors (such as their age and developmental stage at Grade 5) level and what and how they are supposed (learning tasks and outcomes) to learn in Grade 5 are discussed.

3.4.2.1 Affective factors

According to Skehan (1991:281), motivation refers to the choices learners make as to what experiences or goals they will approach or avoid, and the degree of effort they will exert. English is widely perceived as instrumental in preparing learners to meet the demands of an increasingly international job market (Nwaila, 1992:6; Van Dyk, 1993:187; Klein, 1994:27). ESL learners in South Africa seem to be instrumentally motivated (gaining access to learning or jobs, status or prestige) rather than integratively motivated (a desire to acculturate with native users of English). Kamwangamalu (1999:61); Sarinjeive (1999:129) and Wittenberg (1997:45) all contend that the preference for English seems to be based chiefly on its popular symbolic value.

Younger learners seldom seem to resist learning a second language, but they need to believe that they can be successful in learning English and learning through the medium of English (De Villiers, 1997:22). The perception that they can be successful in learning seems to change rapidly for the worse, however, after the transition from L1 instruction to L2 instruction in Grade 5. This is borne out by statistics that show high drop-out rates after Grade 5 (De Villiers, 1997:223).

Learners' failure to learn successfully after Grade 5 invariably influences their attitudes towards learning, their levels of anxiety and their motivation for learning (Richards et al.,

1992:116). Gardner and MacIntyre (1993:5) define language anxiety as the apprehension experienced when a situation requires the use of an L2 in which the individual is not proficient. Facilitating anxiety has positive effects on L2 learning, whereas debilitating anxiety has negative effects. Facilitating anxiety can be useful for keeping the learners alert, but only for simple tasks. Debilitating anxiety harms the learners directly and indirectly. They are harmed indirectly through worry and self-doubt, and directly by the reduction of participation and creating overt avoidance of the language. Gardner and MacIntyre (1991:822) and Oxford and Ehrman (1993:195) suggest that more formal learning situations seem to lead to greater anxiety levels.

Beebe (1983:39-66) points out that risk-taking occurs in situation where an individual has to make a decision involving choice between alternatives of different desirability. The outcome of the choice is uncertain and there is the possibility of failure. Risk-taking is regarded as an important characteristic of successful learning. English MoI learning involves high levels of risk taking, because the learner often seems to be in situations in which he is uncertain of the meaning of what he hears and reads or what he has to say or write. Brown (1987:104) states that L2 learning necessarily involves risk taking, and the good learner takes risks in spite of the possibility of making mistakes, but there is the gain of meaningful communication. Oxford (1982:160-169) argues that for a learner to take risks he must be comfortable in the classroom. It seems therefore, that in order to take risks in the MoI class learners have to be prepared to make favourable choices that enhance their learning.

3.4.2.2 General factors

The learners' age and language development are also important. According to Schimdt (1990:31), the course of L2 development cannot be altered by external factors in relation to the learner's stages of L2 development and these stages cannot be skipped by means of instruction. Teaching grammatical patterns (for example, the subjunctive mood) before the learners have indicated a readiness to learn them, will probably be unsuccessful. A problem in many South African classrooms is, however, that learners may be over-aged

for Grade 5. The Ecumenical Foundation of Southern Africa (EFSA) does research on various interdisciplinary fields. EFSA (1998:1) reports that, "The average pupil is taking about 15 year to get to matric". The matriculation examination is taken during the last school year (Grade 12) and learners should be about 18 years old. The report further states that only one in four learners gets to Grade 12, with every second pupil failing twice on the way. Further statistics include the following:

- 15% of all learners are three or more years older than they should be;
- 25% are two or more years older;
- 60% are over-age;
- only 50% of Grade 8 pupils (14 year olds) are the age they should be, and
- 38% of Grade 1 pupils (school starters) failed in 1998.

There are many practical problems with older pupils. Examples cited in the report (EFSA, 1998:1) state that a 24-year old is being taught by a teacher younger than he is, and a father of three is in a class of 16-year old girls.

The implications of over-age learners in Grade 5 classrooms may be far-reaching. Problems regarding conceptual awareness in these classrooms are inevitable. Older learners have different schemata that they bring to learning tasks and it is almost impossible to synchronise the conceptual knowledge of 11 year olds with learners that are two or three years older. The older learners will also be capable of more abstract thought and they may be at different cognitive, emotional and language levels of development. Even though their conceptual awareness and language development levels are retarded, their interests are likely to differ vastly from those of 11 year olds.

3.4.2.3. Learning tasks and outcomes

The language learning tasks of the L2 learner in an English MoI classroom include the acquisition of a phonological, semantic, syntactic and communicative system of English (McLaughlin, 1978:30-37). The phonological task is best achieved through early exposure

to L1 models, a condition that is not met in most English MoI classrooms in South Africa. The semantic task of the learners is closely related to conceptual awareness. This is crucial for further learning and development, as they learn to give meaning through their mastery of semantic values. De Villiers (1997:65) suggests that primary school learners are best aided in this task by the creation of concepts through the use of pictures, gestures, experiences and concretised activities. Kgame (1990:1-3) points out that abstract concepts are most often circumscribed in black languages and learners may need assistance to grasp abstract concepts in English. The syntactic task of the learner involves the use of acquired words and grammatical patterns in such a way that is possible for them to understand what is communicated to them and that they are understood. Miller (1989:156) states that the communicative task is based on shared meaning between one person and another. In the absence of shared meaning, communication may break down. In understanding 'difficult' language, the problem is often not in the grammatical structure, but in the meaning or concepts that the learners need that prevent the communication from being understood. It may, however, also be attributed to language specific deficits such as those expected from an L2 learner, for example, a word that is not in the learner's vocabulary, a rule of grammar that is misapplied, a cohesive tie that is improperly co-ordinated or the like.

The learning outcomes for all learning should aim to bring about the critical outcomes as described by the Department of Education (1997:13). These are that learners will:

- identify and solve problems and make decisions using critical and creative thinking;
- work effectively with others as members of a team, group, organisation and community;
- organise and manage themselves and their activities responsibly and effectively;
- collect, analyse, organise and critically evaluate information;
- communicate effectively using visual, symbolic, and/or language skills in various modes;
- use science and technology effectively and critically showing responsibility towards the environments and the health of others, and
- demonstrate an understanding of the world as a set of related systems by recognising that problem solving contexts do not exist in isolation.

The aims of the learning area Languages, Literacy and Communication are described in terms of specific outcomes (Department of Education, 1997:24).

The learners:

- make and negotiate meaning and understanding;
- show critical awareness of language usage;
- respond to the aesthetic, affective, cultural and social values in texts;
- access process and use information from a variety of sources and situations;
- understand, know and apply language structures and conventions in context;
- use language for learning, and
- use appropriate communication strategies for specific purposes and situations.

These outcomes are interrelated and are not taught in isolation. Each specific outcome is sub-divided into detailed assessment criteria for the Foundation Phase (Grades R-3), the Intermediate Phase (Grades 4-6) and the Senior Phase (Grades 7-12). These specific outcomes and assessment criteria indicate what knowledge, skills and values pupils should demonstrate at the end of a phase. Specific outcomes, assessment criteria and range statements exist for all phases.

The means by which learners achieve these outcomes are via the receptive language skills of listening and reading and the productive language skills of speaking and writing. Tomlin and Villa (1994:183) point out that the learner must create new knowledge representation for L2 learning, as well as develop the processing capabilities to produce and comprehend L2 speech in real time in classrooms. If the conceptual knowledge needed for learning is not present, or it cannot be executed in the L2 (i.e. there is no understanding of spoken or written English), there is no learning. They contend that it is the learners' attention systems that reduce and control the influx of information. The learners may be overwhelmed by incoming L2 input (both in speech or textual input). Attention is employed to help sort out that input and to bring order to the information. Macdonald (1990:39) reports that oral skills

in South African Grade 5 English MoI classrooms were poorly developed, because learners responded only to what teachers and textbooks imposed.

According to Krashen (1992:409), language is acquired by understanding messages and obtaining comprehensible input. The evidence in support of comprehensible input includes studies showing that when acquirers obtain more comprehensible input, they acquire more of the target language and this also benefits learners outside school contexts. Krashen (1992:416) emphasises the environmentally determined quality of L2 input as an important determinant of successful L2 acquisition. Comprehensible input is environmentally determined and progress depends on how much comprehensible input is available. The second language learner should learn the language by communicating in it, by interacting with other speakers of the language and he should also negotiate comprehensible input, i.e. he should indicate how much of the input of other interlocutors is understandable to him and how his understanding can improve.

Reading seems to contribute much to the development of learners' conceptual awareness. According to Hermes (1995:6-7), reading and being read to at an early age develops literacy, enhances vocabulary and grammar skills, instructs the reader about the world close at hand and far away and encourages creativity and imagination. Hermes (1995:8-9), suggests that reading to young learners makes them feel secure and they enjoy the ritual. They also have an early aesthetic sense and can enjoy the feel, texture and colour of a book at a very young age. Books provide readers with language and conceptual acquisition opportunities. A subtle benefit is the window they provide into different cultures. Young learners seem to enjoy the security of repetition and the humour inherent in nursery rhymes. While the learners may not understand the actual words themselves, the ritual of words and their rhythm is a valuable introduction to reading. Hermes (1995:15), as well as Chandler (1989:15) says that stories contribute to the need of learners' ability to award meaning to events within their personal knowledge framework and should be emphasised. Helping learners to cope with reading, the subject reading materials should be interesting and relate well to the background of the learners, since strong semantic input can help compensate when syntactic control is weak. The interest and background knowledge will

enable the learners to comprehend and keep them involved in the material in spite of its syntactic difficulty.

Le Roux (1993:158) and Meadows (1993:334), however, point out that many of the conditions to optimise reading as a means for acquiring concepts and language are not met in MoI classrooms. They state that learners may lack the Anglo centred prior learning heritage of fables, legends, nursery rhymes, proverbs, metaphors songs and games that form part of the English speaking child's cultural world. The black learner possesses a wide cultural background of indigenous folklore and idiom, but this often differs from that used in schooling.

It is concluded that the prerequisites needed for optimising learning in English MoI classrooms in South Africa are not currently present.

3.3.3 Variables that influence the context

ESL learners in English MoI classrooms are also influenced by school contexts (in this case English MoI classrooms) and home contexts.

3.4.3.1 School contexts

Pica (1994:57), Lightbown and Spada (1994:567), Swain (1987:61–72), Candlin (1987:50) and Tarone and Swain (1995:175) have undertaken research on learning in situations where learners do not learn through the medium of the mother tongue. They agree that to them, comprehensible learner language output, especially output that involves the straining of available language resources to mediate or negotiate meaning, is important in supporting language acquisition. Learners in immersion programmes (i.e. where they are taught through the medium of the target language) need more than comprehensible input (which they have in abundance) to become proficient in productive skills. It seems that learners also need the opportunity to use their linguistic resources in a purposeful and meaningful manner. Widdowson (1978:16) suggests that learners need to learn language

that they will need in other subject areas, especially if they are taught in the target language, rather than language for social expression. White (1991:78) contends that research confirms that the effect of L2 teaching in classrooms only without concomitant exposure is peripheral and fragile. Prahbu (1992:43) also adds that the desired ESL proficiency in many English MoI classrooms is too complex to be taught in classrooms only.

Different models for English medium of instruction (MoI) schools have been proposed over the years. Ellis (1994:229) reports that L2 immersion programmes for majority language learners (i.e. learners who belong to the largest language group) improve L2 functional proficiency, although grammatical proficiency may not show dramatic improvement. When minority language speakers (i.e. learners who belong to smaller language groups) are immersed in L2 programmes, high levels of L2 proficiency are reported if the L1 literacy programme is developed simultaneously and much comprehensible L2 input is provided. Research results suggest that learners who prefer English MoI schools should be immersed in ESL programmes as soon as possible (Collier, 1989:526-527; Lightbown & Spada, 1994:566, 572).

The following can be generalised about English MoI learners and learning in South Africa:

- They can be classified as minority language speakers (i.e. belonging to one of the 11 official language groups) - this also means that they are unlikely to have contact with the MoI outside the classroom;
- The L1 literacy programme should be developed in tandem with English MoI instruction;
- Much comprehensible L2 input should be provided;
- They should have many opportunities to use the target language, i.e. output opportunities, and
- They should be immersed into the L2 immersion programme as soon as possible.

Scott–Willis (1993:6), Winter (1994/5:92), Hermes (1995:8) and Barnard (1997:81) are among the authors that emphasise learners' need for an empathetic classroom

environment. They need acceptance, ethical boundaries, a personalised classroom, and young learners share a common need to learn through active hands-on discovery with concrete material. Teachers use mostly formal language during teaching and learners lack the more sophisticated command of language required for success in the school system. According to Le Roux (1993), Grade 5 learners lack the English language structures required for the use of English across the curriculum. Scott–Willis (1993:5) states that young learners do not want to be coerced into behaving as though they understand something when they do not. If they can't relate to learning content, they come to believe that they are under-achievers, and over time learners bring their behaviour into line with this belief. Chick (1992:33) and Le Roux (1993:276) expound the findings of the Threshold Project that there is a considerable gap between the English competence required for learning from content subject textbooks in Grade 5, and the English competence that learners actually acquire during the previous grades. They also found that there was also a very large gap between this hypothetical optimal competence and learners' actual competence.

The Human Sciences Research Council (HSRC) reports in a series of nine provincial publications on this issue (HSRC, 1998) that the condition of primary and secondary education in the Northern Province is the bleakest in the country). Only 38% of Grade 12 learners passed the matriculation examination in 1996, the lowest pass rate in the country. The Northern Province pass rate was rated ninth (last) in the country for English, Mathematics and Physical Science, while it was rated eighth (second last) for biology. The Longitudinal Survey for Scholastic Achievement - which aims to provide information on the level of knowledge and understanding of Mathematics, Science and English at Grade 9 level - confirmed that the Northern Province had the lowest means for these subjects. It seems clear that learners that learners have difficulty (among other factors) with either the language of instruction or the concepts they have to master, or both.

The provincial reports provide information about an education database at individual school level and include data from several HSRC research projects such as the School

Register of Needs Survey, the Longitudinal Survey of Scholastic Achievement, the Third International Mathematics and Science Study (TIMSS) and the Register of Graduates.

The School Register of Needs Survey - one of the most extensive data-gathering and information analysis projects in the country that was conducted at 32 000 schools during 1996 - also revealed a bleak picture. A lack of classrooms was a serious need in the Northern Province, with one district showing a learner classroom ratio of 70:1, which is exceptionally high. Virtually all the districts from the former Lebowa, Gazankulu and Venda areas had ratios of between 41:1 and 60:1. In the rest of the province this ratio was below 40:1. Two of the districts in this province needed more than 1 000 classrooms, and another four between 801 and 1 000.

The survey further revealed that two-fifths of the schools in the Northern Province were unsuitable for teaching. More than three-quarters of the schools did not have any resources such as materials, equipment, media equipment and media collections, while nearly half had an inadequate provision of stationary and textbooks. Almost half of the schools had no administrative furniture and nearly 140 000 learner desks and chairs were needed. It was found that more than a quarter of the schools in the Northern Province used shelters for schooling, and virtually none of the schools had any home economics rooms, libraries, laboratories or other specialised classrooms. The situation with regard to services such as telecommunications, electricity and water was not much better, with approximately two-thirds of the schools without these services. Sanitation was also a great concern, as nearly 10% of the schools totally lacked such facilities and in three-quarters of the schools pit-latrines were used. It is clear those pragmatic concepts that are often taken for granted (such as electricity etc.) may be absent in many learners' schemata.

The percentage of over-age learners (i.e. three or more years older than the average for the grade, with the average for Grade 1 seven years) in the primary grades was less than 13%, but the problem magnified in the secondary grades. More than 21% of all learners were too old for their class groups in this province.

Marcon (1995:20) states that pushing learners too soon into formalised learning situations can prove detrimental when learners proceed to senior grades when they are required to think more independently. Teacher-directed approaches produce passive learners that may not reach intended learning outcomes. Classroom realities in South Africa necessitate large group teaching practices. Scott-Willis (1993:5-7) reports that research reveals that especially black learners seem to prefer to solve problems in groups. This implies that the teacher must continuously provide opportunities for learners to study concepts and phenomena in their environment through in-depth projects that combine across the curriculum. Gronlund (1995: 4) and Deckert (1987:19) both advocate a task-based learning approach that will engage learners actively in learning so that they can master what they learn.

It is clear that that the physical infrastructure needed to support learning and teaching is not adequate in this province. Classroom contexts also leave much to be desired regarding the promotion of language and conceptual acquisition. As a result of their own poor proficiency in English, many teachers use audio-lingual classroom practices, rather than communicative classroom practices (Brown, 1987:49; De Villiers, 1997:232-233; NAP, 1999:215). This implies that pupils have few opportunities to use the target language for problem-solving activities or in open-ended tasks, as the unstructured nature of such interaction challenges the proficiency of the teacher. In addition to the unsatisfactory conditions for optimal learning in English MoI classrooms, learners are only immersed into the English MoI programme in Grade 5 (at roughly 11 years of age). This is, according to research, too late to optimise learners' chances of gaining the almost L1 proficiency needed to take their national Grade 12 examinations seven years later - a fact borne out by the poor matriculation results in almost all 9 provinces in South Africa (HSRC, 2000:1).

3.4.3.2 The context outside the classroom

The context outside of the classroom also seems not to support effective learning in the Northern Province. Most learners start school without attending nursery – or pre-schools. When they first enter school it is a totally new and strange environment in which they are

to learn. Parents may fail to understand the special educational needs that are required and may stem from the learners' limited proficiency in English. Furthermore, there is a lack of additional resources like magazines, storybooks etc., and support structures (such as extra classes) that may aid English proficiency or conceptual enrichment. In these deep rural (often subsistence) communities, television, electricity, magazines and books are luxuries. The impact of such socio-cultural and socio-economic limitations is discussed.

Schimdt (1990:39) claims that for the L2 input to be usable to the learner to serve as intake, the learner must first be aware of the concept. Awareness requires a conscious comprehension and knowledge of input. Awareness is also linked to subjective experience and one's ordinary ability to report such experiences. Learner's comprehensible input is necessary for acquisition. According to both McCloskey and Enright (1985:435) and Le Sourd (1988:12), comprehension of an unfamiliar culture's way of thinking and valuing is severely inhibited and distorted by lack of relevant experiences. In this case learners struggle to remember and interpret meaning. The implication for an instructional plan is to assist the learner to develop the schemata needed for cultural understanding. Consequently, classroom practice should take into cognisance the learners' cultural experiences.

3.4. THE IMPLICATIONS OF ENGLISH MOI CLASSROOMS AND CONCEPTUAL AWARENESS FOR TEACHING

According to Young (1995: 10), a teacher must constantly vary learning behaviours that build understanding of concepts. Ways to develop behaviours that demonstrate understanding and ways a learner can apply that knowledge with ever-increasing complexity and sophistication need to be planned for consciously. In order to do this planning, teachers must know what level of proficiency is required from their learners (cf. 3.3.2). Afolayan (1984:15) and Miller (1989:156) both assert that understanding cannot be directly acquired from experience only; it must involve knowledge construction on the part of the learner. This construction of knowledge, based on more than just the information provided in a task or a situation, usually requires help from the teacher.

It is clear that teachers need to be educated about the role of language in learning (cf. 3.3.3). Swart (1988: 274) suggests that giving synonyms for concepts may increase understanding. The higher the levels of sophistication of English that learners use, the more advanced the cognitive processes and conceptual cohesion they deal with seem to be.

The acculturation that is inevitably part of SLA should not be underestimated (cf. 3.3.3.3). What learners need to learn about the culture of the target language (inherent in meaning giving in the target language), the existing schemata that they bring to learning tasks and how they perceive the relevance of new learning material are all connected (cf. 3.3.3.4 and 3.3.3.5). Barkhuizen (1998:253) asserts that the more teachers know about learners' conceptual frameworks and L2 ability, the better and more productive their intervention will be.

Chandler (1989:5) suggests that the teacher must facilitate learners' generation of meaning and understanding by helping them to relate new and old conceptualisation of knowledge. This may be done through various strategies that are particularly suited for Grade 5 learners (cf. 3.3.3.6) such as seriation, classification and the like. Teachers must also give attention to ways in which learners' acquisition may depend on possible misconceptions inherent in the prior knowledge of learners and how these misconceptions may be corrected.

The maintenance of high levels of motivation (albeit instrumental motivation) to learn through the medium of English seems best accomplished through successful learning. Learners must be adequately prepared for the transition to English MoI in Grade 5 to ensure success in their learning endeavours (cf. 3.4.2.1). Classrooms that are mostly homogenous regarding age and development will enable teachers to synchronise conceptual and language learning

According to Kostelnik (1993:73-77), the teacher has to view learners within the contexts of their families, culture, communities, past experience and current circumstances to

create age appropriate, as well as individually appropriate, learning environments. Barnard (1997:79–84) also states that teachers should be especially aware of learners' knowledge and ideas when teaching learners from deprived backgrounds.

Bristow and Desforges (1995:465), Le Sourd (1988:15) and Barnard (1997:80) all advise that teachers should facilitate group discussion and clarify concepts contained in the lesson in the pre-task phase. The climate should be supportive, in order for students to feel free to verbalise their reactions to unfamiliar concepts and behaviours. One important role of the teacher is to engage learners in intellectual pursuits through the provision of high quality educational settings. The greater part of guidance on good teaching pertains to the design and operation of quality setting with regard to physical classroom environments, social arrangements and specific tasks.

The use of video is important for the correct learning of definitions, encountering the concepts in appropriate contexts, the application of concepts, finding a point of contact in various simulated situations for the formation of concepts, giving examples of concepts, recalling previously learnt concepts, and providing experiences that are absent in the learners' conceptual framework.

Wasserman (1990:27) suggests that defining as many open-ended higher learning level activities in a variety of curricular areas is helpful to primary teachers. This assists in setting up an active learning environment and planning accordingly, moving from simple to complex concepts in planning for learning in active and engaging ways. The richer the context, the more potential it has for conceptual development and creative and investigative opportunities.

3.5. CONCLUSION

An investigation of whether language learning conditions are met in South African classrooms reveals the following:

Kotzé (1982:229-239) and De Villiers (1991:100, 1997:227) both report research that suggest that most learners have little, if no, contact with English outside the classroom. The only English that many learners are exposed to is that in the English MoI classrooms. The exposure to English MoI in many classrooms seems suspect, as many teachers who are supposed to teach through English as MoI are, in fact, not proficient in English themselves (Chick, 1992:35; Johnston, 1992:75, De Villiers, 1997:233). Many teachers are also underqualified (De Villiers, 1997:235); many schools are poorly resourced regarding textbooks, templates and other support materials (Flanagan, 1994:55); programme implementation is not understood (De Villiers, 1997:237) and few in-service-training (INSET) programmes support them to improve the quality of their English proficiency or teaching. Literacy in the L1 also seems to have much room for improvement as an estimated 20% of the population older than 15 cannot read or write (RSA, 2001:2).

It is clear that learning a second language involves many factors that should be satisfied before learners become fully proficient. Concept acquisition, especially in English MoI classrooms, seems inseparable from language proficiency that also assists learners to understand difficult cognitive processes (cf. 3.3.3). Learners can only match what they learn in classrooms to what they already know, i.e. the learning content should link with the familiar environment of the learners (cf. 3.3.3.3).

English medium of instruction classrooms in South Africa are characterised by variables that are related to the learner's attitude (cf. 3.4.2), age and language development. Learning tasks that learners are confronted with (cf. 3.4.3.1) in schools are influenced by the medium of instruction, the methods employed and learners' cultural background.

The following chapter looks at the method of research that will help identify if learners in Grade 5 are conceptually aware and linguistically ready to learn all subjects in English as L2.

CHAPTER 4

METHOD OF RESEARCH

4.1 INTRODUCTION

The method used in this study is discussed under the following five headings: design, subjects, instrumentation, data collection procedure and data analysis.

4.2 EMPIRICAL STUDY

4.2.1 Design

This is a descriptive survey.

4.2.2 Subjects

The study population was a group of twenty randomly selected Grade 5 learners from each of five primary schools in the Venda region (n=100). All learners were in English Mol classes.

Of these learners, 50 were males and 50 were females. The average age of the participants was 11. It must be pointed out that all the primary schools were in the rural areas of Venda in the Northern Province.

4.2.3. Instrumentation

To meet the research objective, the researcher selected a set of seventy concepts in the form of pictures **(Appendix 1)** that were taken from the interim syllabuses and textbooks for Grade 5 learners. The researcher only identified concepts for seven subjects that learners have learnt in the present or previous grades.

The concepts selected were classified and presented to the learners in picture form and learners were required to name either the broader or the core (specific) concepts. The concepts were categorised as follows: Geography (ten concepts), English (three

concepts), General (nine concepts), Mathematics (sixteen concepts), History (nine concepts), and General Science (seventeen concepts).

The concepts were:

- Geography: **east, north, west, transportation, moon, sun, rain/water, river and fishing.**
- General: **running, turning, question mark, comma inverted commas, eating mirror, foot and knife**
- English: **writing, reading and speaking.**
- Mathematics: **kilograms, litre, grams, meters, divide, subtraction, addition, multiplication, ten multiply by hundred, brackets, zero comma zero zero one, circle, triangle, one quarter and two-thirds.**
- History: **Zulu/girl, whiteman/Jan van Riebeeck, Bushman/arrow, Zulu/worrier, mining, copper rings, drum and shield.**
- General Science: Gardening **spinach/vegetables, sugar-cane, hoe, mealies, potatoes, sweetpotatoes insects, tomato and pumpkin.**
- Health Education: **thermometer, doctor, nurse and milk.**
- Domestic Animals**: sheep, dog, cow and cat.**

4.2.3. Data Collection Procedure

The researcher travelled to five different schools where twenty learners from each school were interviewed. Each learner was interviewed orally and the researcher asked the learners to identify concepts in TshiVenda and recode them into English.

The researcher spent fifteen to twenty minutes with each learner. Learners were asked to give their biographical information in TshiVenda in order to establish their ages and

geographical information. The main function of the interviewer was to show learners picture and record their responses on a table **(cf. Appendix 2).**

Then researcher asked each learner to identify the concepts in TshiVenda and recode into English. The following are questions that each learner was asked:

1 "Ndi mini i tshi?" What/who is this?

2 "Muthu uyu u khou ita mini?" What is the person doing? (where applicable)

3 "State it in English"

4.2.4. Analysis

The researcher recorded the responses on a table **(Appendix 2)** when learners responded orally to indicate whether they were aware of core or broader concepts. The responses were analysed in terms of correctness and totals and percentages were calculated.

4.3 CONCLUSION

This chapter described the steps followed in the study order to report whether learners possessed some of the concepts that they were expected to know in Grade 5. It was also ascertained whether they could be instructed in English regarding those concepts, i.e. whether they could recode those concepts into English.

CHAPTER 5

RESULTS AND THE DISCUSSION OF THE FINDINGS

5.1 INTRODUCTION

The aim of this chapter is to address the research questions posed in the first chapter.

These are:

- Is there research evidence that Grade 5 learners are familiar with the core concepts that they are required to possess?
- Can Grade 5 learners recode existing concepts into English for learning?

The following discussion shows how learners responded to the questions and both the percentages recorded for learners in all the subjects and the percentages for recoding are provided. Possible explanations for certain phenomena are provided.

5.2 CONCEPTS AND RECODING OF CONCEPTS INTO ENGLISH

This section presents and discusses data recorded by the researcher when participants responded to the conceptual questions in picture form. The results are presented in eight tables below that show the name of the concepts, the number of learners who participated, percentages for those learners who could name the concepts in TshiVenda and percentages for recoding concepts into English.

Table 1 shows Geography results; Table 2, English; Table 3, General knowledge; Table 4, Mathematics; and Table 5, History. The category of General Science is shown in Table 6; with the subdivision of Health Education, Table 7, Gardening, and Table 8, Domestic Animals.

5.2.1 Geography

The results for the Geography category are presented in Table 1 below.

TABLE 1: The results for the Geography category

CONCEPT	TSHIVENDA		ENGLISH	
	NUMBER	PERCENT	NUMBER	PERCENT
East	100	22	100	60
North	100	8	100	82
South	100	10	100	83
West	100	10	100	89
Transportation	100	92	100	87
Cell phone	100	98	100	96
Moon	100	8	100	57
Sun	100	95	100	85
Rain/water	100	78	100	74
River	100	56	100	75
Fishing	100	99	100	90
Bird	100	98	100	73

Ninety one percent of the learners did not posses the concepts for all four geographical directions in TshiVenda. They knew the concepts better in English as eighty six percent responded correctly. Most learners knew 'west' in English, but ninety percent were unable to recode it into English. Only eight percent of the learners were familiar with 'north' in Tshivenda. It was expected that a high percentage of learners would know the direction as they come from the Northern Province. They seem to know the directions better in English

than they do in TshiVenda, and it can be assumed that they come into contact with these concepts and words simultaneously, i.e. in school. As they learn through the medium of English, it is reasonable to deduce that they acquire the concepts and words (in English) simultaneously.

Ninety two percent of the learners did not know 'moon' in TshiVenda and fifty seven percent of the learners recode the concept into English. However, ninety nine percent of the learners knew the concepts for fishing in TshiVenda and only ten percent could not recode it into English.

Learners from two schools were familiar with the concept of 'river'. The reason might be that they come from rural areas where there are rivers. They knew the concept better in English than in TshiVenda, as seventy five percent could recode it into English. They fared better with this concept than their counterparts who come from areas where there are no rivers. Therefore, background or prior knowledge and the environment seemed to have impacted positively on the learning process, as is evident here.

Ninety eight percent of the learners knew the concept 'cell phone' and only two percent of the learners were unable to recode it into English. It is assumed that, once again, learners acquire the concept and the English word for it at the same time. Cell phones are also widely used and it is the concept that almost every learner knew in TshiVenda and only four percent could not recode it into English.

5.2.2 General Knowledge

The results for the General Knowledge category are presented in Table 2.

TABLE 2: The results for the General Knowledge category

CONCEPTS	TSHIVENDA		ENGLISH	
	NUMBER	PERCENT	NUMBER	PERCENT
Turning/ dancing	**100**	**69**	**100**	**40**
Question mark	**100**	**50**	**100**	**27**
Semicolon	**100**	**1**	**100**	**0**
Inverted commas	**100**	**4**	**100**	**0**
Comma	**100**	**21**	**100**	**28**
Jumping	**100**	**83**	**100**	**51**
Eating	**100**	**96**	**100**	**76**
Running	**100**	**100**	**100**	**77**
Mirror	**100**	**67**	**100**	**26**
Foot	**100**	**96**	**100**	**22**
Knife	**100**	**92**	**100**	**45**

Ninety nine percent of the learners did not know the concept of 'semicolon' in TshiVenda and not a single learner could recode it into English. Of the other three punctuation marks, seventy four percent of the learners did not posses the concepts and not a single learner could recode 'inverted commas' into English. Learners were clearly not familiar with the concepts for punctuation marks that they were expected to use daily when they read and write in both languages. This suggests that learners in Grade 5 in this study might not be able to follow instructions for writing, nor understand the function of punctuation marks.

Ninety six percent of the learners knew the concept of 'foot' in TshiVenda, but seventy eight percent were unable to recode into English. This is a matter of concern as 'foot' is a very high frequency word, and it is expected that Grade 5 learners will have mastered the English word already.

5.2.3 English

The results for the English category are presented in Table 3 below.

TABLE 3: The results for the English category

CONCEPTS	TSHIVENDA		ENGLISH	
	NUMBER	PERCENT	NUMBER	PERCENT
Writing	**100**	**99**	**100**	**72**
Reading	**100**	**100**	**100**	**74**
Speaking	**100**	**82**	**100**	**46**

Almost all learners knew the concepts of 'writing' in Tsivenda, but twenty eight percent could not recode it into English. All learners knew the concept of 'reading' in TshiVenda, but twenty four percent of the learners could not recode it into English. Eighty two percent of the learners possessed the concept for 'speaking' in English, but fifty four percent could not recode this into English. The question that arises is whether these learners understand classroom instructions in Grade 5. As they receive instruction through the medium of English, but indicated that they could not recode these high frequency concepts into English, they must inevitably be disadvantaged.

5.2.4 Mathematics

The results for the Mathematics category are presented in Table 4.

TABLE 4: The results for the Mathematics category

CONCEPTS	TSHIVENDA		ENGLISH	
	NUMBER	PERCENT	NUMBER	PERCENT
Kilograms	100	25	100	24
Litre	100	46	100	55
Grams	100	40	100	40
Metre	100	29	100	28
Divide	100	11	100	35
Minus	100	60	100	61
Addition	100	64	100	92
Multiplication	100	84	100	14
Ten times hundred	100	91	100	52
Brackets	100	82	100	0
Zero comma zero zero one	100	78	100	1
Circle	100	96	100	81
Triangle	100	73	100	20
One quarter	100	68	100	30
Two thirds	100	31	100	6
Kilometres	100	46	100	46

Seventy five percent of the learners were not familiar with 'kilogram' in TshiVenda and seventy six percent could not recode it into English. Eighty nine percent of the learners did not know the concept of 'divide' and sixty five percent failed to recode into English. Eighty two percent of the learners possessed the concept of 'brackets', but all the learners failed

to recode into English. For 'circle', ninety six percent of learners knew the concept and eighty two percent could recode into English. Sixty nine percent did not know the concept of 'two thirds'. Ninety four percent failed to recode it. For '0,001', seventy eight percent knew the concept in TshiVenda and ninety nine percent were unable to recode it into English.

Concerns about an underlying conceptual and linguistic competence to enable learners to master a symbolic system, i.e. Mathematics are borne out by this investigation. The metric system, some mathematical applications (division) and fractions seem to be particularly unfamiliar to many learners. Learners clearly experienced difficulties in understanding most mathematical concepts, and this was coupled with a lack of knowledge of English, as they fared particularly poorly at the recoding of most mathematical concepts. It is accepted that these concepts may not be part of their immediate environment, but as this knowledge is such an integral part of further schooling, serious attention needs to be given to the mastery of basic mathematical concepts, and especially also to the recoding of these into English.

5.2.5 HISTORY

The results for the History category are presented in Table 5.

TABLE 5: The results for the History category

CONCEPTS	TSHIVENDA		CONCEPTS ENGLISH	
	NUMBER	PERCENT	NUMBER	PERCENT
Zulu/girl	**100**	**43**	**100**	**17**
Whiteman/Jan van Riebeeck	**100**	**40**	**100**	**21**
Bushman/arrow	**100**	**69**	**100**	**26**
Zulu warrior	**100**	**35**	**100**	**21**
Mining	**100**	**26**	**100**	**21**
Horn	**100**	**10**	**100**	**12**
Copper rings	**100**	**10**	**100**	**3**
Drum	**100**	**0**	**100**	**56**
Shield	**100**	**2**	**100**	**50**
Tusk/elephant	**100**	**70**	**100**	**26**

Fifty six percent of the learners did not know the concept of 'Zulu girl' and eighty three percent of the learners did not have the vocabulary to recode this into English. Ninety percent of the learners were not familiar with the concept of 'horn' and eighty eight percent were unable to recode into English. Sixty three percent of the learners did not know 'Zulu warrior', whereas eighty eight percent of learners were unable to recode it into English. Ninety eight percent of the learners did not know the concept 'shield' and only fifty percent could recode into English. A hundred percent of the learners did not know the concept 'drum' in TshiVenda, but fifty six percent of the learners knew the concept in English.

Seventy percent of the learners knew the concept 'elephant/tusk' in TshiVenda and seventy four percent could not recode into English.

What was surprising was that these rural learners seemed unfamiliar with many concepts that one would expect to be familiar among them, such as 'drum'. The learners need not have identified the concept of 'Zulu warrior', yet very few could name 'warrior'. It may also be an indication that learners are losing touch with their own cultures. On the other hand, they do not seem to master many concepts from a westernised technological background (such as Mathematics) either, and this may lead to a learner who is neither conceptually, nor linguistically equipped to deal with the learning content at school.

5.2.6 General Science

5.2.6.1 Health Education

The results for the Health Education category are presented in Table 6 below.

TABLE 6: The results for the Health Education category

CONCEPTS	TSHIVENDA		ENGLISH	
	NUMBER	PERCENT	NUMBER	PERCENT
Thermometer	**100**	**6**	**100**	**10**
Doctor	**100**	**18**	**100**	**17**
Nurse	**100**	**27**	**100**	**26**
Milk	**100**	**60**	**100**	**62**

Ninety four percent of the learners were not familiar with the concept of 'thermometer' and ninety percent could not recode it into English. Sixty percent of the learners were familiar with the concept of 'milk' and sixty two percent were able to recode it into English.
Once again, the concepts identified in this section were regarded as basic and should be well known by most 11-year olds. The medically related concepts may be unfamiliar owing

to the lack of medical facilities in deep rural areas, but a concept such as 'milk' should have been familiar to learners. As these concepts form an integral part of Grade 5 syllabi, it is a matter of grave concern that many learners are either unfamiliar with them and even more cannot recode them into their language of learning.

5.2.6.2 Gardening

The results for the Gardening category are presented in Table 7 below.

TABLE 7: The results for the Gardening category

CONCEPTS	TSHIVENDA		ENGLISH	
	NUMBER	PERCENT	NUMBER	PERCENT
Spinach/vegetables	**100**	**2**	**100**	**59**
Sugar-cane/ Mealieplant	**100**	**7**	**100**	**50**
Hoe	100	98	100	10
Mealies	**100**	**98**	**100**	**54**
Potatoes	**100**	**84**	**100**	**37**
Insects	**100**	**75**	**100**	**28**
Sweet potato	**100**	**35**	**100**	**8**
Tomato	**100**	**78**	**100**	**53**
Pumpkin	**100**	**85**	**100**	**35**

Ninety eight percent of the learners were not familiar with the concept of 'spinach' in TshiVenda, but fifty nine percent knew the concept in English. The same applied to 'sugarcane', where ninety three percent of the learners did not know it in TshiVenda, but fifty percent knew the concept in English. Ninety eight percent of the learners knew the

concept 'hoe', but eighty percent could not recode into English. Sixty five percent did not know the concept for 'sweet potato' in TshiVenda and ninety two percent could not recode.

As the pictures for the vegetables could be misleading (as some vegetables are difficult to distinguish from one another purely from pictures), the researcher accepted other vegetables remotely the same as the one pictured, for example, 'spinach'. If a learner responded 'muroho' (a vegetable known to many Black people), the researcher accepted that as a correct response. In spite of this leniency, many learners had obvious trouble in naming vegetables. This may be because these vegetables are mostly part of western culinary traditions. If this is indeed the case, it would serve to reinforce concerns about cultural content in schools that is not palatable to all learners. This aspects needs to be investigated further.

5.2.5.3 Domestic Animals

The results for the Domestic Animals category are presented in Table 8 below

TABLE 8: The results for the Domestic Animals category

CONCEPTS	TSHIVENDA		ENGLISH	
	NUMBER	PERCENT	NUMBER	PERCENT
Sheep	**100**	**91**	**100**	**83**
Dog	**100**	**82**	**100**	**80**
Cow	**100**	**98**	**100**	**76**
Cat	**100**	**82**	**100**	**67**

Ninety eight percent of the learners were familiar with 'cow', but twenty four percent of the learners could not recode the concept into English. Eighty two percent of the learners knew the concept 'cat' in TshiVenda and thirty three percent were unable to recode it into English.

It is evident from the results that generalisations usually made about what learners know or should know should be avoided. Although the rural learners mostly knew the traditional farm animals (sheep and cows), many of them could not recode them into English. A teacher may assume that these English words are so familiar that they need not be taught, but that is not the case. The domestic animals may be less familiar as all rural households do not necessarily have pets.

5.3 INTERPRETATION OF THE FINDINGS

The findings of the study reveal that many learners encoded Geographical concepts better in English than in TshiVenda. Many learners did not know the direction 'north' in TshiVenda, which is assumed that they would know as they come from the Northern Province.

Learners did not know many of the concepts in the category of General Knowledge. Punctuation marks that they are expected to use daily when they read or write in English and TshiVenda were unknown. It is clear that they will not be able to follow instructions regarding these punctuation marks, as they had neither the conceptual nor the language knowledge regarding these. Learners obviously did not have adequate English vocabulary items to express the concepts as identified under the category of General Knowledge.

In the category of English most learners responded well in TshiVenda, but showed a marked lack of vocabulary for recoding those concepts into English. Although these concepts are actions that one comes across every day (writing, reading and speaking) many learners could not recode them into the language that they are expected to learn in (and execute these actions!).

In the Mathematics category learners did not possess the concepts for the metric system, but the few who knew them possessed the knowledge better in English than in TshiVenda. Fractions and some mathematical applications (such as 'divide') also seem to be unfamiliar in both TshiVenda and English. It can be concluded that learners experience difficulties

with mathematical concepts and they seemed to lack the knowledge to express concepts in English.

Most learners did not posses the knowledge of the History concepts in TshiVenda and English. They fared worse in History than Mathematics. The problem may be that their exposure to concepts that are not found in their immediate surroundings is poor. They did not have enough knowledge of the English language to understand or identify these concepts.

In the General Science category most learners were unable to recognize health concepts. Most learners in the study are socio-economically disadvantaged in that they don't have access to medical facilities and services that are often taken for granted in learning contexts.

In the gardening category learners possessed some of the concepts in TshiVenda but their poor performance in other areas may ascribed to a different culinary tradition. They experienced difficulties in recoding the concepts into English.

Learners responded better in the category of Domestic Animals, but had difficulty in recoding the concepts into English. They responded well in this category.

The overall findings suggest that learners in this study did not posses adequate concepts to enable them to learn successfully in Grade 5, particularly in Mathematics, History and General Science in the Health Education subcategory. They also lacked the knowledge of the English concepts tested, in order to recode the concepts that they did know. It seems, however, that some concepts and English words are acquired at the same time. This is most evident from the category dealing with Geography (e.g. 'west').

5.4 CONCLUSION

This investigation has revealed that learners in this study may not be ready to study through the medium of English at the beginning of Grade 5. They also seemed to have difficulties in obtaining or identifying the broader or core concepts in their mother tongue. The research suggests that they have a twofold problem: they are unfamiliar with many concepts that occur in their school-based learning programme and they are not equipped to learn through the medium of English.

The following chapter gives recommendations for further study and suggestions on how the problems may be alleviated.

CHAPTER 6

CONCLUSIONS AND RECOMMENDATIONS

6.1 INTRODUCTION

The purpose of this chapter is to summarise the findings of the study, consider the implications of the findings, and make recommendations for further research.

6.2 SUMMARY AND CONCLUSIONS

The aims of this study were to investigate existing theory regarding the conceptual learning of young children, determine what the core concepts are that Grade 5 learners need to learn, empirically investigate whether Grade 5 black learners are familiar with identified core concepts in syllabuses; and investigate whether Grade 5 learners can recode these concepts into English.

The questions addressed, therefore, were:

- How do young children learn concepts?
- What are the core concepts in syllabuses that Grade 5 learners need to learn?
- Is there research evidence that Grade 5 learners are familiar with the core concepts or broader concepts that they are required to possess?
- Can Grade 5 learners recode these existing concepts into English for learning?

To address these questions an investigation was instituted in five primary schools in the Northern Province. The investigation was based on some of the concepts selected from their grade 5 syllabi and textbooks and presented to learners in picture form (Appendix 1).

With regard to the first question, the findings revealed that many learners in these schools did not possess the knowledge of the core concepts or broader concepts that they were

required to encode in TshiVenda their mother tongue. Learners lacked knowledge of most of the concepts in all the categories of Geography (cf. 5.2.1), General Knowledge (cf. 5.2.2), English (cf. 5.2.3), Mathematics (cf. 5.2.5) and History (5.2.6). Both Clark et al. (1994:15) and Chandler (1989:3) agree that the prior knowledge that learners bring into the learning situation determines their learning progress. This is because learning is built on what learners have previously learnt at home and other familiar environments that shape their understanding of the world. In order for meaningful learning to take place, learning content should link with concepts that learners can associate with. The findings of this study suggested that the Grade 5 respondents were not familiar with the relevant concepts for successful learning, and that little meaningful learning could take place for them.

As regards the second question, the findings revealed that most of the Grade 5 learners in this study could not recode many of the concepts that they encoded in TshiVenda (their L1) into English (the MoI). Although the respondents failed to recode concepts in all categories (i.e. Geography (cf. 5.2.1), General Knowledge (cf. 5.2.2), English (cf. 5.2.3), Mathematics (cf. 5.2.5) and History (5.2.6), they seemed to have acquired many of the concepts and the English words for them simultaneously in the category of Geography, e.g. 'west'

Learners in this study switch from mother tongue instruction to English MoI in Grade 5, but it seems clear that they were not proficient in English. They have to study all subjects in English, but it seems that there were few links between the identified concepts and the language needed to master them. Most learners seemed to face a two-fold problem, i.e., learning concepts and the English words for them simultaneously. Le Roux (1993:152) suggests that the lack of language proficiency may lead learners to commit facts to memory without understanding. This makes it almost impossible for learners to master academic content.

Some possible reasons for learners' unfamiliarity with identified concepts and their lack of proficiency in English are suggested:

- A lack of prior knowledge of concepts occurs regarding Grade 5 syllabuses and textbooks. This may in turn be influenced by poor socio-economic circumstances and illiteracy. Parents are often unavailable to provide stimulation by, for example, reading to their children. Households are often without magazines, books, electricity and television. In this way the conceptual and language environments of many learners remain impoverished (cf.3.4.2.3).

- Little or no research data are available to support a structured approach to concept development and formation in school-based learning. Textbooks are often written by authors who may select learning content intuitively, rather than based on research data that indicate the relevance of concepts in learning material (cf.3.2.3.5).

- There are few facilities and resources to support concept development and language acquisition. Schools in this province are poorly resourced and libraries are out of reach for most rural communities (cf.3.4.3.1).

- Learning materials include little relevant cultural knowledge for these learners. Textbooks may be Eurocentric in their approach or may be outdated (cf.3.4.3.1).

- A lack of trained teachers who can determine what conceptual knowledge learners have or should have for prescribed learning and who understand the role of language in conceptual awareness (cf.2.2.2).

- Poorly trained teachers who are unable to assist learners to create links between existing knowledge and new knowledge (cf.1.2).

- Teachers themselves lack English proficiency and they cannot teach all subjects confidently through the medium of English (cf.2.4) and (cf.3.5).

- A lack of professional dedication in many classrooms is unsupportive of conceptual enrichment and language proficiency. This may be owing to a lack of knowledge, skills and motivation among some teachers (cf.3.5).

Although it is beyond the scope of this study to provide a detailed analysis of the reasons for poor conceptual and language acquisition in some Grade 5 classrooms, it can be assumed that learners need more conceptual stimulation and development outside and inside the classroom to prepare them for the concepts that they encounter in school-based learning. They also need to acquire the required levels of English proficiency needed to learn new material.

6.3 IMPLICATIONS OF THE FINDINGS

If teachers know about the role of conceptual awareness in learning, learners' conceptual frameworks and second language ability, the better and more productive their intervention will be in order to improve learning in English as MoI. Teachers may employ strategies, such as mapping, visual scaffolding, sequencing or patterning that will help learners stimulate their conceptual development in the classroom. Teachers should constantly vary learning behaviours that build understanding of concepts. Knowledge construction must be based on more than just the information provided in a task or a situation that usually requires help from the teacher - the existing knowledge, schemata and language knowledge of learners are to be utilised in current learning (cf. 2.3.4). The role that prior learning plays in the process cannot be underestimated (cf. 2.2.2). Teachers should also be aware of the possible misconceptions inherent in the prior knowledge of the learners. They should understand how prior conceptions influence current conceptions, and how it may be necessary to change, adapt, reconstruct or expand existing concepts to accommodate new learning (cf. 3.4) and (cf. 2.2.2). As the schemata that learners bring into the classroom or learning situation are not necessarily compatible with the demands of learning tasks in school, teachers should present their lessons from what learners are familiar with to what they are unfamiliar with (e.g. from simple tasks to complex tasks).

Learners' socio-economic background should be considered when teachers prepare their lessons (cf. 2.4). It cannot be accepted that learners come from homes and environments in which they are stimulated conceptually and linguistically. An enriched conceptual programme, relying on creating the mental imagery that learners need for other subjects can be considered.

It is clear that the pre-requisites needed for optimising learning in current South African English MoI classrooms are not met. Teachers must set up an active learning environment and plan accordingly by providing high quality educational settings, physical classroom environments that optimise learning (such as a motivated, fairly homogenous group of learners in physical surroundings that are conducive to learning (cf. 2.4.2).

Definitions of what is regarded as proficiency need to reflect the needs of especially learners in English MoI classrooms (cf. 3.2.2). The implications of Vygotskyan theory, i.e. that concepts and language are acquired simultaneously against the background of the culture of the target language, need to be planned for (cf. 3.2.3.2). In this way teachers can ensure that learners are not alienated from learning content. Content that is relevant to young learners in Grade 5 should be used to help learners become active participants in the MoI classrooms (cf. 3.2.3.4).

The learning tasks and expected outcomes for learning should be understood by all teachers (not only language teachers). In this way teaching language across the curriculum can be employed more effectively (cf. 3.4.2.3). The transition to English MoI instruction classrooms need to be considered, so as to employ a model suitable for South African contexts (cf. 3.3).

6.4 LIMITATIONS OF THE STUDY

The findings of this study are based on the results sampled from five schools and one hundred learners that were randomly selected in one province of South Africa. The results might be too limited to conclude that most learners in Grade 5 are not familiar with core

concepts and that they are not ready to learn through English as a medium of instruction. There are many primary schools in South Africa comprised of learners from highly diversified backgrounds. Other learners may be better prepared for learning in English MoI classrooms. These findings may only be applicable to Black Grade 5 learners in Venda.

The comprehensiveness of this study may not have been enough to present definite conclusions. The researcher's judgement regarding important concepts from syllabi and textbooks is subjective and the validity of her judgement may be suspect.

6. 5 RECOMMENDATIONS FOR FUTURE RESEARCH

The findings have shown that learners in this study did not possess many of the identified core or broader concepts from Grade 5 syllabi and textbooks. Many learners were also not ready to learn all subjects in English as the medium of instruction.

Chandler (1989:5) recommends that teachers must facilitate learners' generation of meaning and understanding by helping them relate prior knowledge to new knowledge. Teachers have to be aware of the conceptual and language inadequacies that learners have. If they know this they can adapt learning content so that it is relevant to their learners' cultural background. Teachers should present the learning content in such a way that learners recognise it cognitively and functionally as relevant. New and familiar concepts should be presented systematically to assist learners to acquire appropriate concepts in order to facilitate new kinds of learning. It is important, therefore, that teachers should receive training regarding conceptual and language acquisition programmes. Further research is needed to determine exactly what concepts learners need in every grade and to find ways on how the teachers can be assisted regarding the link between concepts and the language of instruction.

Language teaching across the curriculum should be researched for South African contexts. All teachers (and more so the English teacher) may play a vital role in involving concepts taught in other subjects. In this way learners will be introduced to concepts in

English that they need for learning in other subject areas. Research should also be conducted to determine whether teachers are able to teach language across the curriculum, in order to ensure that their proficiency and teaching practices meet learners' needs.

Further research is needed to establish a core vocabulary (that includes an understanding of the concepts that words represent) in all grades. Teachers of these grades should be involved in the research in order to validate the findings and broaden the range of conceptual and language acquisition programmes.

The various models of transferring from L1 to L2 instruction should be researched comprehensively for South African contexts. Learners from deprived socio-economic contexts (such as deep rural areas) may benefit from an enriched conceptual programme in the Foundation Phase (Grades 0-3).

To determine whether conceptual deprivation is a comprehensive problem, research should involve many schools and teachers. Longitudinal research should be also be conducted to investigate why especially many Black learners are unsuccessful in school and how they can be assisted in succeeding in school-based learning.

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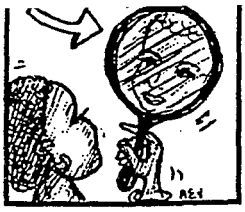
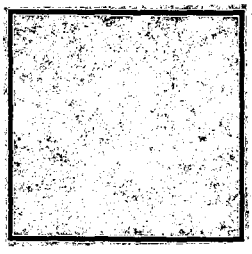
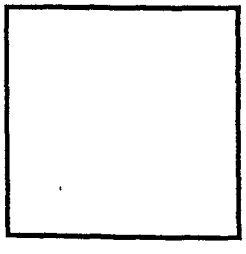
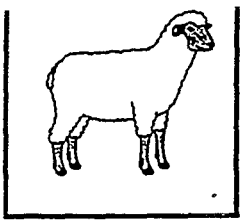
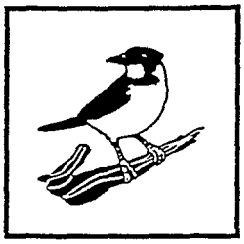
APPENDIX 1

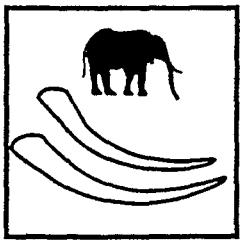


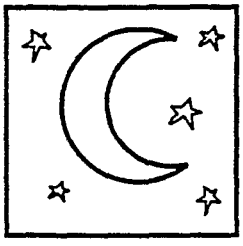


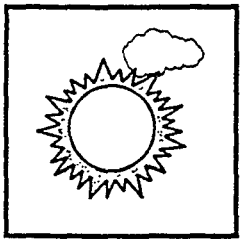


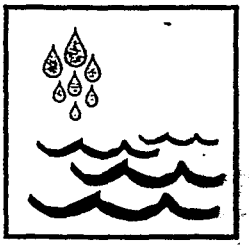


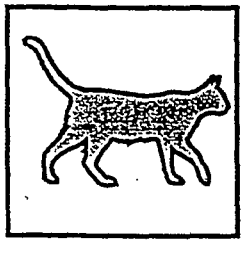


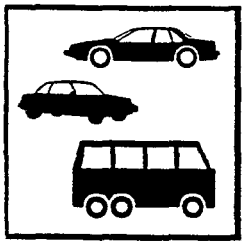


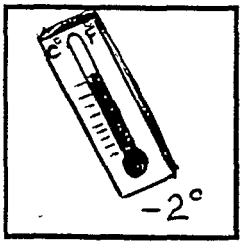








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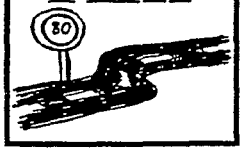

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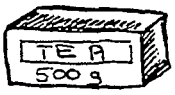

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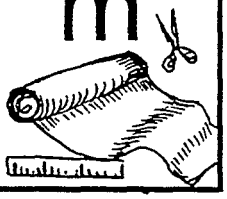

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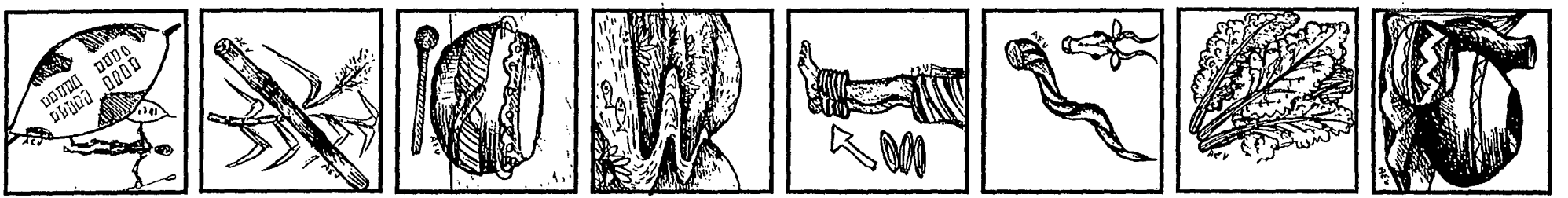

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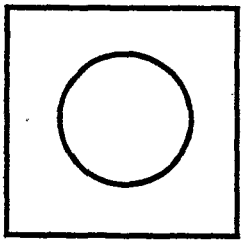

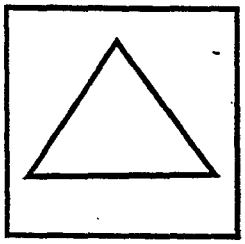

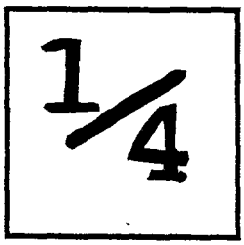

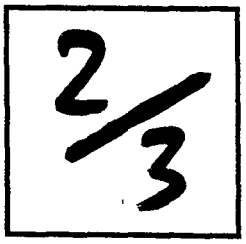

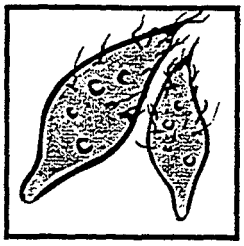

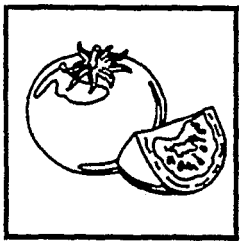

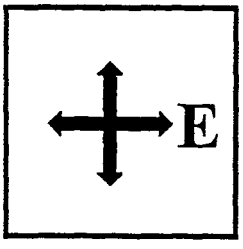
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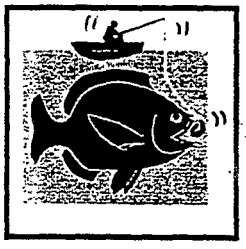

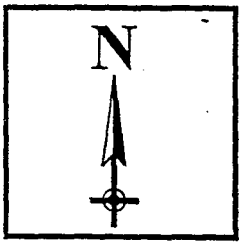
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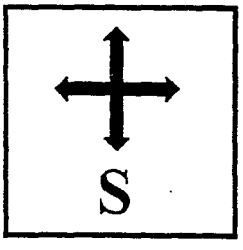
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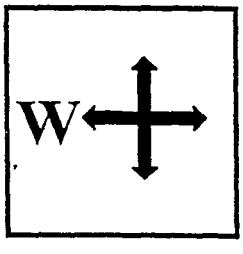
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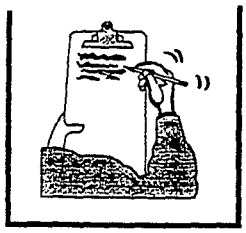

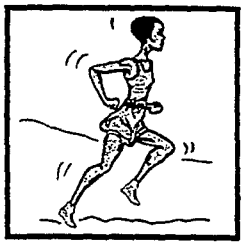

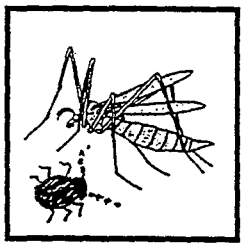

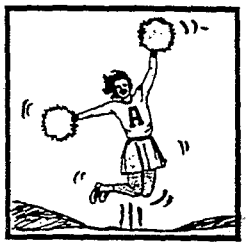

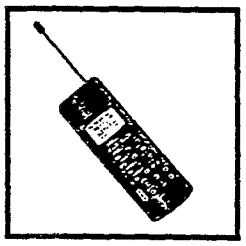

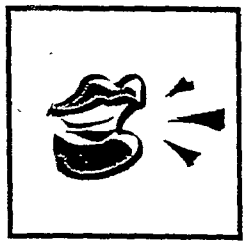

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APPENDIX 2

PICTURE 1: MIRROR				TSHIVENDA		ENGLISH	
PICTURE	SCHOOL	TYPE OF SCHOOL	AREA	FEMALE	MALE	FEMALE	MALE
MIRROR	MAKWARELA	PUBLIC	TOWN	8	9	5	3
MIRROR	GINDIKINDI	PUBLIC	TOWN	9	8	3	1
MIRROR	MMBARA	PUBLIC	TOWN	8	10	5	6
MIRROR	MUFULWI	PUBLIC	RURAL	5	7	0	1
MIRROR	TSHIVHILWI	PUBLIC	RURAL	9	9	0	2
				39	43	13	13
ZULU GIRL	MAKWARELA	PUBLIC	TOWN	5	5	3	2
ZULU GIRL	GINDIKINDI	PUBLIC	TOWN	4	1	3	0
ZULU GIRL	MMBARA	PUBLIC	TOWN	2	6	1	6
ZULU GIRL	MUFULWI	PUBLIC	RURAL	7	4	2	0
ZULU GIRL	TSHIVHILWI	PUBLIC	RURAL	5	4	0	0
				23	20	9	8
WHITE MAN/ JAN VAN RIEBEEK	MAKWARELA	PUBLIC	TOWN	3	4	3	4
WHITE MAN/ JAN VAN RIEBEEK	GINDIKINDI	PUBLIC	TOWN	5	4	4	2
WHITE MAN/ JAN VAN RIEBEEK	MMBARA	PUBLIC	TOWN	1	8	0	7
WHITE MAN/ JAN VAN RIEBEEK	MUFULWI	PUBLIC	RURAL	2	4	0	5
WHITE MAN/ JAN VAN RIEBEEK	TSHIVHILWI	PUBLIC	RURAL	4	5	2	4
				15	25	9	22
BUSHMAN/ARROW	MAKWARELA	PUBLIC	TOWN	4	9	3	2
BUSHMAN/ARROW	GINDIKINDI	PUBLIC	TOWN	8	9	7	6
BUSHMAN/ARROW	MMBARA	PUBLIC	TOWN	7	9	2	2
BUSHMAN/ARROW	MUFULWI	PUBLIC	RURAL	3	4	0	1
BUSHMAN/ARROW	TSHIVHILWI	PUBLIC	RURAL	6	10	0	0
				28	41	12	11
ZULU WARRIOR	MAKWARELA	PUBLIC	TOWN	3	3	3	2
ZULU WARRIOR	GINDIKINDI	PUBLIC	TOWN	2	1	3	0
ZULU WARRIOR	MMBARA	PUBLIC	TOWN	5	6	5	4
ZULU WARRIOR	MUFULWI	PUBLIC	RURAL	3	3	0	0
ZULU WARRIOR	TSHIVHILWI	PUBLIC	RURAL	5	4	1	3
				18	17	12	9

TURNING	MAKWARELA	PUBLIC	TOWN	9	8	6	6
TURNING	GINDIKINDI	PUBLIC	TOWN	9	9	7	4
TURNING	MMBARA	PUBLIC	TOWN	6	10	5	7
TURNING	MUFULWI	PUBLIC	RURAL	6	6	0	1
TURNING	TSHIVHILWI	PUBLIC	RURAL	8	10	1	3
				38	43	19	21
SHEEP	MAKWARELA	PUBLIC	TOWN	10	10	9	9
SHEEP	GINDIKINDI	PUBLIC	TOWN	8	8	8	6
SHEEP	MMBARA	PUBLIC	TOWN	8	9	8	7
SHEEP	MUFULWI	PUBLIC	RURAL	10	10	10	10
SHEEP	TSHIVHILWI	PUBLIC	RURAL	8	10	9	7
				44	47	44	39
BIRD	MAKWARELA	PUBLIC	TOWN	10	10	9	7
BIRD	GINDIKINDI	PUBLIC	TOWN	10	10	8	6
BIRD	MMBARA	PUBLIC	TOWN	10	9	8	8
BIRD	MUFULWI	PUBLIC	RURAL	9	10	8	10
BIRD	TSHIVHILWI	PUBLIC	RURAL	10	10	3	6
				49	49	36	37
TUSK	MAKWARELA	PUBLIC	TOWN	9	10	5	3
TUSK	GINDIKINDI	PUBLIC	TOWN	9	8	2	1
TUSK	MMBARA	PUBLIC	TOWN	5	6	1	2
TUSK	MUFULWI	PUBLIC	RURAL	7	9	2	7
TUSK	TSHIVHILWI	PUBLIC	RURAL	7	10	1	2
				37	43	11	15
MOON	MAKWARELA	PUBLIC	TOWN	9	9	7	5
MOON	GINDIKINDI	PUBLIC	TOWN	8	9	3	5
MOON	MMBARA	PUBLIC	TOWN	8	7	7	4
MOON	MUFULWI	PUBLIC	RURAL	10	8	2	6
MOON	TSHIVHILWI	PUBLIC	RURAL	10	10	6	7
				45	43	25	27
SUN	MAKWARELA	PUBLIC	TOWN	10	10	10	10
SUN	GINDIKINDI	PUBLIC	TOWN	9	10	8	9
SUN	MMBARA	PUBLIC	TOWN	10	9	9	9
SUN	MUFULWI	PUBLIC	RURAL	8	10	4	9
SUN	TSHIVHILWI	PUBLIC	RURAL	9	10	7	10
				46	49	38	47
RAIN/WATER	MAKWARELA	PUBLIC	TOWN	9	10	9	9
RAIN/WATER	GINDIKINDI	PUBLIC	TOWN	8	7	8	7
RAIN/WATER	MMBARA	PUBLIC	TOWN	6	8	6	8
RAIN/WATER	MUFULWI	PUBLIC	RURAL	5	7	4	7
RAIN/WATER	TSHIVHILWI	PUBLIC	RURAL	8	10	6	10
				36	42	33	41

COW	MAKWARELA	PUBLIC	TOWN	10	10	10	7
COW	GINDIKINDI	PUBLIC	TOWN	10	10	8	8
COW	MMBARA	PUBLIC	TOWN	8	10	6	9
COW	MUFULWI	PUBLIC	RURAL	10	10	10	9
COW	TSHIVHILWI	PUBLIC	RURAL	10	10	5	4
				48	50	39	37
CAT	MAKWARELA	PUBLIC	TOWN	10	9	10	9
CAT	GINDIKINDI	PUBLIC	TOWN	8	9	8	9
CAT	MMBARA	PUBLIC	TOWN	10	10	10	10
CAT	MUFULWI	PUBLIC	RURAL	7	10	6	10
CAT	TSHIVHILWI	PUBLIC	RURAL	9	10	6	9
				44	48	40	47
MINING	MAKWARELA	PUBLIC	TOWN	4	6	4	6
MINING	GINDIKINDI	PUBLIC	TOWN	2	2	1	0
MINING	MMBARA	PUBLIC	TOWN	2	2	1	2
MINING	MUFULWI	PUBLIC	RURAL	0	3	0	3
MINING	TSHIVHILWI	PUBLIC	RURAL	1	4	1	3
				9	17	7	14
FOOT	MAKWARELA	PUBLIC	TOWN	10	10	2	4
FOOT	GINDIKINDI	PUBLIC	TOWN	10	10	0	2
FOOT	MMBARA	PUBLIC	TOWN	8	9	3	3
FOOT	MUFULWI	PUBLIC	RURAL	9	10	1	7
FOOT	TSHIVHILWI	PUBLIC	RURAL	10	10	0	2
				47	49	6	18
TRANSPORT	MAKWARELA	PUBLIC	TOWN	10	10	10	10
TRANSPORT	GINDIKINDI	PUBLIC	TOWN	10	10	7	10
TRANSPORT	MMBARA	PUBLIC	TOWN	9	8	10	8
TRANSPORT	MUFULWI	PUBLIC	RURAL	9	8	8	10
TRANSPORT	TSHIVHILWI	PUBLIC	RURAL	10	8	8	8
				48	44	43	46
THERMOMETER	MAKWARELA	PUBLIC	TOWN	0	1	0	1
THERMOMETER	GINDIKINDI	PUBLIC	TOWN	0	1	0	1
THERMOMETER	MMBARA	PUBLIC	TOWN	2	1	2	1
THERMOMETER	MUFULWI	PUBLIC	RURAL	1	0	1	0
THERMOMETER	TSHIVHILWI	PUBLIC	RURAL	0	0	0	0
				3	3	3	3
MILK	MAKWARELA	PUBLIC	TOWN	7	9	7	7
MILK	GINDIKINDI	PUBLIC	TOWN	9	8	6	8
MILK	MMBARA	PUBLIC	TOWN	7	8	8	8
MILK	MUFULWI	PUBLIC	RURAL	4	6	3	6
MILK	TSHIVHILWI	PUBLIC	RURAL	5	5	4	5
				32	36	28	34

DOG	MAKWARELA	PUBLIC	TOWN	10	8	10	6
DOG	GINDIKINDI	PUBLIC	TOWN	4	10	4	10
DOG	MMBARA	PUBLIC	TOWN	7	8	7	9
DOG	MUFULWI	PUBLIC	RURAL	9	8	9	8
DOG	TSHIVHILWI	PUBLIC	RURAL	9	9	8	9
				39	43	38	42
DOCTOR	MAKWARELA	PUBLIC	TOWN	4	4	4	4
DOCTOR	GINDIKINDI	PUBLIC	TOWN	2	0	2	0
DOCTOR	MMBARA	PUBLIC	TOWN	0	6	0	5
DOCTOR	MUFULWI	PUBLIC	RURAL	1	0	1	0
DOCTOR	TSHIVHILWI	PUBLIC	RURAL	0	1	0	1
				7	11	7	10
NURSE	MAKWARELA	PUBLIC	TOWN	3	4	3	4
NURSE	GINDIKINDI	PUBLIC	TOWN	3	2	3	2
NURSE	MMBARA	PUBLIC	TOWN	3	6	3	5
NURSE	MUFULWI	PUBLIC	RURAL	1	1	1	1
NURSE	TSHIVHILWI	PUBLIC	RURAL	1	3	1	3
				11	16	11	15
KILOMETRES	MAKWARELA	PUBLIC	TOWN	4	5	4	5
KILOMETRES	GINDIKINDI	PUBLIC	TOWN	7	5	7	5
KILOMETRES	MMBARA	PUBLIC	TOWN	7	5	7	5
KILOMETRES	MUFULWI	PUBLIC	RURAL	2	5	2	5
KILOMETRES	TSHIVHILWI	PUBLIC	RURAL	2	4	2	4
				22	24	22	24
KILOGRAM	MAKWARELA	PUBLIC	TOWN	2	0	2	0
KILOGRAM	GINDIKINDI	PUBLIC	TOWN	5	5	5	4
KILOGRAM	MMBARA	PUBLIC	TOWN	2	3	2	3
KILOGRAM	MUFULWI	PUBLIC	RURAL	0	3	0	3
KILOGRAM	TSHIVHILWI	PUBLIC	RURAL	2	3	2	3
				11	14	11	13
LITRE	MAKWARELA	PUBLIC	TOWN	7	3	7	3
LITRE	GINDIKINDI	PUBLIC	TOWN	8	4	8	4
LITRE	MMBARA	PUBLIC	TOWN	4	6	4	6
LITRE	MUFULWI	PUBLIC	RURAL	1	3	1	3
LITRE	TSHIVHILWI	PUBLIC	RURAL	4	5	5	4
				24	21	25	20
GRAM	MAKWARELA	PUBLIC	TOWN	6	3	6	3
GRAM	GINDIKINDI	PUBLIC	TOWN	7	6	7	6
GRAM	MMBARA	PUBLIC	TOWN	3	3	3	3
GRAM	MUFULWI	PUBLIC	RURAL	1	4	1	4
GRAM	TSHIVHILWI	PUBLIC	RURAL	3	4	3	4
				20	20	20	20

METRE	MAKWARELA	PUBLIC	TOWN	4	2	4	2
METRE	GINDIKINDI	PUBLIC	TOWN	4	3	4	3
METRE	MMBARA	PUBLIC	TOWN	3	3	3	3
METRE	MUFULWI	PUBLIC	RURAL	2	3	1	3
METRE	TSHIVHILWI	PUBLIC	RURAL	2	3	2	3
				15	14	14	14
DIVIDE	MAKWARELA	PUBLIC	TOWN	0	0	0	0
DIVIDE	GINDIKINDI	PUBLIC	TOWN	4	2	8	2
DIVIDE	MMBARA	PUBLIC	TOWN	1	0	8	6
DIVIDE	MUFULWI	PUBLIC	RURAL	0	1	4	4
DIVIDE	TSHIVHILWI	PUBLIC	RURAL	0	3	0	3
				5	6	20	15
SUBTRACT	MAKWARELA	PUBLIC	TOWN	5	3	7	3
SUBTRACT	GINDIKINDI	PUBLIC	TOWN	9	8	9	9
SUBTRACT	MMBARA	PUBLIC	TOWN	8	8	9	6
SUBTRACT	MUFULWI	PUBLIC	RURAL	6	5	1	6
SUBTRACT	TSHIVHILWI	PUBLIC	RURAL	5	1	5	6
				33	25	31	30
ADD	MAKWARELA	PUBLIC	TOWN	7	6	9	10
ADD	GINDIKINDI	PUBLIC	TOWN	10	9	10	9
ADD	MMBARA	PUBLIC	TOWN	6	7	9	9
ADD	MUFULWI	PUBLIC	RURAL	5	4	9	8
ADD	TSHIVHILWI	PUBLIC	RURAL	5	5	9	10
				33	31	46	46
CLAY-POTS	MAKWARELA	PUBLIC	TOWN	0	0	8	10
CLAY-POTS	GINDIKINDI	PUBLIC	TOWN	3	0	9	8
CLAY-POTS	MMBARA	PUBLIC	TOWN	1	0	8	5
CLAY-POTS	MUFULWI	PUBLIC	RURAL	5	4	9	8
CLAY-POTS	TSHIVHILWI	PUBLIC	RURAL	1	1	9	8
				10	5	43	39
SPINACH	MAKWARELA	PUBLIC	TOWN	0	0	6	8
SPINACH	GINDIKINDI	PUBLIC	TOWN	0	0	7	4
SPINACH	MMBARA	PUBLIC	TOWN	0	0	4	8
SPINACH	MUFULWI	PUBLIC	RURAL	1	1	3	4
SPINACH	TSHIVHILWI	PUBLIC	RURAL	0	3	9	6
				1	4	29	30
HORN	MAKWARELA	PUBLIC	TOWN	0	1	0	1
HORN	GINDIKINDI	PUBLIC	TOWN	1	1	2	1
HORN	MMBARA	PUBLIC	TOWN	0	0	1	0
HORN	MUFULWI	PUBLIC	RURAL	2	5	2	5
HORN	TSHIVHILWI	PUBLIC	RURAL	0	0	0	0
				3	7	5	7

COPPER RINGS	MAKWARELA	PUBLIC	TOWN	0	0	1	1
COPPER RINGS	GINDIKINDI	PUBLIC	TOWN	0	3	0	0
COPPER RINGS	MMBARA	PUBLIC	TOWN	0	0	0	0
COPPER RINGS	MUFULWI	PUBLIC	RURAL	0	1	0	1
COPPER RINGS	TSHIVHILWI	PUBLIC	RURAL	3	3	0	0
				3	7	1	2
RIVER	MAKWARELA	PUBLIC	TOWN	5	2	8	7
RIVER	GINDIKINDI	PUBLIC	TOWN	6	8	8	8
RIVER	MMBARA	PUBLIC	TOWN	5	6	8	7
RIVER	MUFULWI	PUBLIC	RURAL	4	5	6	6
RIVER	TSHIVHILWI	PUBLIC	RURAL	4	7	8	9
				24	28	38	37
DRUM	MAKWARELA	PUBLIC	TOWN	0	0	8	6
DRUM	GINDIKINDI	PUBLIC	TOWN	0	0	7	7
DRUM	MMBARA	PUBLIC	TOWN	0	0	5	4
DRUM	MUFULWI	PUBLIC	RURAL	0	0	4	4
DRUM	TSHIVHILWI	PUBLIC	RURAL	0	0	5	5
				0	0	29	26
SUGAR CANE	MAKWARELA	PUBLIC	TOWN	2	0	6	4
SUGAR CANE	GINDIKINDI	PUBLIC	TOWN	1	0	4	2
SUGAR CANE	MMBARA	PUBLIC	TOWN	1	1	5	4
SUGAR CANE	MUFULWI	PUBLIC	RURAL	0	1	4	5
SUGAR CANE	TSHIVHILWI	PUBLIC	RURAL	1	0	8	8
				5	2	27	23
SHIELD	MAKWARELA	PUBLIC	TOWN	0	0	4	4
SHIELD	GINDIKINDI	PUBLIC	TOWN	0	0	4	3
SHIELD	MMBARA	PUBLIC	TOWN	0	0	3	5
SHIELD	MUFULWI	PUBLIC	RURAL	0	1	4	5
SHIELD	TSHIVHILWI	PUBLIC	RURAL	1	0	10	8
				1	1	25	25
MULTIPLY	MAKWARELA	PUBLIC	TOWN	9	9	4	3
MULTIPLY	GINDIKINDI	PUBLIC	TOWN	7	8	0	0
MULTIPLY	MMBARA	PUBLIC	TOWN	9	8	4	3
MULTIPLY	MUFULWI	PUBLIC	RURAL	8	6	0	0
MULTIPLY	TSHIVHILWI	PUBLIC	RURAL	10	10	0	0
				43	41	8	6
10* 100	MAKWARELA	PUBLIC	TOWN	8	10	7	8
10*100	GINDIKINDI	PUBLIC	TOWN	10	8	5	5
10*100	MMBARA	PUBLIC	TOWN	8	10	7	8
10*100	MUFULWI	PUBLIC	RURAL	9	8	5	4
10*100	TSHIVHILWI	PUBLIC	RURAL	10	10	2	1
				45	46	26	26

BRACKETS	MAKWARELA	PUBLIC	TOWN	10	8	0	0
BRACKETS	GINDIKINDI	PUBLIC	TOWN	7	6	0	0
BRACKETS	MMBARA	PUBLIC	TOWN	10	8	0	0
BRACKETS	MUFULWI	PUBLIC	RURAL	7	5	0	0
BRACKETS	TSHIVHILWI	PUBLIC	RURAL	9	10	0	0
				43	37	0	0
0.001	MAKWARELA	PUBLIC	TOWN	10	6	0	0
0.001	GINDIKINDI	PUBLIC	TOWN	7	6	1	0
0.001	MMBARA	PUBLIC	TOWN	10	6	0	0
0.001	MUFULWI	PUBLIC	RURAL	7	6	0	0
0.001	TSHIVHILWI	PUBLIC	RURAL	10	10	0	0
				44	34	1	0
CIRCLE	MAKWARELA	PUBLIC	TOWN	10	9	9	6
CIRCLE	GINDIKINDI	PUBLIC	TOWN	9	9	10	7
CIRCLE	MMBARA	PUBLIC	TOWN	10	9	10	6
CIRCLE	MUFULWI	PUBLIC	RURAL	10	10	7	10
CIRCLE	TSHIVHILWI	PUBLIC	RURAL	10	10	9	7
				49	47	45	36
TRIANGLE	MAKWARELA	PUBLIC	TOWN	0	8	9	9
TRIANGLE	GINDIKINDI	PUBLIC	TOWN	6	3	0	0
TRIANGLE	MMBARA	PUBLIC	TOWN	10	8	0	1
TRIANGLE	MUFULWI	PUBLIC	RURAL	10	8	0	1
TRIANGLE	TSHIVHILWI	PUBLIC	RURAL	10	10	0	0
				36	37	9	11
QUATER	MAKWARELA	PUBLIC	TOWN	1	0	4	3
QUATER	GINDIKINDI	PUBLIC	TOWN	6	5	4	2
QUATER	MMBARA	PUBLIC	TOWN	10	10	4	3
QUATER	MUFULWI	PUBLIC	RURAL	8	8	3	5
QUATER	TSHIVHILWI	PUBLIC	RURAL	10	10	2	0
				35	33	17	13
TWO THIRDS	MAKWARELA	PUBLIC	TOWN	2	4	1	1
TWO THIRDS	GINDIKINDI	PUBLIC	TOWN	1	3	0	1
TWO THIRDS	MMBARA	PUBLIC	TOWN	2	4	1	1
TWO THIRDS	MUFULWI	PUBLIC	RURAL	2	3	0	0
TWO THIRDS	TSHIVHILWI	PUBLIC	RURAL	5	5	1	0
				12	19	3	3
PUMPKIN	MAKWARELA	PUBLIC	TOWN	10	8	6	3
PUMPKIN	GINDIKINDI	PUBLIC	TOWN	9	6	4	4
PUMPKIN	MMBARA	PUBLIC	TOWN	10	7	7	7
PUMPKIN	MUFULWI	PUBLIC	RURAL	8	7	0	3
PUMPKIN	TSHIVHILWI	PUBLIC	RURAL	10	10	0	1
				47	38	17	18

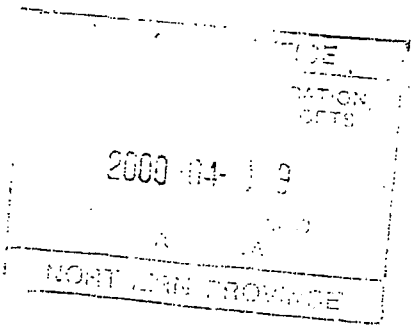
SWEET POTATO	MAKWARELA	PUBLIC	TOWN	10	4	2	0
SWEET POTATO	GINDIKINDI	PUBLIC	TOWN	2	0	4	0
SWEET POTATO	MMBARA	PUBLIC	TOWN	0	2	0	1
SWEET POTATO	MUFULWI	PUBLIC	RURAL	1	1	0	0
SWEET POTATO	TSHIVHILWI	PUBLIC	RURAL	5	8	0	1
				18	15	6	2
TOMATO	MAKWARELA	PUBLIC	TOWN	10	8	7	7
TOMATO	GINDIKINDI	PUBLIC	TOWN	10	6	7	5
TOMATO	MMBARA	PUBLIC	TOWN	6	5	7	0
TOMATO	MUFULWI	PUBLIC	RURAL	6	8	6	5
TOMATO	TSHIVHILWI	PUBLIC	RURAL	9	10	4	5
				41	37	31	22
EAST	MAKWARELA	PUBLIC	TOWN	1	0	6	7
EAST	GINDIKINDI	PUBLIC	TOWN	4	1	8	4
EAST	MMBARA	PUBLIC	TOWN	1	2	3	5
EAST	MUFULWI	PUBLIC	RURAL	0	3	6	7
EAST	TSHIVHILWI	PUBLIC	RURAL	0	10	4	10
				6	16	27	33
FISHING	MAKWARELA	PUBLIC	TOWN	10	10	10	10
FISHING	GINDIKINDI	PUBLIC	TOWN	10	10	7	8
FISHING	MMBARA	PUBLIC	TOWN	10	9	10	8
FISHING	MUFULWI	PUBLIC	RURAL	10	10	8	10
FISHING	TSHIVHILWI	PUBLIC	RURAL	10	10	10	9
				50	49	45	45
NORTH	MAKWARELA	PUBLIC	TOWN	0	1	7	8
NORTH	GINDIKINDI	PUBLIC	TOWN	1	0	8	4
NORTH	MMBARA	PUBLIC	TOWN	2	0	8	10
NORTH	MUFULWI	PUBLIC	RURAL	1	1	8	9
NORTH	TSHIVHILWI	PUBLIC	RURAL	1	1	10	10
				5	3	41	41
SOUTH	MAKWARELA	PUBLIC	TOWN	1	1	9	8
SOUTH	GINDIKINDI	PUBLIC	TOWN	0	0	8	7
SOUTH	MMBARA	PUBLIC	TOWN	1	2	7	8
SOUTH	MUFULWI	PUBLIC	RURAL	0	2	8	9
SOUTH	TSHIVHILWI	PUBLIC	RURAL	1	2	10	9
				3	7	42	41
WEST	MAKWARELA	PUBLIC	TOWN	0	0	8	9
WEST	GINDIKINDI	PUBLIC	TOWN	2	2	9	8
WEST	MMBARA	PUBLIC	TOWN	1	5	8	10
WEST	MUFULWI	PUBLIC	RURAL	0	3	8	9
WEST	TSHIVHILWI	PUBLIC	RURAL	0	4	10	10
				3	14	43	46

WRITING	MAKWARELA	PUBLIC	TOWN	10	10	10	6
WRITING	GINDIKINDI	PUBLIC	TOWN	9	10	4	6
WRITING	MMBARA	PUBLIC	TOWN	10	10	10	10
WRITING	MUFULWI	PUBLIC	RURAL	10	10	9	6
WRITING	TSHIVHILWI	PUBLIC	RURAL	10	10	8	8
				49	50	41	36
EATING	MAKWARELA	PUBLIC	TOWN	10	10	10	7
EATING	GINDIKINDI	PUBLIC	TOWN	10	10	8	8
EATING	MMBARA	PUBLIC	TOWN	9	9	9	10
EATING	MUFULWI	PUBLIC	RURAL	7	8	7	6
EATING	TSHIVHILWI	PUBLIC	RURAL	9	10	4	4
				45	47	38	35
READING	MAKWARELA	PUBLIC	TOWN	10	10	10	8
READING	GINDIKINDI	PUBLIC	TOWN	10	10	8	7
READING	MMBARA	PUBLIC	TOWN	10	10	10	10
READING	MUFULWI	PUBLIC	RURAL	10	10	8	5
READING	TSHIVHILWI	PUBLIC	RURAL	10	10	3	5
				50	50	39	35
RUNNING	MAKWARELA	PUBLIC	TOWN	10	10	10	8
RUNNING	GINDIKINDI	PUBLIC	TOWN	9	10	7	8
RUNNING	MMBARA	PUBLIC	TOWN	10	10	10	10
RUNNING	MUFULWI	PUBLIC	RURAL	10	10	10	5
RUNNING	TSHIVHILWI	PUBLIC	RURAL	10	10	3	6
				49	50	40	37
INSECTS	MAKWARELA	PUBLIC	TOWN	9	10	2	2
INSECTS	GINDIKINDI	PUBLIC	TOWN	7	7	1	10
INSECTS	MMBARA	PUBLIC	TOWN	5	7	3	4
INSECTS	MUFULWI	PUBLIC	RURAL	5	5	4	1
INSECTS	TSHIVHILWI	PUBLIC	RURAL	10	10	1	0
				36	39	11	17
JUMPING	MAKWARELA	PUBLIC	TOWN	9	10	9	5
JUMPING	GINDIKINDI	PUBLIC	TOWN	8	8	4	4
JUMPING	MMBARA	PUBLIC	TOWN	8	7	6	5
JUMPING	MUFULWI	PUBLIC	RURAL	7	6	6	1
JUMPING	TSHIVHILWI	PUBLIC	RURAL	10	10	5	6
				42	41	30	21
CELLPHONE	MAKWARELA	PUBLIC	TOWN	10	10	10	10
CELLPHONE	GINDIKINDI	PUBLIC	TOWN	10	10	10	10
CELLPHONE	MMBARA	PUBLIC	TOWN	10	10	10	10
CELLPHONE	MUFULWI	PUBLIC	RURAL	10	8	10	7
CELLPHONE	TSHIVHILWI	PUBLIC	RURAL	10	10	9	10
				50	48	49	47

SPEAKING	MAKWARELA	PUBLIC	TOWN	6	5	6	5
SPEAKING	GINDIKINDI	PUBLIC	TOWN	3	6	2	4
SPEAKING	MMBARA	PUBLIC	TOWN	5	8	5	7
SPEAKING	MUFULWI	PUBLIC	RURAL	1	0	1	0
SPEAKING	TSHIVHILWI	PUBLIC	RURAL	10	9	7	9
				25	28	21	25
QUESTION MARK	MAKWARELA	PUBLIC	TOWN	5	4	3	3
QUESTION MARK	GINDIKINDI	PUBLIC	TOWN	6	7	4	3
QUESTION MARK	MMBARA	PUBLIC	TOWN	3	2	4	2
QUESTION MARK	MUFULWI	PUBLIC	RURAL	6	8	1	4
QUESTION MARK	TSHIVHILWI	PUBLIC	RURAL	5	4	2	1
				25	25	14	13
SEMI COLON	MAKWARELA	PUBLIC	TOWN	0	0	0	0
SEMI COLON	GINDIKINDI	PUBLIC	TOWN	0	0	0	0
SEMI COLON	MMBARA	PUBLIC	TOWN	0	0	0	0
SEMI COLON	MUFULWI	PUBLIC	RURAL	0	0	0	0
SEMI COLON	TSHIVHILWI	PUBLIC	RURAL	1	0	0	0
				1	0	0	0
INVERTED COMMAS	MAKWARELA	PUBLIC	TOWN	0	0	0	0
INVERTED COMMAS	GINDIKINDI	PUBLIC	TOWN	0	1	0	0
INVERTED COMMAS	MMBARA	PUBLIC	TOWN	0	1	0	0
INVERTED COMMAS	MUFULWI	PUBLIC	RURAL	1	1	0	0
INVERTED COMMAS	TSHIVHILWI	PUBLIC	RURAL	0	0	0	0
				1	3	0	0
COMMA	MAKWARELA	PUBLIC	TOWN	3	4	3	5
COMMA	GINDIKINDI	PUBLIC	TOWN	4	1	5	1
COMMA	MMBARA	PUBLIC	TOWN	2	1	4	4
COMMA	MUFULWI	PUBLIC	RURAL	0	1	0	1
COMMA	TSHIVHILWI	PUBLIC	RURAL	2	3	2	3
				11	10	14	14
KNIFE / DAGGER	MAKWARELA	PUBLIC	TOWN	10	10	9	7
KNIFE / DAGGER	GINDIKINDI	PUBLIC	TOWN	8	10	5	5
KNIFE / DAGGER	MMBARA	PUBLIC	TOWN	9	10	7	8
KNIFE / DAGGER	MUFULWI	PUBLIC	RURAL	10	7	1	6
KNIFE / DAGGER	TSHIVHILWI	PUBLIC	RURAL	8	10	2	10
				45	47	24	36
HOE	MAKWARELA	PUBLIC	TOWN	9	10	0	1

HOE	GINDIKINDI	PUBLIC	TOWN	10	10	1	1
HOE	MMBARA	PUBLIC	TOWN	10	10	2	1
HOE	MUFULWI	PUBLIC	RURAL	10	9	0	4
HOE	TSHIVHILWI	PUBLIC	RURAL	10	10	0	0
				49	49	3	7
MILIES	MAKWARELA	PUBLIC	TOWN	9	9	2	3
MILIES	GINDIKINDI	PUBLIC	TOWN	10	10	5	7
MILIES	MMBARA	PUBLIC	TOWN	10	10	5	8
MILIES	MUFULWI	PUBLIC	RURAL	10	10	5	7
MILIES	TSHIVHILWI	PUBLIC	RURAL	10	10	9	3
				49	49	26	28
POTATOES	MAKWARELA	PUBLIC	TOWN	9	9	5	4
POTATOES	GINDIKINDI	PUBLIC	TOWN	10	8	5	6
POTATOES	MMBARA	PUBLIC	TOWN	9	7	7	6
POTATOES	MUFULWI	PUBLIC	RURAL	8	4	2	2
POTATOES	TSHIVHILWI	PUBLIC	RURAL	10	10	0	0
				46	38	19	18

3892	4032	3179	3260
0.286	1.15	0.908	0.9314
111.2	115	90.83	93.143



REF : 8/3/1
ENQ: MAKUYA M.E

LAMBANI M..N.
THE UNIVERSITY OF VENDA
PRIVATE BAG X 5050
THOHOYANDOU
0950

APPLICATION FOR PERMISSION TO CONDUCT RESEARCH: THOHOYANDOU AREA.

1. The above matter refers.

2. We acknowledge receipt of your letter dated 18 April 2000. The permission is hereby granted to you to collect the data as you requested between May to September 2000.

3. Arrangements will be made by the region to facilitate and to inform the District Manager concern for your operation.

4. Hoping that your findings will uplift the standard of education in the country.

Yours faithfully

REGIONAL DIRECTOR :EDUCATION
mmd