AN INVESTIGATION INTO THE FACTORS WHICH IMPINGE ON THE READING COMPREHENSION ABILITIES OF FIRST YEAR HUMAN ECOLOGY STUDENTS AT UWC

Mini-thesis submitted in partial fulfilment of the requirements to the degree of

MAGISTER PHILOSOPHIAE

FACULTY OF EDUCATION (Gold Fields Resource Centre)

at

THE UNIVERSITY OF THE WESTERN CAPE

September 1994

by

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ACKNOWLEDGEMENTS

I thank God for giving me endurance and perserverance to complete this study.

I extend my heartfelt appreciation to my family and friends for their understanding and inspiration which supported and motivated me.

I wish to express my gratitude to Professor Sinclair, my supervisor, and all other persons affiliated to the Educational Support Services Trust who paricipated in the supervision of this paper.

PREFACE

The study deals with the reading comprehension abilities of first year Human Ecology students as they attempt to interpret commercial patterns. A commercial pattern is a retail pattern which is mass-produced in different sizes by various manufacturers and consists of pattern pieces (from which fabric is cut) and an instruction sheet which explains how the fabric pieces should be attached in the construction of a garment.

People who wish to use a commercial pattern to construct a garment but who cannot properly interpret the instructions of these patterns, (even if they are able to read in the English language), will not be successful in their venture of clothing construction.

The study is an attempt to answer two research statements:

1. Language competence plays a determining role in the comprehension abilities of first year Human Ecology students.

2. Prior knowledge and experience play a determining role in the comprehension abilities of first year Human Ecology students.

This study is aimed at highlighting the importance of intervention in respect of Mediated Learning Experience (MLE). This intervention must occur in a teaching-learning situation which fosters active learning so that students become autonomous, independent and critical thinkers. The MLE should include an assessment of the learner's level of development in terms of

language and the amount and level of prior knowledge of the content. Thus, Vygotsky's theory relating to the Zone of Proximal Development, the Language Education Theory, Feuerstein's theory on MLE and the Schema theory are key elements of the study.

The approach followed in the thesis is based on the constructivist paradigm, which claims that human nature is modifiable and because one is cognitively modifiable, MLE is used to correct cognitive dysfunctions as described by Feuerstein (Feuerstein and Hoffman,1979). Buffler and Allie (1993) support this position when they say that it may be argued that the ultimate goal of instruction in a discipline is to empower the learner to participate in the domain of shared objective meaning in that established branch of knowledge.

To Feuerstein, culture plays an important role in cognitive abilities and the term "*cultural deprivation*" does not refer to the culture of the group to which an individual belongs but rather to interactional cultural transmission. It is not the culture that is depriving, but the fact that the individual, or his/her group, is deprived of his/her own culture that is a disabling factor (Feuerstein and Hoffman,1979). In this context, "culture" is not defined as a static inventory of behaviours, but rather a process by which knowledge, values and beliefs are transmitted from one generation to the next. When seen from this viewpoint, cultural deprivation is the result of a failure on the part of a group to transmit or mediate its culture to a new generation (Feuerstein and Hoffman,1979).

When planning, preparing and/or deciding on the method to be used for the mediated learning of problem-solving strategies, the learner in her/his totality should be considered. These factors should include cultural background, level of prior knowledge of the subject-matter, and the cognitive deficiencies which the learner may display.

The study does not presuppose that there is a single correct method for teaching the skills required to interpret a commercial pattern, but it does claim that through mediatory teaching and learning, the interpretation of a commercial pattern could be facilitated.

A key feature of most thinking skills programmes is the emphasis on the process rather than on the content area (Quicke,1992). In sharp contrast, one of the main problems relating to traditional subject-based education is its overemphasis on content, which is transmitted to students without allowing "space" for their active involvement in the learning process.

It is thought that under the weight of subject-based authority, reinforced by didactic pedagogy, students become passive recipients of knowledge, losing the inclination to become creative or to take initiatives (Quicke,1992).

It is common knowledge that learners must be familiar with the content in a particular teaching-learning situation. What is equally important, however, is to mediate principles, skills and

procedures which are applicable to a wide range of contexts and involving different content-related cognitive processes (Quicke,1992).

CHAPTER ONE

PROBLEM SETTING

1.1. Motivation and Aims

This study aims to investigate the factors which influence the reading comprehension abilities of first year Human Ecology students at the University of the Western Cape (UWC).

The curriculum for the degree in Human Ecology has four major subjects. These constitute the courses of **Clothing, Food Science, Housing** and **Resource Management** which form the core of each of the three years of study.

The Clothing course is divided into various components which include Textiles, Pattern Designing and Theory (covering the evolution of fashions, decision-making and retailing relating to Clothing and Clothing Construction).

Clothing Construction is the course in which students are taught techniques which they are expected to apply while constructing a garment by making use of a commercial pattern. It was during the interpretation of commercial patterns, as students attempted to make sense of these instructions, that the researcher observed that students displayed considerable lack of comprehension at very many levels, especially when required to think for themselves.

Based on these observations it was realized that students must be taught skills in the interpretation of commercial patterns. Mseleku (1993) makes a very apt analogy in support of the teaching of thinking skills at university level. He quotes a section from Williams (1991):

" *Once upon a time there was a society of priests who built a Celestial City with gates obscured by word-combination locks. The priests were masters of the Word and, within the City, ascending levels of power and treasure became accessible to those who could learn ascendingly intricate levels of Word Magic. At the very top level, the priests became gods; and because they had nothing left to seek, they engaged in games with which to pass the long hours of eternity. In particular, they liked to ride their strong sure-footed steeds around and around the perimeter of heaven: now jumping word hurdles, now playing polo with concepts of the moon and the stars, now reaching up to touch that pinnacle, that splinter of Refined Understanding called Superunderstanding which was the brass ring of their merry-go-round...*

Under the Celestial City, dying mortals cried out their rage and suffering, battered by a steady rain of sharp hooves whose thundering, sound-drowning path described the wheel of their misfortune ..."

According to Mseleku (1993), the above extract captures the present situation in most universities throughout the world. Like the Celestial City, universities have their gates secured by "obscure" discourses whose "combinations" can only be cracked by a few advantaged students. For disadvantaged students, university discourse remains inaccessible throughout their short stay in the universities, unless they are lucky enough to find ways and means of cracking the code. Mseleku appeals to teaching staff at universities to help "mortals" enter the "Celestial City" and be part of it. Or better still, transform the "Celestial City" into an accessible city where everyone finds it necessary to communicate effectively with everyone else.

The researcher has taught Clothing Construction from the first (beginners' construction), up to third year level (advanced construction). At all these levels students can be observed struggling to comprehend instruction sheets while constructing garments. This study was embarked on because many students (mother-tongue English speakers as well as those who do not have English as their mother tongue) experience problems when interpreting commercial patterns. Students who often use commercial patterns, or those who have had prior experience in the use of commercial patterns and understand the language used in the instructions, encounter fewer problems while interpreting patterns than do those without previously acquired knowledge. This is in line with Goldstein *et al.* (1985), who believe that field-specific schemata are more important than general problem-solving processes (Perkins,1985).

Boughey (1993) summarizes the motivation for a study such as this well when she states that

> " *a good deal of teaching and learning at tertiary level is premised on the understanding that students are both able and willing to read for themselves in the content area of the mainstream subjects they study. Experience of teaching at UWC soon reveals, however, that this is an assumption that does not hold true for all students and especially for those for whom English is a second or even a third language*".

A past rector of the UWC, Professor R. E. van der Ross, termed it " the university of the working class" since many of its students are "first-generation graduates" who come from working-class families. According to Spiegel (1992), students from lower socio-economic backgrounds find learning much easier if rules are explicitly mediated and if they are told why they need to learn specific information.

1.2. Opinions of other Clothing Lecturers

In order to establish whether other current or former Clothing Construction lecturers at UWC observed students experiencing similar problems in the interpretation of commercial patterns, a questionnaire was drawn up and was submitted to these staff members for completion. A sample of this questionnaire is found in Annexure One (Appendix,109).

Respondents stated that many of the students they taught in Clothing Construction experienced problems while attempting to interpret commercial patterns. Respondents indicated that many third year students, even after two semesters of clothing construction (which is done in the second year of study) still had problems in understanding the instructions on the instruction sheets. Many failed to connect the theory and the illustrations provided by the instruction sheet. Respondents felt that the instruction sheet lacked clear distinctions between cutting and stitching as well as the sizing lines on the pattern pieces. Respondents indicated that the information which is provided before the instructions, should be emphasized and referred to constantly throughout the instructions.

Respondents felt that people who are able to read an instruction sheet of a commercial pattern will only be able to construct a garment successfully if they have "background knowledge of sewing/needlework". Thus they agreed that the Clothing Construction course has many subject-specific terms that must be mastered in order to be successful in the course.

Sinclair (1989) refers to the Committee of University Principals' report which suggests that the ideal would be a heuristic approach to education with the emphasis on more independent learning, in contrast to mere memorization. Such an educational model in which skills and knowledge are transmitted in a more interactive manner presupposes a rethinking of the traditional "lecture" mode of information transmission.

At UWC there is a growing trend towards curriculum/course changes. According to Keats (1993) the key determinants include, amongst others, teaching methods, opportunities for mediated learning, addressing the language needs of students and assessment procedures.

Two research premises indicate the two-pronged nature of the study. On the one hand, there is the issue of **prior knowledge of the English language,** and on the other hand, the issue of **prior knowledge and experience of sewing.** As will be outlined in this thesis, these two factors determine the success in the interpretation of an instruction sheet.

This study aims to be an assessment of the reading comprehension abilities of first year students in order to promote teaching methods which would include opportunities for mediated learning.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

PART ONE

2.1. Introduction

In the first years of school, reading material is familiar in content and narrative in structure. But later the material is complex and expository in structure, and unless the reader has the tools to deal with the increasing complexities of text, comprehension will suffer (Dymock,1993).

The constructivist approach to reading views learning as a process in which a reader constructs meaning using the text as a blueprint and every input event activates and is plotted against existing knowledge (schemata) as it processed (Bolofo,1990). Thus, according to constructivist views, students are expected *actively to construct* their own knowledge and understanding - for example, making connections, building mental schemata and developing new concepts from previous understandings - rather than to receive knowledge transmitted by their teachers (Goldenberg,1993).

According to Dupuis and Askov (1982), readers have two types of schemata. First they need to understand the structure of a text, namely, the content structure and language structure. A second schema is the reader's goal and purpose for reading. The reader's prior knowledge of the subject area provides the personal

framework or knowledge structure to which he/she can attach new information. According to this view, reading becomes the interaction of the reader with the text. Thus it can be said that the schema theory places heavy emphasis on the cognitive aspects of reading (Dupuis and Askov,1982).

Readers have to be made aware that reading is an active process (Chapman,1983). This view is supported by Cairney (1990), when he says that one of the major challenges for teachers today is being able to create classroom environments which have a strong sense of community, where students will best develop as meaning-makers and where reading and the exploration of meaning, is seen as important and significant.

When reading comprehension is taught by providing worksheets, through skill-based laboratories, or reading aloud from texts (which are generally irrelevant to the learner's experience of the world) educators must not be surprised to find their classrooms or learning situations filled with passive, mechanical readers. These passive readers, let it be said, believe that comprehension is a process which requires them to acquire other people's meanings, rather than attempt to construct their own (Cairney,1990). Part of the task of teaching is to enable learners the opportunity to take charge of their own mental development.

PART TWO

2.2. Cognitive Processing

Cognitive processing, or the process of "coming to know" people, things and ideas, could be divided into three levels (Mseleku,1993). The first level is that of entering cognitive tasks such as computing and memorizing. The second level is known as metacognition and is defined as the processes which are evoked to monitor cognitive progress when an individual is engaged with level one tasks. According to Nickerson *et al.* (1985), there is a difference between having some information in one's head and being able to access it when needed; between having a skill and knowing when to apply it; between improving one's performance and realizing that one has done so. It is in part the recognition of such differences that has led to the idea of metacognition - it is knowledge about knowledge and knowing, including knowledge about capabilities and limitations of human thought processes.

Epistemic cognition is the third and most advanced level of cognitive processing. This level has to do with the processes which are used in order to monitor the "real" nature of a problem and the truth value of alternative solutions. It is knowledge about how knowledge is produced; what its limits are; how certain it is. Epistemic knowledge and metacognition are sometimes used synonymously with each other in the literature, but there is a difference, insofar as epistemic knowledge deals essentially with knowledge production.

Msekelu (1993) believes that a "new approach in teaching strategies" involves input that would directly develop a learner's capacity to monitor her/his own and other people's first level cognition. At universities, the epistemic demands of the various university disciplines have to be made explicit to students so that they in turn may use them to monitor their own engagement in those disciplines. (In other words, underprepared students need to develop tools for self-monitoring in university tasks which are new and unfamiliar to them).

There are several theories relating to cognitive development in humans.

2.2.1. Piaget's Theory

The Piagetian model distinguishes three stages of development (Piaget,1926). The first of these stages is the period of sensori-motor intelligence which extends from birth until the appearance of language (0-18 months). The second stage continues from this time until approximately twelve years and entails the preparation for, and realization of, concrete operations of classes, relations and numbers. This stage is subdivided into a pre-operational stage (2-7 years) and an operational stage (7-12 years). The third stage, that of formal operations, begins at approximately twelve years and achieves its full development about three years later (Piaget,1926).

Each stage is marked by the ability to master certain tasks and to deal with one's experience of the world in certain ways (Nickerson *et al.*,1985). Of particular note to the development of thinking skills, is the manner in which Piaget has subdivided the operational stage into two substages, called the concrete operations and the formal operations. The concrete operations stage is characterized by the ability to deal effectively with concrete concepts and operations but not with abstract ones.

During this stage, the ability to generalize learning is limited; what is learned in one context does not readily transfer to other contexts. Only when the learner has reached the stage of formal operations can one deal effectively with abstract concepts and demonstrate the ability to use reasoning and problem-solving skills in contexts different from those in which they were acquired.

The distinction between concrete and formal operations takes on considerable educational significance because it claims that, firstly, much of the thinking that is required by conventional educational institutions is formal thinking. Secondly, that a large percentage of adolescents and university students have not acquired the ability to engage in this type of learning. Accordingly, instruction to improve thinking based on Piaget's theory, seeks to promote transition to more advanced stages of development, namely to the more formal operational stage. Nickerson *et al.* (1985), addresses this point when he states that :

"whatever developmental gains students make will remain with them after specific learning is forgotten and will permit qualitatively more kinds of learning in the future".

The Piagetian model has its limitations. Perhaps no general formal-operations approach ability exists that empowers an individual to grasp advanced concepts and reasoning in all disciplines and perhaps what Piaget views as an integrated structure is a collection of thinking strategies, some more content-dependent than others (Nickerson *et al.*,1985).

2.2.2. Vygotsky's Theory

Another theory relating to human cognition is Vygotsky's Zone of Proximal Development (ZPD). This zone is defined as the distance between the learner's

" actual developmental level as determined by independent problem solving and the higher level of potential development as determined through problem solving under adult guidance or in collaboration with capable peers" (Vygotsky,1978).

This theory suggests that the ZPD is the space between the cognitive skills the person possesses when entering the teaching-learning situation and those that he/she needs to develop in order to perform the task successfully. According to Vygotsky, it is within this space that development takes place. Thus the

ZPD is not static, because the learner is assisted by the adult/competent peer and therefore the "actual developmental level" is constantly changing. It is this dynamism in the ongoing development of human beings that makes it necessary for any person interested in understanding the level of development of individuals, to constantly operate between the learner's **actual** and **potential** levels of development (Mseleku,1993).

Vygotsky examined the implications of the ZPD for the organization of instruction and argues that instruction should be more closely linked to the level of potential development than to the level of actual development (Vygotsky,1978).

2.2.3. Feuerstein's Theory

Feuerstein's views on cognitive modifiability may also be classified as a theory relating to cognitive development. His approach rejects the notion of immutable inborn abilities as primary determinants of intellectual performance (Feuerstein and Hoffman,1979). Feuerstein contrasts his "open-system" view of human nature with the "closed-system" view which believes intelligence is fixed and constant throughout an individual's life. This approach sees intelligence as a process that is receptive and responsive to external, environmental intervention. He differs from conventional methods of intelligence testing and believes that IQ is of limited usefulness to educators who are interested in producing cognitive change because it gives no clue to the processes that determine the level of an individual's

performance relative to that of other individuals within a normally distributed population. He believes that an indication of the individual's potential for learning is required.

Feuerstein and his colleagues developed an evaluation device known as the Learning Potential Assessment Device (LPAD). This is designed to ascertain the learner's potential by producing cognitive changes during the testing process. This instrument measures a person's susceptibility to change, and does not reflect the current level of an individual's intellectual development. The instrument should not only indicate a learner's level of performance, but also, more importantly, it should reveal the reasons for the individual's performing at that particular level (Feuerstein and Hoffman,1979).

Studies done by Feuerstein and Hoffman (1979) reveal that IQ testing is not only misleading but educationally counterproductive. They conclude, from their results, that low performance levels on such tests often reflect cultural differences and not differences in the ability to learn. They argue that when decisions regarding placement in educational programmes are made on the basis of results from IQ tests, these scores can become self-fulfilling prophecies. When a low performance score leads one to believe that an individual lacks the ability to learn, and this belief leads to the individual being placed with a group of slow learners, the individual will learn slowly.

2.2.3.1. Mediated Learning Experience (MLE)

The key concept underlying Feuerstein's approach/theory is, Cognitive Modifiability. It is not directed merely at the remediation of specific behaviours and skills. Instead, its focus is on structural changes that alter the course and direction of cognitive development. These changes are not changes that result from maturation or the learning of specific skills. Rather, they can be described as changes in the learner's characteristic way of dealing with information. The low achiever, in Feuerstein's view, is one whose degree of modifiability is low. But, in this approach, even low modifiability is itself modifiable: it can be remediated by appropriate training (Feuerstein and Hoffman,1979).

Feuerstein (1980) distinguishes between two types of interaction between an individual and his environment that contribute to the development of cognitive structure. Firstly, direct exposure to stimuli from the environment and secondly, mediated learning experiences (MLE). Although both types of interaction are important, differences in the levels of cognitive development are attributed mainly to differences in MLE. Direct exposure to stimuli is insufficient, even to explain the reasons for many people failing to attain the level of formal operations in Piaget's terms. Feuerstein (1980) claims that without appropriate MLE, the learner is less able to learn from direct exposure to environmental stimuli.

Early deprivation of MLE can impede the learner's cognitive development even when there is a rich source of stimulation from the environment. Such deprivation leaves the learner ill-equipped to relate to and organize events in the environment in order to learn effectively from them. The mediating agent/mediator in MLE, often a parent or teacher, is one who

> ".... mediates the world to the child by transforming the stimuli; selecting stimuli; scheduling them; framing and locating them in time and space; grouping certain stimuli and segregating others; providing certain stimuli with specific meanings as compared to others.....The mediating individual enables the child to extend activities over dimensions of reality that are not in immediate reach either temporally or spatially..... The more an individual has been exposed to MLE, the greater is the capacity to learn, that is, to become modified through direct exposure to stimuli" (Feuerstein and Hoffman,1979).

There are two types of MLE. On the one hand, there are those that involve the transmission of information, values and attitudes (information that represents and can only be obtained from other human beings). On the other hand, there are experiences that are aimed at making the learner better able to learn from direct exposure to stimuli. Feuerstein's emphasis on mediated learning as the key contributor to cognitive development represents a major difference between his ideas and those of Piaget. Piaget gives little recognition to the role of the parents,

grandparents, teachers and child-rearing agents, whereas Feuerstein considers the role of such people to be both central and critical. According to him, human development cannot occur in the absence of the type of learning that such agents mediate (Feuerstein,1980).

2.2.3.2. Feuerstein's Cognitive Deficiencies

The objective of MLE is not merely to train the learner to master a specific set of skills that will enable him/her to function in a specific manner, but rather to develop the learner into a state of modifiablity. This redevelopment should ensure that the individual is able to adapt to changing environments instead of adapting the environment to specific needs of a "slow learner/performer" (Feuerstein,1980). Cognitive deficiencies/dysfunctions are perceived to be a lack of or insufficiency of MLE. The cognitive dysfunctions may not be completely absent from the cognitive repertoire of the learner, but may also be regarded as elements which are weak and underdeveloped.

The mental act comprises three phases, namely the **input,** the **output** and the **elaboration phases.** According to Feuerstein (1980), the classification of the deficient functions into three broad categories should be understood as an artificial classification as the three phases of the mental act cannot be regarded in isolation from each other. The cognitive dysfunctions are categorized into four categories. These include impairments

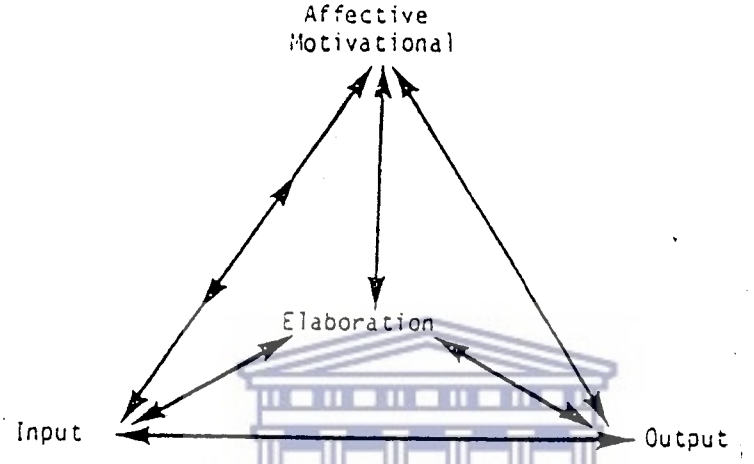
in cognition at the **input phase**, the **elaborational phase**, the **output phase** and the **affective-motivational factors**.

Impaired cognitive functions influencing the **input** phase entail those dysfunctions related to the quality and quantity of data collected by the learner as she/he attempts to solve the problem initially. These impairments include, among others, blurred and sweeping perception; unplanned, impulsive behaviour; lack of or insufficient verbal tools; lack of impaired spatial orientation; and lack of precision while gathering data (Feuerstein,1980).

Impaired cognitive functions impinging at the **elaborational** phase entail those factors that constrain the learner from making efficient use of the available data. Some of the factors mentioned by Feuerstein (1980) are: narrowness of mental field; inability to select relevant cues to solve the problem; difficulties in projecting relationships; and non-elaboration of some cognitive categories because the concepts are not part of the individual's vocabulary on the receptive level or are not yet internalized to be utilised at the expressive level.

Impaired cognitive functions affecting the **output** phase consist of those factors that result in insufficient communication of the outcome of elaborative processes. Some of the factors in this category are: egocentric modalities; trial-and-error responses; deficiency of visual transport (Feuerstein,1980).

The affective-motivational factors affecting cognitive processing involve attitudes which may affect the general participation in the cognitive task. It must be realized that the phases of the mental act (the input, elaboration and output phases), affect each other and are not in a linear relationship with each other. This is visually illustrated by the graphic model below (Feuerstein,1980).



Relationships among the three phases of the mental act (Feuerstein,1980)

The input and output phases are regarded as playing a less important role than the elaborational phase, which plays a major role in cognitive processing. Dysfunctions in the input and output phases do not impair a learner's cognitive processing to the same degree as dysfunctions in her/his elaborational system because it is elaboration that determines cognitive behaviour. Deficiencies in the input and output phases may exist, but if the learner is capable of elaborating, the barriers obstructing the regular channels of input or output may be overcome successfully (Feuerstein,1980).

2.2.4. Schema Theory

The reader's prior knowledge is known as **background knowledge** while previously acquired abstract knowledge structures (such as frames, text plans and change of events) are known as **schemata.** A schema may be considered as a cognitive structural representation of an entity of objects, events or situations (Sinclair,1986 and Dupuis and Askov,1982). Kozminsky and Hoz (1992) describe the schema of a concept (which may be an object or an event), to be a knowledge package that represents all the information elements associated by an individual with that specific concept.

Thus, when information is encountered, the reader attempts to understand it by filing it into slots of appropriate schemata. New information can only have meaning if it can be related to something the reader already knows and a text provides cues on how the reader should construct meaning from prior knowledge. Comprehension depends on how the reader interprets the text, and therefore two readers whose reading skills are comparable but whose prior knowledge varies significantly, will, according knowledge, will, according to the schema theory, have different levels of comprehension of the same text.

Reading is regarded as a construction process rather than one of receiving information. According to Sinclair (1986), one transforms knowledge and links it to prior knowledge and uses it to build a coherent interpretation of the world and its events.

A reader with a well-developed schema about a topic can easily slot the newly-acquired information into that schema: therefore text processing proceeds more rapidly as more inferences can be given to many pieces of information. Research indicates that extreme cases of inadequate comprehension were caused by a failure of relevant schemata to be activated. Research found improvements in comprehension and recall when there was prior knowledge of the subject.

An important point is that, while individuals need not differ in knowledge necessary for understanding, and in the presence of basic goal structure knowledge, they can differ (and this is most significant) in the richness or degree of elaboration of their schemata.

Schematization takes place by means of two methods of information processing, namely, bottom-up and top-down processing. Schemata are organized in such a way that the most specific information is at the bottom and the more general and abstract at the top.

Bottom-up processing is stimulated when incoming information is recognized by word features. Matlin (1989), believes that at all levels of reading comprehension there is an interaction between bottom-up processing (the processing of physical stimuli) and top-down processing (the context provided by expectations and prior knowledge).

Sinclair (1986), states that recognition consists of interrelated sub-processes. There are three main sub-processes. These sub-processes work in unison rather than consequentially. The processes are: **word encoding**, which entails feature extraction and synthesis in an internal representation; **textual access, which** is the mapping of the newly synthesized representation onto an existing memory representation; and **semantic memory access** which leads to lexical representation of semantic memory.

The bottom-up processing ensures that the reader remains alert to incoming information which is new or which does not fit into the content or the structure of the text. This type of processing is characterized as data-driven because of its data-based nature.

Top-down processing is stimulated at the lower level of the schemata, before moving upwards into higher order schemata which facilitate the reader to resolve problems such as ambiguities and the selection between alternative interpretations. This type of processing is characterized as being conceptually driven due to its higher order conceptual operations (Sinclair,1986). According to Boughey (1993), top-down reading strategies include prediction and confirmation of hypotheses.

Relevant background knowledge and knowledge of text structure allow readers to form a series of predictions about the meaning of the text as they read. Thus reading becomes an active process through the utilization of information which exists in the text at different levels in order to confirm or reject hypotheses. The

use of top-down strategies are closely linked to affective factors, such as attitudes towards reading and the individual's personality. If readers have not been taught or encouraged to use these strategies, they often find themselves caught up in the language of the text and fail to construct adequate meaning from the text (Boughey,1993).

Prior knowledge may be categorized into three broad classes, namely, **domain-specific knowledge** (subject knowledge), **world knowledge** (general knowledge which includes communicative parameters which are related to social norms and values), and **knowledge of rhetorical structures**. The last type of prior knowledge constrains the form of written communication (the literal language structure which may be seen as a restriction when writing although not when oral communication takes place). This type of rhetorical questioning will be a mechanism to ensure that the reader back-tracks (re-reads the text) (Sinclair,1986).

When the information in the text is linked to prior knowledge, two cognitive processes come into play. Firstly, learning processes which occur automatically and without conscious awareness. These are skills upon which successful interpretation of the text is based and they include the processes drawing inferences and constantly linkages. The second set of processes in the comprehension of text includes those that are open to manipulation by the reader. These include strategies used by the reader to understand the text. Examples are the construction of

hierarchies of knowledge, in which consecutive layers of subordination and words are used to create a comprehensible representation of the text.

A major reason for the lack of comprehension of a text may be that the text schemata are culture-specific and may therefore be foreign to the reader. As previously mentioned, comprehension does not take place in isolation. Therefore the reader interprets the text with his/her social and cultural convictions. This, of necessity, influences comprehension. Research has shown that readers with different backgrounds and expectations interpret text differently (Sinclair,1986). Feuerstein and Hoffman (1979), make a sharp distinction between the culturally deprived and the culturally different. In the case of the culturally different, the lack of schemata may be in terms of a cultural difference in verbal and/or linguistic styles only. By contrast, the culturally deprived reader may not have the basic concept although he/she may have heard the term previously. For effective learning to take place, the new knowledge should be linked to existing knowledge, thus forming an integrated base of knowledge and **not** various compartments of knowledge. If newly acquired knowledge is not **linked** to existing knowledge, **memorization** rather than learning occurs and this does not expand the knowledge base.

2.3. Language Processing

2.3.1. The Development of Reading skills

Language is the medium whereby knowledge is transmitted and when a conducive language atmosphere is created, the child's perception of reality is increased. When parents do not constructively and consciously work on creating this type of environment, such a child may be regarded as having a learning problem (Luttig,1993). Holt (1980), confirms this notion when he claims that one reason that children who come from unlettered homes are at a disadvantage when they start learning to read, may be that the shapes of the words and the letters may be unfamiliar to them.

Language is an integral part of thought processes and it would be difficult to imagine any kind of civilization which excludes a form of language (Matlin,1989). Language can be regarded as the basis of thought, and thinking as "talking to oneself". In this way language and thought are interrelated in many ways.

Reading is a manifestation of one's ability to communicate through language and thus can be seen as a confirmation of language acquisition (Chapman,1983) and reiterates the fundamental relationship between language and thought. This is pithily expressed as follows by Chapman (1983):

> " Thought is not merely expressed in words; it comes into existence through them".

Sparks *et al.* (1992), found that poor readers (reading-disabled readers) exhibit semantic deficits in much the same manner as language-impaired children.

The psychology of language has become an important area according to Matlin (1989), as the current emphasis in language studies has shifted to its cognitive aspects, especially focusing on the processing of language. This entails problem-solving because information contained in the problem must be combined with prior knowledge in order to solve the problem successfully. Because humans are active information processors, they actively consult previously acquired and stored information by making use of various strategies. They compile a mental image of the expectations of the problem, make inferences and draw conclusions.

In short, language users constantly retrieve background information, solve problems and use reasoning. Language is not an isolated system as it depends heavily on other cognitive processes (Matlin,1989).

Increased emphasis has been placed on reading instruction. This is as it should be (Duffy and Sherman,1977). Reading is the most crucial of the fundamental skills: a child's success or failure in both school and society depends largely on the ability to read. Thus parents and instructors must ensure that all children can read well enough to function adequately in society.

Reading is an act of communication. When someone has something to say and the audience is absent, the person must communicate indirectly via the written word. This system works well if the audience receives from the writing on the paper the same message as that intended by the author. This resurrection of making writing "speak", is the primary difference between reading and listening. The goal of each is to receive a message, but the reader must first decode the written page into language before the message can be understood (Duffy and Sherman,1977). Thus Perfetti (1985) says,

" Reading is listening plus decoding".

Traditional reading methodology has concerned itself with the two elements of the reading process "**word recognition**" and "**comprehension**" (Duffy and Sherman,1977 and Perfetti,1985). Although these two concepts do accurately represent the goals of instruction (firstly, making the message speak; secondly, understanding it), they tend to separate the two elements from each other and to hide the interactions that exist between them. These interactions are vital and can be readily seen by defining the reading process as a psycho-linguistic guessing game or three games played simultaneously by the reader (the SRI Reading Model). Each game consists of signals that can be described as the rules of the game. These signals help the reader to predict the written message and facilitate both word recognition and comprehension acts. A good reader has these three sets of signals under control and uses each with appropriate speed and precision.

The weak reader either lacks basic skill in one or more sets of signals or exaggerates one set to the detriment of the other two.

The **graphemic** signals are the first set of signals which comes from the printed letters and words. The reader looks at these and reads because he/she recognizes and remembers words from the way they are spelt. This skill is called the graphemic or spelling process. Its application moves the words from the page into the reader's head.

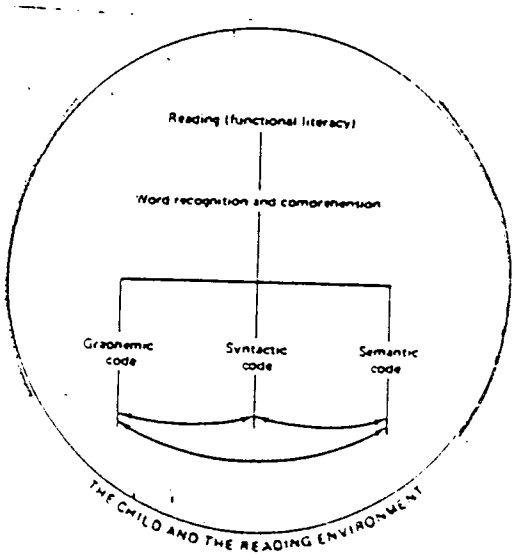
The second set of reading signals comes from the **syntactic** or grammatical structure of a particular language. The words from the page are translated and processed into, for example, English syntax and predictions are made as to where the message is going and which words it will contain. In the words of Duffy and Sherman (1977),

> "the message leaps from the page in grammatical chunks rather than just limping along from word identification to word identification,..... The good reader guesses her/his way through the passage, using spelling and syntactic codes, each of which helps to make the other prediction more accurate".

The third guessing game is played at the meaning or **semantic** level. Words grouped in phrases, sentences or paragraphs share grammatical structure as well as common content. Each contributes to the meaning of the message. Constant feedback from the graphemic and syntactic systems allows the reader to verify or

reject these predictions. The better the reader's understanding of the content of the message, the better will be his/her predictions of future word identifications and grammatical forms. The better the reader's ability to apply each of these signals simultaneously, the better his/her total reading development will be.

The SRI reading model shows that reading to the level of functional literacy has dual goals of word recognition and comprehension which require emphasis on three coding systems, namely the graphemic, the syntactic and the semantic. Although these can be arbitrarily separated for the purpose of discussion and instruction, they are interconnected and interrelated, as shown by the lower arrows. Skills learned in each system blend not only into that system but also into the other two, creating a gradual but steady progression from illiteracy to literacy. All the considerations of the reading process must be viewed from the context of the individual reader (thus the encompassing circle). The degree of emphasis on one operation or another varies from reader to reader, depending on the background brought to the reading situation. According to Henry (1993), research continues to indicate that word recognition is the fundamental process of reading. While most educators would agree that the goal of reading is comprehension, many would argue that word recognition skills become the means for comprehending text (Henry,1993).



The SRI Reading Model (Duffy and Sherman,1977)

Learning to read does place emphasis on word identification, but it is essentially a communication process in which the obtaining of meaning is of primary importance. As can be seen, the skills of comprehension reflect the syntactic and semantic codes discussed in the SRI Reading model above.

2.3.2. Factors Affecting Text Processing

2.3.2.1 Qualities of the Text

According to Mandl *et al.* (1984), a crucial question in the study of reading centres around how the reader constructs a mental representation of the text similar to that intended by the writer. The writer uses topics, vocabulary and writing patterns

aimed at the specific writing task. The text is thus a cognitive representation in the mind of the writer, and the readers are expected to use their world knowledge in order to simulate a similar mental representation.

When students try to comprehend and learn from written texts, they often work under the combined handicaps of having limited knowledge of the subject matter and limited acquaintance with the genre they are reading (Mandl *et al.*,1984). According to Boughey (1993), genre in language takes into account the socio-cultural environment in which the text is written, thus resulting in different types of knowledge of text structures and genres because of different types of childhood experiences.

The quality of comprehension may also be explained in terms of the depth of information-processing which is involved in the reading process. The following text-processing strategies were displayed by some junior college students (Mandl *et al.*,1984).

Atomistic (line by line) processing: this type of processing focuses on the sequence of the text without attempting to establish relationships between the given facts. Students who make use of this type of processing memorize detail and explicit information but there is a lack of comprehension of the passage as a whole (Bolofo,1990).

It must be realized that text, especially expository text, is not just a series of sentences and paragraphs as it is a hierarchy of content, which implies that some facts are superordinate or,

on the other hand, subordinate to other facts or statements (Mandl *et al.*,1984).

2.3.2.2. Qualities of the Reader

2.3.2.2.1. Availability of Schema

Readers do not interact with texts in isolation but they also interact with and are influenced by the macro-environment in which they are situated, which includes the socio-economic, the political and the technological environments. Because text does in itself not have any meaning, the meaning must be provided by the reader who is influenced by these above-mentioned environments and therefore comprehension depends on how the reader interprets the text (Sinclair,1986).

Chapman (1983) illustrates the importance of prior knowledge when he says:

> " A skilled reader will be aware, when selecting a book from the library shelves or buying it from a bookshop, that it is fiction or non-fiction. His prior knowledge of different types of text guides him in this. If, for example, he chooses Salinger (1958) The Catcher in the Rye, no matter what his purpose was in its selection his anticipation of what is to be read is causing predictions to occur before he even reads the first page. He may already know something of the author, what style he employs and so on. In other

words, he begins to set the scene for reading by alerting his memory schemata in various ways."

Schemata can therefore be seen as collections of interrelated facts, gathered from, amongst others, the reading of specific texts and which have been built up over a long period of time and stored in memory. These schemata are constantly addressed, up-dated and amended.

Perfetti (1985) states that when texts are not specific in reference, interpretation is guided by the reader's experience. And when the text is specific, the quantity and quality of comprehension is restricted by the reader's general experience. These are not experiences that produce the means for understanding specific types of text. Thus, the more one knows about everything, the more one will be able to read anything. Reading ability then becomes non-distinct from general intellectual ability; therefore, one, can with justification, look at both adults and children, and describe their verbal intelligence and reading ability in much the same way.

2.3.2.2.2. Skilled versus unskilled readers

For students to be successful learners, they need powerful problem-solving strategies which include reading and thinking skills (Mandl *et al.*,1984). When students attempt to comprehend and learn from written text, they may work with two specific handicaps, namely, lack of prior knowledge of the subject matter

contained in the text and/or unfamiliarity with the type of word patterns or the vocabulary in the text. This handicap (undeveloped or underdeveloped schemata) leads to a deficient mechanism of organization for the memory storage (which serves as a guide for inferencing in relevant channels).

The objective of reading is to have students make texts understandable to themselves (McKeown *et al.*,1993). As they meet obstacles, competent readers first recognize them as such and then take steps to repair the problems. The steps readers take to solve problems are called "reading strategies" (McKeown *et al.*,1993).

For success in comprehending text, the reader must not only be able to divide or segment the content into meaningful idea units (nodes), but also be able to recognize, associate and affiliate these ideas in relation to each other by using the prepositions provided in the text (Sinclair,1986). **Causal relationships** may be suggested by prepositions such as "because; since; due to; in order for/that". **Temporal relationships** may be established by the following prepositions, "first; next; then; later; earlier". **Temporal conclusions** may be described by "to sum up; in conclusion". **Contrastive elaborations** may be identified by "however; whereas; on the other hand; rather than; respectively". **Additive conjunctions** may be determined by words such as "in addition to; not only .... but also". And **exemplary conjunctions** are illustrated by "for example; with reference to". The identification and establishment of the above-mentioned

relationships is only possible if the student/reader has a developed schema (the theory was discussed under 2.2.4. in this paper).

According to Mandl *et al.* (1984), skilled readers construct scenarios or narratives (stories) to facilitate the comprehension of text while Sinclair (1986) believes that paraphrasing and problem-solving approaches are used by skilled readers in order to understand the text. Mandl *et al.* (1984) observe some of the following strategies used by skilled readers: **ongoing summarization** which entails the conscious creation of macro-structures. Another process used is known as **strategic backtracking** which is used by both skilled and unskilled readers although the more skilled readers appear to backtrack up to the point where the information that is required is located, while the less skilled readers only re-read up to the beginning of the sentence where the problem is encountered. Skilled readers use a strategy called **problem formulation** in which they formulate their difficulties as problems. This is said to have strategic value as it makes the reader explicitly aware of problem solving procedures which are required to find a solution to the problem. **Setting up "watchers"** is the method used by readers to activate "signals" until this information is located, sought or obtained.

Dymock (1993) believes that "word calling", (sounding but not understanding the word), may be due to the failure of some learners to pick up metacognitive strategies. Such failure may lead to serious reading problems.

Mature students approach sentence arrangement by tentative placements and by making provisional groupings. Rereading, rechecking and summarization of text also occurred frequently. They were also found to make use of meaning-based inferences and connections during text processing. It is not unreasonable to suppose that the comprehension processes used by immature readers in terms of sentence arrangement (argument overlap and very vague general effect), are those used in normal reading and writing which enables them to achieve a level of coherence through a limited process of text meaning (Mandl *et al.*,1984). It was found that mature readers make representations and diagrams which consist of high-level nodes which represent topics and are directly linked to low-level nodes representing the detail in the text.

Skilled readers rather than unskilled readers are likely to make inferences on pairs of sentences (Matlin,1989).

According to Nickerson *et al.* (1985), the basic cause of poor comprehension among unskilled readers is failure to attend carefully to meaning. Grant (1993), believes that by improving readers' text processing strategies one can also improve their comprehension of content.

Sinclair (1989), believes that experts are likely to organize their knowledge on the basis of concepts, principles and abstractions that reflect a deep understanding of the domain, whereas novices are more likely to organize their conceptions of

a problem around literal objects and relationships explicitly mentioned in the statement of the problem.

There are three different types of strategies involved in the reading process, namely, the structure strategy, the default/list strategy and other strategies (Mandl *et al.*,1984). The structure strategy is hypothesized to be the dominant reading strategy used by skilled readers. Processing activities involved in the structure strategy are intent on the search for text-related propositions provided in the text. There is the utilization of operational methods which will enable the reader to accumulate large portions of information and summarize the material into a comprehensible whole. Thus they search for a primary thesis and its supporting details (Mandl *et al.*,1984).

Thus, the low-ability reader is one who has too few useful schemata to be able to comprehend very many tasks. If, however, a reader has acquired a sufficient number of useful schemata, but for some reason the correct schema for a given text is not activated (referred to as schema selection), the text will be difficult to understand. Something in the text must trigger some other knowledge, at which point the rest of the text becomes clear. This may be the reason for reading problems in low-ability (unskilled) readers. Schema flexibility, on the other hand, refers to a reader who fails to accommodate schematic knowledge in respect of specific text information or fails to apply different schema when necessary.

The application of schemata to a theory of reading ability might turn out not to be a matter of having schemata or even the selection of a correct instead of an incorrect schema, but rather of knowing there are control processes to apply to texts that help get schemata activated (Perfetti,1985).

Buffler and Allie (1993) agree that there are differences, which have been revealed in investigations between experts and novices. They found that the differences may be discussed in the following manner: When an expert is presented with a problem, the person will perform a qualitative analysis of the problem and identify the underlying principles and concepts. The analysis is enhanced by the way in which the knowledge store of the expert is arranged and mobilized. This store is essentially arranged hierarchically and concepts are strategically linked and categorized according to commonalities and distinctions. After this qualitative analysis, the appropriate operations are employed.

On the other hand, novices generally perform a backward-looking-means-end analysis which focuses primarily on the manipulation of isolated ideas from the beginning of the problem-solving process. This approach results from a limited use of conceptual knowledge when solving problems and is driven by an emphasis on obtaining an answer. The knowledge store of a novice is characterized by a random conglomeration of facts with very little conceptual meaning (Buffler and Allie,1993).

PART THREE

2.4. The underlying premises of the study

Quicke (1992) agrees with Dewey (1910), who observes that "thinking is the power of following up and linking together the specific suggestions that specific things arouse". Bearing this in mind, the teacher's role is to encourage learners to make use of existing concepts, knowledge and experience when attempting to solve a new problem. In assisting learners to maximize this transfer, the teacher tries to encourage learners to become more aware of their thinking and learning processes; in other words to operate at the metacognitive level. The role of the teacher is to provide tasks which both evoke and challenge a pupil's thinking habits. For Quicke (1992), the "artful" teacher familiarizes herself/himself with the learner's normal way of thinking so that "she/he knows when and how to challenge and when to offer support". In Vygotsky's terms, this is equivalent to understanding the learner's ZPD - a stage when the learning task is within the learner's reach and could be completed with suitable help from the teacher (Quicke,1992).

When the question "What do underprepared students need?" is posed, Mseleku (1993) responds that these students be given a chance to perform university tasks aided by an adult/expert, who knows the demands of university tasks. Practioners in the academic development and teaching fields should see their main role as working in the ZPD of the Vygotskian school of thought,

and/or on MLE discussed by Feuerstein, and providing the necessary "scaffolding" or mediation.

Research in reading comprehension has drawn heavily from schema theory (Dupuis and Askov,1982). Since comprehension is the focus of any content study in which reading is used as a vehicle for gaining knowledge, reading comprehension is of utmost importance. Therefore instruction in reading comprehension as it relates to a content area is essential (Dupuis and Askov,1982).

According to Bond *et al.* (1979), to read means to read with understanding. To accomplish this, there must be comprehension of words, thought units, sentences, paragraphs and longer texts. With the progression in reading, reading comprehension becomes superior to listening comprehension. The aim of reading comprehension instruction should be to reach this level as soon as possible (Bond *et al.*,1979).

A frequent cause of reading failure is that teachers have not been adequately trained in the skills of reading. Because teachers do not have these skills, they are unable to teach them, and even when a teacher does know them, instruction is often too inefficient because the instructor lacks a system for determining what skill each learner needs at a given moment and lacks the instructional strategy for teaching that skill (Duffy and Sherman,1977). Chapman (1983) agrees with these sentiments when he states that if higher standards of literacy are to be

achieved, then the knowledge of those teaching literacy needs to rise considerably because as Chapman (1983) pointed out,

" ***You can't teach what you don't know***".

Just as students need physical access to good teachers, facilities and materials, they also need mental access to a wide variety of high-order knowledge, accessible representations and rich contexts that facilitate activation of relevant knowledge. Just as unfortunate social practices often deprive students of physical access, unfortunate educational practices often deprive students of the mental access they need (Perkins *et al.*,1990).

According to Chapman (1983), once a child is taught to read in primary school, it is as though he/she can go through life without any further teaching support from the educational system. It must be realized that the concept of reading includes a far broader framework of skills than "sounding letters". Too often, education does not offer access to areas of knowledge vital to building explanation structures. While many texts and structures reliably provide the "facts", the construction of understanding requires more problem-solving strategies. Epistemic principles ("rules of the game") are not addressed at all in typical instruction situations. Those students who manage to understand do so by picking up these matters on the side or by "reading between the lines". Special avenues of access are not discovered by many other students (Perkins *et al.*,1990).

Nickerson *et al.* (1985), state that the basic cause of poor comprehension among unskilled readers is failure to comprehend text, and they believe that these skills can be taught. Several studies suggest that children can improve their reading skills, learn to make inferences, to generalize and to make logical assumptions at an early age if they receive systematic instruction in these skills. Perfetti (1985) suggests that those who are learning to read should receive from the teacher both vocabulary enrichment and background knowledge relevant to the written texts being used. The acquisition of this type of knowledge in and out of school is part of what will make a student good at reading comprehension.

According to Perfetti (1985), the problem of teaching comprehension is serious and he suggests that it would be better to teach comprehension and to strengthen decoding skills rather than having to choose between them.

Teachers who are able to demonstrate "how to think", test the competency in every unit of the problem and provide corrective feedback at exactly the place where the cognitive process broke down. Therefore the instruction provided to the learner should be explicit and overt. According to McKeown *et al.* (1993), instruction to teach students to use strategies has taken a number of forms, but the most common core may be described as explicitly labelling the strategies, discussing their purpose, teaching them to students and having students practise applying them. By presenting and modelling strategies in this way,

students are provided with valuable scaffolding to support them in their reading interactions.

In areas where students tend to have little relevant prior knowledge, such as learning critical reading skills, it will benefit even middle-level or high-performing students if each step is made as explicit as possible.

Boughey (1993), suggests that a positive way teachers/lectures can help their students is by ensuring that relevant background knowledge is available and is activated before students read the text. Research has proven that to achieve this the reader must **do** something to activate appropriate prior knowledge before actually reading the text against the background of that activated knowledge. Before reading the text itself, students must be taught to, firstly, identify a purpose for reading a particular text by setting questions to be answered while reading. Secondly, students may be trained to make use of headings and subheadings in conjunction with diagrams, flow charts or pictures in order to predict what the text is about. Thirdly, readers must pay attention to abstracts and introductory paragraphs. Fourthly, students must share their prior experiences on the topic with the class.

Boughey (1993) not only recommends that students be trained to do something **before** reading but also to do something **after** the reading in order to synthesise knowledge gained from reading the text with existing knowledge.

Sinclair (1986), recommends instruction in critical reading skills must include, amongst others, a theory of intervention that prescribes the actions to be taken by an instructor to activate the learner's acquisition processes and to provide relevant external information. Intervention aim to modify the learning material (to facilitate learning), and also the learner's processes, to enable her/him to learn from texts with covert meanings.

At this stage, the field of education requires a full exploration of the schema theory for the purpose of remedial teaching, using as its base of principles, the notion of cognitive modifiability which can be brought about by intervention (the mediated learning experience).

If one wishes to link onto the existing knowledge and experiences of students, new knowledge should be presented in a deconstructed format in order to allow the process of construction to take place. Any topic presented to students should involve a combination of the lecturer's and the students' thoughts on the subject.

Another possibility to explore further is the assumption that shorter sentences and explanations would be more appropriate for students at first year level, especially if the medium of instruction is not the mother tongue.

The particular method used for instruction implies a new vision which entails a strategic process in which the teacher teaches not only the content but also the strategies required by that content to make learning meaningful, integrated and transferable (Sinclair,1989).

If students are to be successful in learning situations (in which they are handicapped by lack of knowledge of the subject area and by limited familiarity with the genre they are reading), they need powerful problem-solving strategies. Studying their existing strategies and how these compare with expert problem-solving strategies, would seem to be a crucial first step in building a developmentally sound programme of instruction.

Part of the process of transforming universities into "accessible cities" would have to include multicultural curricula that draw on the diverse capital of students of different backgrounds according to Sudworth (1993). The diversity of South African society would be reflected at the level of course content, academic skills development, and assessment methods, all directed towards developing high standards of academic scholarship. Sudworth (1993) states that: "Multicultural education is an education that uses methodologies and instructional materials which promote equity of information and high standards of academic scholarship in an environment that respects the potential of each student. An education that is multicultural conforms to the highest standards of educational practice: the use of well-researched content that is up-to-date; the

presentation of diverse indigenous accounts and perspectives that encourage critical thinking; the avoidance of dated terminologies, stereotypes, and demeaning, distorted characterisations; and the use of intellectually challenging materials presented in an environment of free and open discussion. In short, multicultural education is a restatement of sound educational pedagogy and practice that requires the collective representation of all cultures and groups as significant to the production of knowledge" (Sudworth,1993).

And thus, it may be said that a central issue facing higher education involves the seeking of a relationship between the student as learner (whatever his/her personal or occupational intentions), and the manner in which an institution organizes itself and offers its curriculum (whatever purposes the institution envisages) (Barnett,1992).

CHAPTER THREE

METHODOLOGY

3.1. Method of Data Collection

A questionnaire was used as the basis for collecting data. A transcription of the questionnaire used in the study may be found in Annexure Two (Appendix,p113).

The questions attempted to elicit responses which may be used to establish the levels of comprehension displayed by students as they attempt to interpret a section of a commercial pattern.

The questionnaire consisted mainly of multiple choice questions. By using this type of questioning, the researcher hoped to overcome difficulties in the elaboration and output phase discussed in Chapter 2 (2.2.3.2.) in this paper. The response rate would have been adversely affected if the respondents had been unable to express themselves in a written form. The respondents would have felt threatened, embarrassed, insecure or inadequate if they lacked writing skills. Another reason for using this type of questioning, is that it is a quicker method of answering a questionnaire, which in itself proved to be a daunting task, since they were not familiar with the researcher.

In order to substantiate the results obtained from the responses to the questionnaires, four thinking-aloud protocols were conducted.

3.2. Selection of the Sample

All first year students registered for the Human Ecology course were used for the study. There were thirty-seven respondents.

The reason for using first year students is that they have had no experience of Clothing Construction tuition at university level. Their responses would provide an indication of the extent of this group's prior knowledge. Furthermore, the responses will highlight the point of departure in the teaching-learning situation. According to Vygotsky this is the ZPD. According to Feuerstein, this is the point at which mediation should occur.

3.3. Entry

The researcher teaches in the Department of Human Ecology at UWC and therefore access to the population is facilitated. A letter was submitted to the Department in which permission was requested to make use of the students, see Annexure three (Appendix,p118).

As students often experience problems relating to commercial patterns, the researcher found that they, the students, readily engaged in discussions on this topic.

3.4. Findings

The data were collected in the first week of the academic year. All thirty-seven first year students (of whom only one was a male student) completed and returned the questionnaires to the researcher, who was solely responsible for the distribution of the questionnaires.

The questionnaire was completed by the students in "lecture time", in order to ensure that all the students would be present. The researcher read the instructions to the students whereafter they were asked to complete the questionnaire. The researcher remained in the venue until all the students returned the questionnaires, thus making herself available to answer any questions which students had.

Although the questionnaire does not contain a question relating to the geographical origin of the students, the researcher obtained information in this regard in order to describe the population more broadly. The following table visually illustrates the geographical origin of the class grouping:

GEOGRAPHICAL ORIGIN OF THE FIRST YEAR STUDENTS

NUMBER OF STUDENTS	RESIDENCE
14	Cape Town and surrounding areas (including Vredenburg, Stellenbosch and Paarl).
8	Transkei
3	Uitenhage
2	Ciskei
2	Johannesburg
1	Durban
1	Kwandebele Homeland
1	Nelspruit
1	Zimbabwe
1	East London
1	Port Elizabeth
1	Cradock

Responses to **Questions 1 -5** may be summarized as follows:

Question 1 :

What is your age group?... (19-21/22-25/26-30/other please specify.....

AGE GROUPINGS

19 -21	22 -25	26 - 30	OTHER
18 students	8 students	1 student	10 students

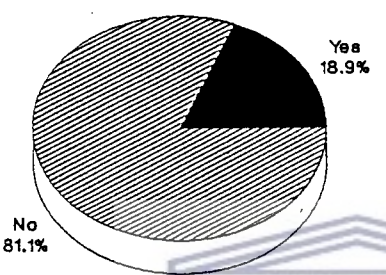
The responses to the "Other" option may further be classified, thus :- four students, (10.8%), were 18 years old, three students, (8.1%), were older than 30, namely 33,34 and 36 years of age respectively.

Question 2:

Is English your First Language? .... (yes/no)

Seven students (18.9%) indicated that English was their first language while thirty students (81.1%) responded that English was their second language. This is visually represented by Figure One.

FIGURE ONE
ENGLISH FIRST LANGUAGE

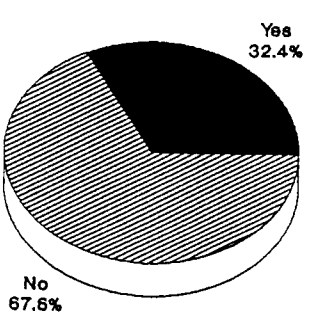


Question 3:

Did you do Needlework as a subject at High School?.... (yes/no)

Twelve students (32.4%) had done Needlework at secondary school while twenty-five students, (67.6%) had not done Needlework at secondary school. Figure Two illustrates these findings.

FIGURE TWO
NEEDLEWORK AT HIGH SCHOOL

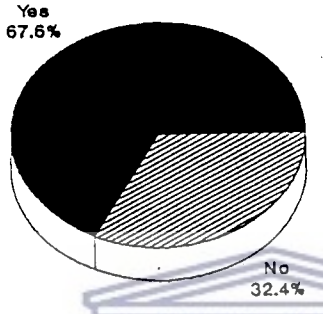


Question 4:

Do you ever sew at home?.... (yes/no)

Twenty-five respondents (67.6%) indicated that they do sew at home, while twelve students (32.4%), did not sew at home. This is depicted by Figure Three.

FIGURE THREE
SEW AT HOME

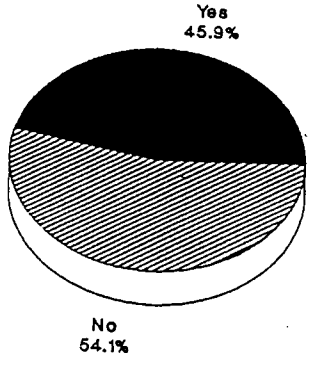


Question 5:

Have you ever made a garment by making use of a commercial pattern?.....(yes/no)

Seventeen students (45.9%) responded positively to this question while twenty students (54.1%) responded negatively to the question. The pie graph, Figure Four, visually represents these findings.

FIGURE FOUR
NEEDLEWORK AT HIGH SCHOOL



A section from an instruction sheet followed these five questions and questions relating to the instruction sheet were found in the remaining section of the questionnaire. For the purpose of analysis, the questionnaires were then divided into two sections, namely, the "**content questions**" and the "**interpretation or opinion questions**". The "content questions" related to the content of the instruction sheet which had to be correctly answered. The "interpretation or opinion questions", were questions in which the respondents were asked to provide reasons for the selection of the answers to specific questions.

The scores for each student were calculated out of a maximum of fifteen "content questions". The questions included in this section were questions numbered: 1.1.1; 1.1.2; 1.2.; 1.3; 1.4; 1.5; 1.6; 2.1.1.; 2.1.3; 2.1.4; 2.2; 2.3; 3.1; 3.2. and 3.3.

The "interpretation or opinion questions" consisted of questions numbered: 2.1.2, 2.1.5 and 3.4.

3.4.1. Frequency Tables

The questionnaires were coded and scores for individual respondents were recorded. Analysis found that the total average score of the respondents to the "content questions" was 50.63%. Figures Five, Six and Seven represent the average scores obtained in each of the fifteen "content questions". The x-axis (the base of the graph), represents the individual question numbers. The y-axis (the vertical side of the graph) represents the average **percentage** of correct responses to the specific questions.

FIGURE FIVE
CORRECT RESPONSES

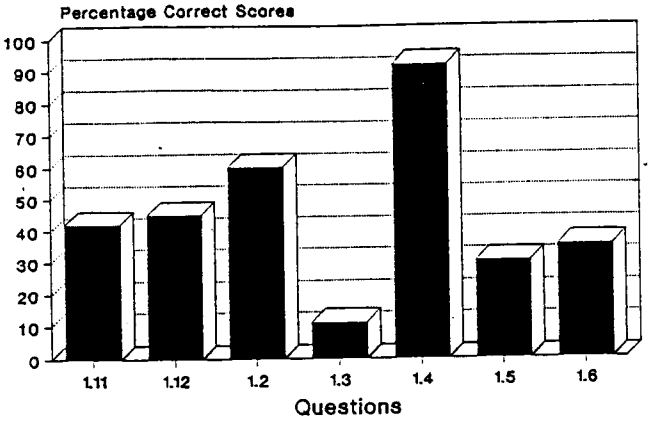


FIGURE SIX
CORRECT RESPONSES

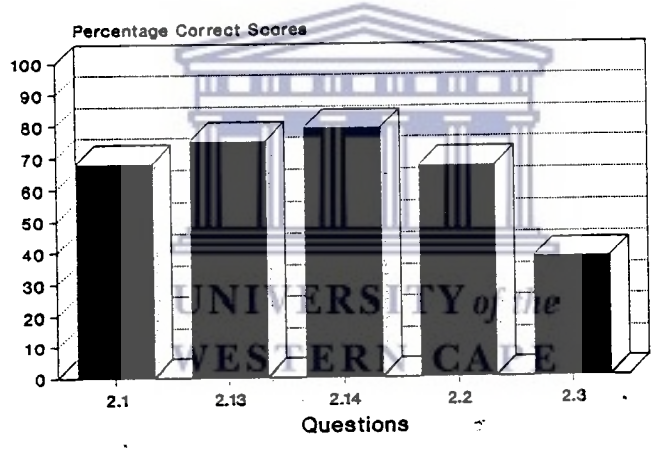
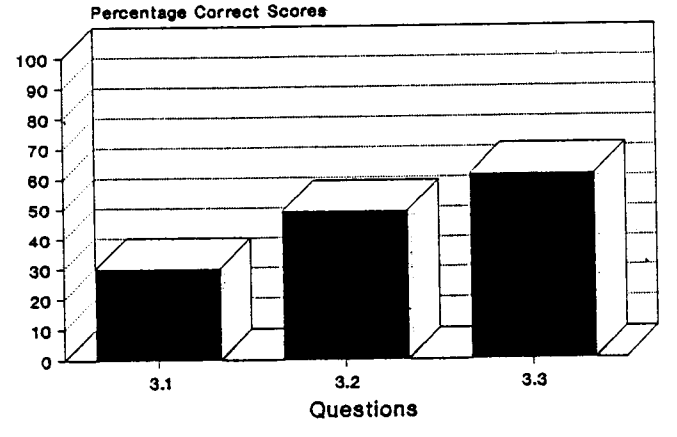


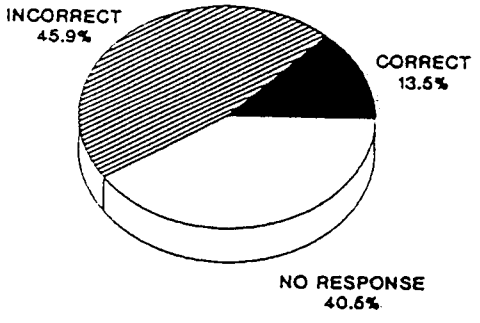
FIGURE SEVEN
CORRECT RESPONSES



The graphs show that Question 1.3. caused the most difficulty. Question 1.3. **Using the instruction sheet which was provided, write the word "facing" (or 1.3.) on the section (place) that you think the instructions are referring to as "the facing" :** This question was purposefully included in the questionnaire to establish whether the respondents had "visual/spatial" orientation as discussed by Feuerstein and Hoffman (1980). Results indicate that the respondents had difficulties in responding to this question. Hence, the results obtained from the analysis: 13.5% of the respondents had correct answers; 86.4% of the respondents had incorrect responses; of these incorrect responses, 40.5% of the respondents made no attempt to answer the question.

The lack or underdevelopment of "visual/spatial" orientation is regarded by Feuerstein as a cognitive deficiency. This is borne out by the responses to the question and is visually represented by Figure Eight, the pie graph.

FIGURE EIGHT
RESPONSES TO QUESTION 1.3



3.4.2. Cross Tabulations

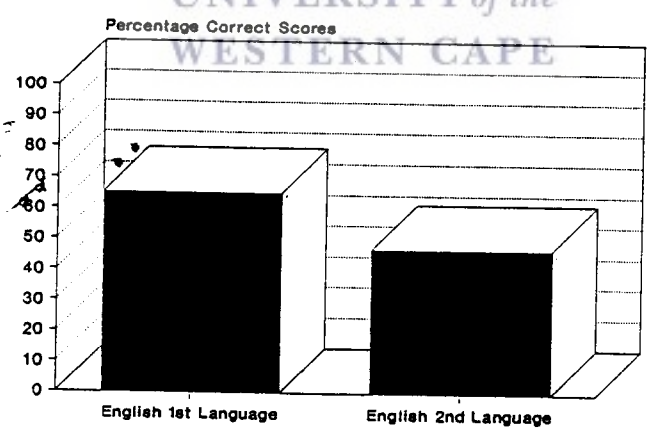
Cross tabulations were done to calculate the average score for each variable respectively. These include, firstly, English as first language, secondly, Needlework at High school, thirdly, sewing at home and, finally, the use of commercial patterns.

The results of the cross tabulations will be done individually.

CROSS TABULATION OF SCORES OBTAINED AND " ENGLISH AS FIRST LANGUAGE ". This is graphically represented by Figure Nine.

FIGURE NINE

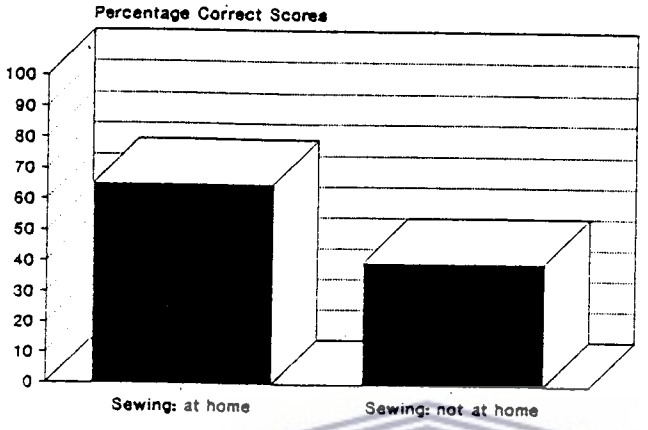
CORRECT SCORES AND ENGLISH 1ST LANGUAGE



TABULATION OF SCORES OBTAINED AND " SEWING AT HOME ".

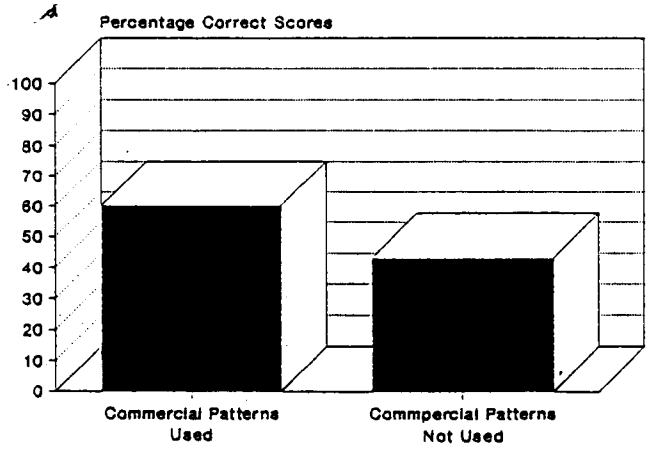
The graphic representation of this analysis is found in Figure Ten.

FIGURE TEN
CORRECT SCORES AND ENGLISH 1ST LANGUAGE



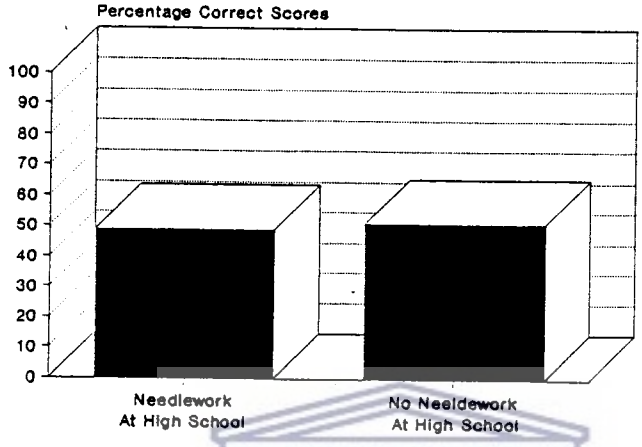
CROSS TABULATION OF SCORES OBTAINED AND " PRIOR USE OF COMMERCIAL PATTERNS ". Figure Eleven represents these findings.

FIGURE ELEVEN
CORRECT SCORES AND COMMERCIAL PATTERN



CROSS TABULATION OF SCORES OBTAINED AND " NEEDLEWORK AS HIGH SCHOOL SUBJECT ". The graph, Figure Twelve, represents this analysis.

FIGURE TWELVE
CORRECT SCORES AND NEEDLEWORK



The graph illustrates that those respondents who had Needlework as a school subject obtained a mean correct score of 48.9% while those students who did not have Needlework as school subject obtained a mean correct score of 51.5%. This result may be attributed to the fact that many respondents indicated that they had prior experience in Clothing Construction although Needlework was not done as a school subject. Although this topic has not yet been researched, the researcher is of the opinion that Needlework as a high school subject is not being made relevant to the

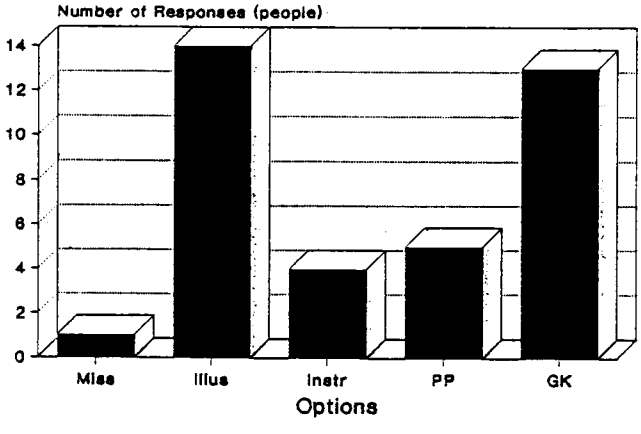
learners' field of experience. Needlework classrooms generally lack an atmosphere conducive to active learning. This may be because as the syllabus is vast and many teachers rush through the theory and force students to hurriedly complete the practical component of the syllabus, namely, the construction of garments and embroidery of articles.

Interpretation Questions

The responses to the "interpretation/opinion questions " were analyzed and the following results were calculated for each of the three "interpretation/opinion questions"

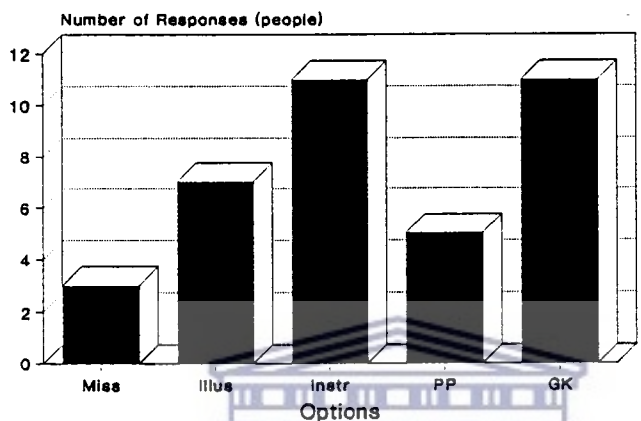
Question 2.1.2.: How do you know this? ..... (the theory instruction says so/ the illustration shows it/ you know because you made such a pocket previously/ you can work it out on "general knowledge"). The bar graph, Figure Thirteen, represents these findings.

FIGURE THIRTEEN
RESPONSES TO QUESTION 2.1.2



Question 2.1.5.:How do you know how to fold this fabric? .... (the theory instruction says so/ the illustration shows it/ you know it because you have made such a pocket previously/ you can work it out on "general knowledge"). Figure Fourteen graphically represents these findings.

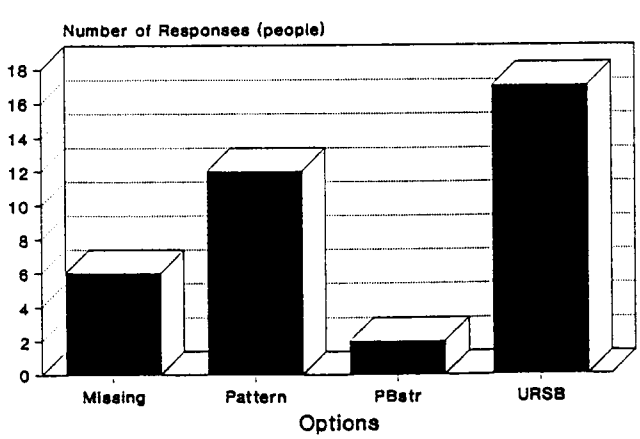
FIGURE FOURTEEN
RESPONSES TO QUESTION 2.1.5



Question 3.4.: Where did you get your notions/ideas on the function of reinforcing stitches? .... (the pattern/ you have made this type of pocket before/ you have used reinforcing stitches in other places when constructing garments)

The graph, Figure Fifteen, represents responses to this question.

FIGURE FIFTEEN
RESPONSES TO QUESTION 3.4



CHAPTER FOUR

DISCUSSION OF RESULTS

The results will be discussed in terms of the two research statements which form the underpinning premise of this study namely: 1. **Language competence plays a determining role in the comprehension abilities of first year Human Ecology students.**

2. **Prior knowledge and experience play a determining role in the comprehension ablities of first year Human Ecology students.**

4.1. Language

The mean score for the seven "**English first language**" students was found to be **64.8%**, while the mean score of the students to whom **English is a second language** was **47.3%**.

These findings are supported by the following statements:

For the person who is proficient in the language, the words from the page are translated and processed into English syntax and predictions are made on where the message is going and the words it will contain; in the words of Duffy and Sherman (1977):

> "the message leaps from the page in grammatical chunks rather than just limping along from word identification to word identification".

The good reader

> "guesses her/his way through the passage, using spelling and syntactic codes, each of which helps to make the other prediction more accurate" (Duffy and Sherman,1977).

> " A large amount of teaching and learning at tertiary level is premised on the understanding that students are both able and willing to read for themselves in the content area of the mainstream subjects they study. Experience of teaching at UWC soon reveals, however, that this is an assumption that does not hold true for all students and especially not for those for whom English is a second or even a third language" (Boughey,1993).

The view of Kaluger and Kolson (1978), supports this by stating that adequate language development is a prerequisite to effective comprehension. Learners must have knowledge in terms of underlying sentence structure as well as vocabulary in order to encode the meaning of the sentence properly. There is a high correlation between reading comprehension and the learner's ability to understand syntax and the grammar of sentences (Kaluger and Kolson,1978).

If readers have not been taught or encouraged to use problem-solving strategies, they often find themselves caught up in the language of the text and fail to construct adequate meaning from the text (Boughey,1993).

Reading and language comprehension are two prime examples of tasks that have been thought to depend upon working memory skill because each depends on the ability to keep track of information about individual words as they are encoded, in order to deal with syntactic and semantic processing (Stothard and Hulme,1992).

4.2. Prior knowledge and experience

For the purpose of this study, "prior knowledge" refers to knowledge of Clothing Construction which students have while "experience" refers to experience in working with commercial patterns. The average score for the "content questions" of the respondents who **did not sew** at home was **40%**, and the average score of those who **did sew** at home was **55.7%**. Therefore it is evident that content-specific schemata play an essential role in the comprehension of text.

These findings are supported by the following observations:

According to Sinclair (1986), one transforms knowledge and links it to prior knowledge and uses it to build a coherent interpretation of the world and its events. A reader with a well-developed schema about a topic can easily slot the newly-acquired information into that schema.

Kozminsky and Hoz (1992) describe the schema of a concept, which may be an object or an event, as a knowledge package that

represents all the information elements associated by an individual with that specific concept.

Thus when information is encountered, the reader attempts to understand it by filing it into slots of appropriate schemata and as Sinclair (1986) states, new information can only have meaning if it can be related to something the reader already knows. The text only provides cues on how the reader should construct meaning from and add meaning to prior knowledge.

Because humans are active information processors, they actively consult previously acquired, stored information by making use of various strategies. They compile a mental image of the expectations of the problem, make inferences and draw conclusions. Language users must constantly retrieve background information, solve problems and use reasoning. Language is not an isolated system as it depends heavily on these cognitive processes (Matlin,1989).

Information consistent with background knowledge is selected out of incoming information and has added storage advantage over information that is inconsistent with prior knowledge (Symons and Pressley,1993). The suggestion is that incoming information fills slots in an activated schema and is processed more easily than is incidental information that does not fit the schema (Symons and Pressley,1993). Comprehension depends on how the reader interprets the text, and therefore two readers who have the same degree of reading skill but who differ in their prior knowledge,

will, according to the schema theory, have different levels of comprehension of the same text (Sinclair,1986).

It was found that the average score of students who had **prior experience** in using commercial patterns was **60%**, while those who had **no experience** in using commercial patterns had a mean score of **44.2%**. This result is consistent with the following:

Prior knowledge on vocabulary and writing styles is deeply embedded in the problem-solving strategy selected by the reader as he/she attempts to comprehend the text (Mandl *et al.*,1984).

When students attempt to comprehend and learn from written text, they may work with two specific handicaps, namely, lack of prior knowledge of the subject matter contained in the text and/or unfamiliarity with the type of word patterns or the vocabulary in the text. This presence of undeveloped or underdeveloped schema leads to a deficient mechanism of organization for the memory storage (Mandl *et al.*,1984).

Prior knowledge about the content keeps the reader seeking for causal relationships between the descriptive pieces of information on the problem. Prior experience with problems assists the reader in that regard (Mandl *et al.*,1984).

Relevant background knowledge and knowledge of text structure allow readers to form a series of predictions about the meaning of the text as they read. Thus reading becomes an active process

by means of the utilization of information which exists in the text (Boughey,1993).

The average score for the students (12) who **had done Needlework as a subject** at Secondary school was **48.9%**, whereas the average for those students who **did not have Needlework as a school subject** was **51.5%**. It must, however, be borne in mind that even though many respondents did not have Needlework as a school subject, many of them did sew at home . The reason for these findings may be attributed to the way in which Needlework is taught in the South African schooling system. The result indicates that if students are not actively involved in the teaching-learning situation, passive learning occurs. If newly acquired knowledge is not **linked** to existing knowledge, **memorization** rather than learning occurs and this does not expand the knowledge base (Sinclair,1991).

It is thought that under the weight of subject-based authority, reinforced by didactic pedagogy, pupils become passive recipients of knowledge, losing any inclination to become creative or to show initiative (Quicke,1993).

Sinclair (1986), recommends that instruction in critical reading skills must include, amongst others, a theory of intervention that prescribes the actions to be taken by an instructor to activate the learner's acquisition processes and to provide relevant external information. Intervention should be aimed not only at the modification of the learning material to facilitate

learning, but also at modifying the learners' processes to enable them to learn from texts with covert meanings.

The main problem relating to traditional, subject-based education was its overemphasis on content, which was transmitted to students without allowing "space" for their active involvement in the learning process (Quicke,1993).

Another reason for these findings may be that the Needlework teachers perceive their primary instructional purpose to be one of communication of content (Mosenthal *et al.*,1992). This content orientation may conflict with the need to help students develop general learning strategies. On the other hand, teachers may neglect comprehension instruction because they do not really know how to explain or identify comprehension as a cognitive process, and so do not know what comprehension instruction should look like and how it can be implemented (Mosenthal *et al.*,1992).

On analysis of "interpretation/opinion" questions, it is clear that whenever a term used in the question was not included in the instruction sheet, such a question was left unanswered in a significant number of cases. For example, 6 respondents did not answer the question pertaining to reinforcement stitches, a term not included in the instruction sheet.

In order to answer some of the unanswered questions, thinking-aloud protocols were used to substantiate the findings of the

results obtained from the other measuring instrument, namely the questionnaire.

4.3. Thinking-aloud Protocols

In research, which has as its basis a problem-solving approach, verbal reports may provide information about the final result of the problem-solving process as well as being a rich source of data about the cognitive process which were involved in arriving at the final answer (Konold and Well,1981).

In a **thinking-aloud** interview the respondents are provided with a problem and are then asked to verbalize their thoughts as they attempt to solve the problem. Respondents are requested to refrain from self-analysis or reflect on previous thoughts. Probing questions, if used at all, have a sole purpose: to encourage the respondents to verbalize their thoughts more and more often (Konold and Well,1981).

Protocols were used to substantiate the results which were obtained from responses to the questionnaire. Four interviews were conducted, using a section of an instruction sheet comparable to the one used in the questionnaire. The section of the instruction sheet used in the protocols, Annexure Four, is found in the Appendix,p119. Transcriptions of the four interviews are found in Annexure Five in the Appendix,p120.

4.3.1. INTERVIEW ONE

4.3.1.1. Introduction to Respondent

The respondent is a female, final year Human Ecology student. This student has had five semesters of Clothing Construction courses thus far in her academic career in Human Ecology.

She may be classified as one of the " weaker" Construction students as she is not very competent at performing the techniques required for the construction of garments. This may be due to the fact that she dislikes sewing and has often expressed these sentiments to the researcher, who taught her various courses throughout the three latter years of her studies. There may be other reasons for her "inadequate technique development", and this in turn may cause the frustration with Clothing Construction.

There is a good rapport between the lecturer/researcher and the student/respondent, who is competent in many other Clothing theory courses.

English is a second language to the student.

4.3.1.2. Analysis of Interview One in terms of language processing

[6 to 12] The student clearly has a problem in expressing herself, the vocabulary is limited and the student does not understand the concepts used and therefore is uncertain in answering questions posed to her.

[13 to 22] The responses do not include key words such as "rows" of stitches and "seam allowance", which are basic and integral to any practical clothing construction situation. Statements made by the student seem very vague and without definite meaning - for example [17], [21] and [22].

[23 to 33] This section of the pattern gave the student many problems. The content and the application thereof was not familar to the student, so she could not easily interpret the instructions. The student was reading without really comprehending what she was reading [30], [31] and [32]. Inferences, based on prior experience, were used to attempt to solve the problem, but unfortunately the information which was read, was incorrectly encoded.

[34 to 38] This portion of the interview indicates that the student does not set up markers for herself nor does she make organisational plans in order to solve the problem. She was prepared to fumble with the pattern pieces and not use information which was provided by the pattern and this in turn

may be because she was unable to understand the language used and/or interpret the sketches on the pattern.

[40 to 50] Here, again, the student experiences problems in expressing herself and the basic concepts involved in construction. Again, key words/concepts are omitted in responses. For example, one point five "centimetres", [46] and [50] should be a "shorter stitch length".

The last section on the interview highlights the limitations the student experiences in expressing herself which may be the result of stunted vocabulary and lack of prior knowledge/encounters with similar sewing situations.

4.3.1.3. Analysis of the Interview in terms of Feuerstein's Cognitive Dysfunctions

[1-12] The student clearly experiences problems relating to content as she is unable to comprehend the terms used in the instruction sheet.

The major area in which the student experiences difficulties is in the cognitive field. If one uses the three categories of Feuerstein's deficient cognitive functions, it is obvious that the student exposes difficulties on all three the levels, namely, the input phase, the elaboration phase and the output phase.

At the **input phase**, the respondent's unplanned behaviour and a lack of verbal tools [2,4,5,8,10,12,14] are illustrations of these cognitive impairments. Other impairments at this level which may be noted are, lack of accuracy in data collection and impairment of considering two sources of information at once and blurred sweeping perception [2,6,20,26,30,33,37,38,52,54].

When observing the respondent's impairments at the **elaborational** phase, the following deficiencies may be observed: an inability to to select relevant cues in an attempt to solve the problem, difficulty in projecting relationships and limited internalization of behaviour[2,4,17,32,37,38,54].

At the **output** phase the student makes use of trial and error responses and exhibits a deficiency in visual transport[3,10, 13,34,35,37,39,42,43]. Other impairments which could be detected at this level are a lack of verbal tools for communicating responses ,impaired need for precision in responding and acting-out behaviour which affects the communication process[6,8,10,12,17,21,22,26,28,32,36,41 54,56].

4.3.2. INTERVIEW TWO

4.3.2.1. Introduction to Respondent

The respondent is a female Human Ecology student, who has completed three semesters of Clothing Construction.
She is regarded as one of the "better" Construction students, who is now very critical/sceptical of patterns as she had just completed a garment which had an instruction sheet which she said was very "incomplete" and which she also said gave her "headaches and hard times" when she tried to interpret it outside class time (that is, when she wanted to continue her practical work in her own free time).

For this student English is a second language.

An excellent rapport was established between the researcher and the student during practical and theory classes as this student actively participates in class discussions and poses many questions resulting from critical thinking.

4.3.2.2. Analysis of Interview Two in terms of language processing

[1 to 13] The student is very confident and experiences no real problems expressing herself and it is clear that she is very familiar with patterns, knowing where to find specific information on the pattern, and what type of information she

needs to extract at a given stage in the process of the interpretation of the instructions.

From [14 to 25], it is illustrated that the student is uncertain about the content as she often contradicts herself [18 and 20]. There are many pauses which indicate the low level of comprehension. Even though she attempts to make use of backtracking, she is unable to understand the core of the problem in order to solve it.

The student often repeats the statements made by the interviewer. This may be a form of setting up markers or activating superordinate schemata in order to break the problem down into smaller pieces to facilitate its solution.

[20 to 40] indicates that when the interviewer had intervened and explained the instructions, the information was deconstructed into manageable "units" for the student to understand.

The student has no reservations about expressing her dissatisfaction with instruction sheets of commercial patterns [43 to 50].

The student "sets up markers" of concepts which she does not understand [53 and 57] and attempts to solve these before she concentrates on the remainder of the problem.

The student is able to interpret and understand what is expected by the pattern once the interviewer had intervened and clearly illustrated "problem areas" to the student.

4.3.2.3. Analysis of the Interview in terms of Feuerstein's Cognitive Deficiencies

When reading the transcription of the interview, one is able to highlight some definite cognitive impairments in the responses.

At the **input** level, the respondent does not reveal many cognitive deficiencies because, from the start of the interview, the student is able to access the information and deal with the data as a unit rather than in piecemeal fashion [3,8,10,36,42].

The cognitive impairments of this respondent rears its head in the **elaborational** phase of the cognitive process. The student lacks the ablity to select relevant from irrelevant cues in order to solve the problem, an impairment in the internalization of concepts used in Clothing Construction and may be caused because the verbal concepts are not part of the respondent's vocabulary on a receptive or expressive level [8,14,23,36,40,50,53,57,65, 71].

At the **output** level the most predominant cognitive deficiency is the lack of verbal tools for communicating although there are also signs of deficiencies in visual transport [14,16,18,19,20,22,24,30,36,38,42,50,57,59,65].

4.3.3. INTERVIEW THREE

4.3.3.1. Introduction to the student

The student is a female Human Ecology student in her second year of study. She has completed one semester of Clothing Construction and often sews at home. English is the student's first language/mother tongue. This student is a "student tutor" in other subjects, thus she has established an excellent rapport with many staff members. For this reason, she feels relaxed in the interview situation although the reseacher has taught her for only six weeks.

4.3.3.2. Analysis of Interview Three in terms of Language Processing

The student often exhibits traits of a mature reader as she often backtracks [5,8,10,26,31,50].

She has extensive prior knowledge of the content area and from [1] to [12], she knows exactly what to do because of schema availability which she acknowledges [14,16,18,20,40].

From response [22], the student clearly does not comprehend the instructions on the instruction sheet and states her lack of comprehension very explicitly [28].

The long pauses and the soft giggles from [44] to [63] illustrate that the student had difficulty in comprehending the instructions

although she did attempt to solve the problem by breaking it down into manageable units.

The student's proficiency in English and a thorough knowledge of the concepts used in Clothing Construction enabled her to overcome the terminology used in the instruction sheet, resulting in the comprehension of the text/instructions [64,71,73].

4.3.3.3. Analysis of the interview in terms of Feuerstein's Cognitive Deficiencies

Responses [1 to 5]indicate that the student does not have real problems at the **input** phase as she is able to start solving the problem accurately from the beginning. Also, she displays spatial orientation [7 and 8]. From response [22], the student clearly illustrates impairments at the input phase - she displays a lack of verbal tools [22,24,28]. Her response to [36] shows that she does not comprehend the concept. Statements and responses made in [45] to [64] indicate the student's lack of comprehension of the concepts and the techniques to which the instruction sheet is referring.

This student exhibits very few major deficiencies at the **elaborational** phase: she possesses a broad knowledge of the content [6,9,12,14,16,18,20]. The responses from [65] to [73], indicate that she is able to overcome the impairments at the input phase by her highly developed elaborational phase and thus the **output** phase exhibits precision and accuracy of results.

The student categorically states that she would not have been able to understand and implement the instructions provided by the instruction sheet [77] to [82].

4.3.4. INTERVIEW FOUR

4.3.4.1. Introduction to the student

The student is a female Human Ecology student in her second year of study. English is her first language and she did Needlework as a school subject to matric level.

A good rapport has been established between the researcher and the student who was interviewed by the reseacher on a prior occasion at the request of the student.

4.3.4.2. Analysis of the interview in terms of language processing

The student has prior knowledge of the content and is therefore able to readily comprehend the first section of the instruction sheet [3] to [11].

She uses backtracking as a method of attempting to comprehend the content with which she has difficulty [14,16,18,20]. The student knows the terms but is unable to comprehend the concepts which are involved in the instructions [22,26,28,30,34,42].

The student has had Needlework as a school subject and has completed a semester of Clothing Construction, but still is unable to link (slot) the text to previously acquired knowledge [35] to [47]. Responses [57] to [61] do exhibit the utilization of prior knowledge to comprehend the text in order to implement the instructions provided by the instruction sheet.

4.3.4.3. Analysis of the interview in terms of Feuerstein's Cognitive Deficiencies

The student displays very few impairments in responses [1] to [11]. From [16] to [32] she exhibits impairments at the **input** and the **elaborational** phases. She often pauses for a long time and rereads, indicating that her comprehension of the text is unsatisfactory.

Responses [34] to [44] show that although she has difficulty in comprehending the instructions: she is, nevertheless, able to break the problem into units, in order to solve the problem. She is able to do this because of her base of prior knowledge (schema availability), thus revealing that she does not have narrowness of field or serious difficulty in establishing relationships. Thus it can be said that this student does not have major impairments at the elaborational phase because of her prior knowledge of the content.

4.3.5. Summary of Analyses of Protocols

It is obvious from the interviews that many commercial patterns are not as easy to interpret as many pattern manufacturers claim them to be. One of many reasons for the impairments could be due to the lack of internalization of subject matter and/or the impairment of verbal tools at the receptive or expressive levels of cognition.

In summary, the following recommendations by students whose first language is English, could be used to identify the major problems students experience while attempting to comprehend the instructions provided by instruction sheets of commercial patterns.

I (INTERVIEWER)

R1 (RESPONDENT 1)

R2 (RESPONDENT 2)

I: What recommendations would you make to pattern manufacturers? [1]

R1 and R2:.....(long gazes at the instruction sheet).... [2]

I: Do you suggest that the the illustrations be left out? [3]

R1: No, no the illustrations are really needed.....but the wording.....Why are they speaking such high wording? They can put it in a.....a more simpler language .... a simpler language that a person can understand. [4]

I: Simpler language like what? [5]

R1: ....Like to stay upper and lower edges.....they can just say there..... to make the thing more firmer and to secure it there so that the skirt doesn't go out of shape you must put a ... a binding on there. The middle of the binding must be on the seamline...finish [6]

I: So you would be saying that they must use more explanatory terms..... [7]

R2: Yes! They must say.....like here by this fullness part they must say what fullness is and how to do it [8]

R1: Yes! They must give clear instructions [9]

I: So your advice to manufacturers would be to use simpler terms [10]R1:Use simpler terms and....They must keep their illustrations clear.....These illustrations were not good (shakes her head to confirm her statement) [11]

R2: The illustrations do sometimes help..... [12]

4.4. Summary of Discussion of Results

The analyses of the interviews indicate that there is evidence that students do experience difficulties in interpreting the instruction sheets of commercial patterns. The respondents had reading comprehension difficulties which may be due to many factors, for example, lack of comprehension of expository text (which is laden with subject content), a lack of oral communication skills and impairments in internalizing concepts and correlating the instructions and the illustrations provided by the instruction sheets of commercial patterns.

Many steps/ instructions are omitted in the instruction sheets of these patterns, and in order for them to be correctly and accurately interpreted, intervention of some or other form is required.

Prior knowledge plays a vital role in the interpretation of these patterns as many statements/ instructions provided by them can only be relevant and meaningful to a person who has come into contact and is familiar with the language which is specific to the field/ subject area of Clothing Construction.

It can therefore be categorically stated that, in many practical Clothing courses text inadequacies compound the extent of comprehension and learning difficulties students experience, bearing in mind the fact that they have many of the limitations of unskilled readers. The solution to the dilemma will be provided when language is seen as embedded in subject content and when it is realized that language ability directly impacts on learning ability.

CHAPTER FIVE

5.1. Conclusion

The findings revealed that students need mediation in subject-specific reading material and problem-solving strategies. In other words, they need explicit teaching which will make the "university learning context" more accessible.

Analyses revealed that students who had English as their first language had an average score, on the content questions, of 64,8% while students who had English as second language obtained a mean score of 47,3% for these questions. It may therefore be stated that students who are more fluent in the English language, are able to interpret an instruction sheet more successfully than a student who has English as a second language.

The findings revealed that many students are, as referred to by Lim and Watson (1993), "English-as-a-second-language learners". Therefore, the author suggests that teaching strategies in which language is naturally and functionally learned should be implemented. This can happen when students are engaged with each other in compelling and intellectually stimulating content areas. Learners learn language and subject matter through the process of constructing meaning from meaningful content (learning content by using language).

Students who had prior knowledge of working with commercial patterns had a mean score of 60% whereas those who had no such

experience had a mean score of 44,2%, when the scores relating to content questions were analyzed. Analysis also indicated that students who sew at home achieved a higher average score for content questions than did students who do not sew at home (averages were 55.7% and 40%, respectively). It is obvious that prior knowledge and experience with subject matter facilitates comprehension and thus the interpretation of the instruction sheet.

The results indicate that prior knowledge of the English language and prior knowledge and experience of content enhances the reading comprehension abilities of students. Neither factor improves reading comprehension to a significantly greater extent than the other factor does. However, even if only one of the factors exists in a student's favour it improves reading comprehension considerably when compared to scores of those students who did not enjoy the benefit of even one of these factors. The mean score for "English first language" students was found to be 60% while the mean score for the combination of "sewing at home" and "experience in using commercial patterns", was found to be 58%.

A method which will prove to be more fruitful to students in solving problems related to practical courses in Clothing, is one which will include mediated learning and consolidation of the language used, since the concepts used in the Clothing course are very subject-specific. The educator will have to intervene and explain very often, especially in the initial stages of the

process and will gradually guide the students, through overt teaching and active learning, to critical thinking. This will ensure that students who do Clothing courses also have the characteristics of skilled readers at the end of their academic careers in Human Ecology at UWC.

Msekelu (1993) believes that a "new approach in teaching strategies" involves input that would directly develop a learner's capacity to monitor her/his own level of cognition. The underprepared students need to develop tools for self-monitoring in university tasks which are new and unfamiliar to them. Part of the task of teaching is to enable new learners to take charge of their own cognitive functioning (Mseleku,1993).

According to Fraser (1993), students should know this while they are reading content text. They should experience feelings generated by the word as well as thinking about the concepts. Teachers should help students to monitor their feelings during reading and learn to overcome feelings that present obstacles to comprehension (Fraser,1993).

5.2. Recommendations

5.2.1 The Teaching-Learning Situation

The teaching-learning situation must be an active one, in which students will become empowered through the development strategies which are relevant and transferable. The ultimate goal should be the creation of autonomous, critical thinkers.

This view is supported by Cairney (1990), when he says that one of the major challenges for teachers today is being able to create classroom environments which have a strong sense of community where students will best develop as meaning-makers and where reading and the exploration of meaning is seen as important and significant.

Instruction which cultivates active learning and fosters active self-interrogation is far less likely to leave learners with bodies of inert knowledge (Perkins *et al.*,1990).

According to Kernick *et al.* (1993), students who enter tertiary institutions perceive their needs as being content-centred. However, experience shows that marginal students tend to show a common need for learning and thinking skills which are basic to content mastery. In the same way, academics are continually dissatisfied with learners' apparent inability to "think". Academic skills development seems lacking across the range of student preparedness at tertiary institutions. The lack of these skills inhibits the development of autonomous or empowered

students. It is proposed that the academic skills referred to include higher order skills such as comprehension, synthesis as cognitive monitoring and not merely the traditional learning skills such as reading, writing and note taking. Thus academic skills relate to the process of learning that is required for content mastery.

Tertiary institutions, however, still tend to adopt the banking or empty vessel approach to information transmission through large lecture-type methodologies. Such methodologies are synonymous with student passivity. There is little room in such situations for learners to develop the skills necessary to construct their own knowledge (Kernick *et al.*,1993).

The mass nature of tertiary education in South Africa probably precludes the complete abolition of such lecture-type approaches. The methodologies within these lectures could be adapted to a certain degree to utilise small group learning strategies. Such small group learning strategies serve to develop some of the skills necessary for learners to construct their own knowledge and become autonomous learners. It is debatable whether sufficient skills development will occur through such a forum to achieve the aim of developing autonomous learners (Kernick *et al.*,1993).

5.2.2. The Educator's Role

The educator's role should be perceived as teaching the learner how to learn. In order to equip the learner with skills necessary for continued self-directed enquiry, it is argued that more emphasis needs to be given to the process of learning than is currently the case (Fraser,1993).

Because many students come from high school programmes that have emphasized information acquisition, they enter tertiary institutions with deficits in strategy knowledge and they have an inadequate understanding of when and how to use specific strategies. Even if they are familiar with such strategies, they often lack the motivation to use them (Grant,1993). Such students are limited in their ability to read and learn from content courses, but because university students spend large amounts of time reading different types of text, efficient and effective comprehension during content reading is critical (Grant,1993).

According to Perkins *et al.* (1990), learners need to access a wide range of knowledge on problem-solving in order to make sense of incoming information and to apply it appropriately. Some strategies for problem-solving are specific to a discipline, while others cut across several fields of study. General heuristics such as breaking the problem into manageable parts and seeking alternative solutions also regulate the problem-solving process.

It could be said that a central issue facing higher education, involves the seeking of a relationship between the student as learner (whatever his/her personal or occupational intentions), and the manner in which an institution organizes itself and offers its curriculum (whatever purposes the institution envisages) (Barnett,1992). Students need powerful problem-solving strategies. Studying their existing strategies and how these compare with expert problem-solving strategies, would seem to be a crucial first step in building a developmentally sound programme of instruction (Mandl *et al.*,1984).

According to Buikema and Graves (1993), successful instruction should include motivational activities and other activities which encourage students to make use of the strategy outside the classroom situation.

5.2.3. Application of the Cognitive Theories inherent in the Study

The teacher/lecturer will have to intervene in the learning process much more than conventional teaching/lecturing allows. The role should change from that of presenter of content to mediator of the learning process. The learning materials should be modified to facilitate the learning process while the student's learning strategies should be modified by supplying her/him with task-determined skills (Sinclair,1991).

5.2.3.1. SCHEMA THEORY

In relation to text modification, instructors can help their students by providing them with learning material which is adapted to the learner's specific learning characteristics. These include prior knowledge, cognitive skills, goals and interests. Another manner in which the learning process may be facilitated is by directly teaching subject-specific strategies for interaction with instructional material. This facilitation strategy has traditionally been left to the student to develop on her/his own, if ever. The teaching of learning strategies will show how procedural elements can be effectively used to play a role in comprehension and remembering. In this way, instruction becomes more intentional than in the past.

A teaching strategy in which readers develop a set of expectations about different text types based on prior experiences they have had with writing and reading texts similar to the one they are confronted with, is known as "schema prediction" (Cairney,1990). Being able to activate relevant schemata enables the reader to organize information and understand the text more easily. This occurs because readers have a structure within which to fit information and, as a consequence, they have fewer demands placed on their working memories. This allows greater memory capacity for the integration of information and the processing of text, which aids comprehension.

5.2.3.2 LANGUAGE EDUCATION THEORY

Contributions emanating from the field of linguistics have shown the importance of differing language patterns among various environments; the need for closer co-ordination between written and spoken language in teaching reading and comprehension skills; and the necessity of teaching reading skills in such ways that meaning clues, (including syntactical and semantic clues) may be fully utilized (Bond *et al.*,1979).

Just as students need physical access to good teachers, facilities and materials, they also need mental access to a wide variety of higher-order thinking skills, accessible representations and rich contexts that facilitate activation of relevant knowledge (Perkins *et al.*,1990).

When a content-rich curriculum is implemented within a whole language philosophy of learning and teaching, the classroom becomes the optimal environment for learners, especially second-language learners (Lim and Watson,1993). Students who are involved in natural, authentic, and content-rich settings will develop the language and concepts of the content while developing literacy skills and oral competence.

Buikema and Graves (1993) provide guidelines for successful instruction in teaching students to use context cues to infer word meanings. They state that, among others, the instruction should be thoroughly prepared, have a time span, and utilize

carefully prepared and specifically selected materials as teaching aids. The instruction should make use of active learning and explicit explanation. The teaching-learning situation should involve informal cooperative learning in which the teachers initially provide scaffolds for students, by presenting the less complex materials first, and only gradually requiring the students to do more of the task themselves and afterwards to work with increasingly complex material.

The method to be applied in teaching implies a new vision which entails a strategic process in which the teacher teaches not only the content but also the strategies required by that content to make learning meaningful, integrated and transferable. Effective teaching requires goals, strategies required for achieving those goals, and the experiences students bring to their learning to be carefully balanced (Sinclair,1989).

5.2.3.3. MLE

Feuerstein found that culturally deprived learners indicated difficulties in benefiting from new experiences to which they were exposed; they had to "learn how to learn" from new experiences via mediation (Feuerstein *et al.*,1991). There are three crucial parameters of MLE, namely, **intentionality and reciprocity, transcendence** and **mediation of meaning.** These parameters should be included in the teaching-learning situation in order to make the MLE effective.

The intentionality and reciprocity which fall within the first parameter are the main objectives of the MLE interaction as the interaction is moulded by the intention of the mediator to mediate to the mediatee. Reciprocity is a method in which an impicit intention is turned into an explicit and purposeful act.

The second parameter for successful MLE, is the mediation of transcendence which is "the going beyond the goals of the interaction" (Feuerstein *et al.*,1991). For example, the intention of making a learner **feel** competent transcends the short-term goal of skill or competence acquisition. This parameter could be said to be the orientation of the mediator to widen the interaction further than the primary goal and creates the opportunity for the learner to constantly broaden his/her cognitive and affective functioning.

The mediation of meaning is the third parameter critical to MLE and it deals with the energetic dimension of the interaction. This is the parameter which is the most strongly influenced by the cultural heritage of the individual. The "meaning" of MLE is the reflection of social norms which form the transmitted behaviour (Feuerstein *et al.*,1991). This aspect of MLE enables the individual to make better use of diverse stimuli and those coming from other cultures and establishes a selective process that allows individuals to make choices in terms of their own cultural identities.

5.2.3.4. VYGOTSKY'S THEORY OF ZPD

When cognitive changes result from MLE, it is thought that these changes are internalized and this serves as an impetus in far more cognitive changes (Falik and Feuerstein,1993). Thorpe and Gallimore contend that

> "teaching consists of assisting performance through the ZPD and teaching can be said to occur when assistance is offered at points in the ZPD at which performance requires assistance" (Falik and Feuerstein,1993).

It is thus recommended that teaching be structured toward the creation of Mediated Learning Experiences. This would result in increased integration and utility of learned elements and thus the learner is able to generalize what has been mediated into novel and adaptive learning situations.

It is recommended that the findings of this study be used as a point of departure, when the respondents are to commence the Clothing Construction course. The results could be used to indicate the places where mediation are required.

Another recommendation is that this study be used as a basis for a longitudinal study. The longitudinal study should include all the Human Ecology students. In the longitudinal study there should be a "before" and "after" test (pre-test and post-test).

The scores obtained in the pre-test should be recorded. This will give an indication of students' ZPD and the point at which intervention in the form of mediation should take place. In the period after the pre-test, students should be taught about the instruction sheet, (exposed to MLE), in a teaching-learning situation in which active learning is fostered. At the end of a specified time period, the students will do a post-test. The scores obtained should compared to the results of the pre-test. The sample may also include control and experimental groups.

According to Kernick *et al.* (1993), education is

> "a lifelong process of continuing enquiry ... the most important learning of all is learning how to learn, the skills of self-directed enquiry."

The educator's role may therefore be perceived as teaching the learner how to learn. In order to equip the learner with skills necessary for continued self-directed enquiry it is argued that more emphasis needs to be given to the process of learning than is currently the case.

Current understandings of the learning process are that the past knowledge, experience, values and beliefs of the learner are an integral part of the process. In order for learning to take place, the learners must "construct" their own knowledge, which is informed by these experiences (Kernick *et al.*,1993).

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APPENDIX

Annexure One:

Questionnaire for staff members who are/were involved in the teaching of Clothing Construction.

1. How long have you been teaching Clothing Construction?

or

For how long did you teach Clothing Construction?

---

2. Which Construction courses did you teach?

---

3. Did you find that the students experienced problems when attempting to construct garments from instruction sheets of commercial patterns? Briefly explain please.

---

4. Were the following problems able to be identified?

4.1. students were unable to understand the instructions .....

4.2. students failed to connect the theory instruction to the illustrations that accompanied them.....

4.3. students did not understand the concepts used in the patterns (for example, unfamiliar terms).....

4.4. Were there any problems which are not listed above? Please specify----------

---

---

5. Rank these problems from the most problematic to the least problematic, 1 being the most problematic:

1. .....
2. .....
3. .....
4. .....
5. .....

6. Would you say that the Clothing Construction course:

6.1. is able to be mastered by any person who is able to read the instruction sheet

---

6.2. has many subject-specific terms that must be mastered in order to be successful in the course

---

---

7. Do you agree that the following could be used as recommendations to the manufacturers of commercial patterns:

7.1. They must use simple terms in the instruction sheet

Yes. Why?.....

or

No. Why not?.....

7.2. They must provide the technique to be used and keep referring to that technique whenever it is to be in the construction process

Yes. Why?.....

or

No. Why not?.....

7.3 The theory instruction should provide the functions of the process

Yes. Why?.....

or

No. Why not?.....

7.4. The illustrations provided must include the "simple"/ hidden steps as well as an illusration of what the final process should be

Yes. Why?.....

or

No. Why not?.....

7.4. Any other recommendations to the manufacturers of commercial patterns

Please specify.....

.....

.....

Please rank these recommendations in terms of their level of importance to you. The recommendations which you would most recommend should be placed first. (only 7.2 or 7.3 is required)

1. .....
2. .....
3. .....
4. .....

THANK YOU FOR YOUR CO-OPERATION AND YOUR TIME !!

Annexure Two:

Questionnaire for Human Ecology Students

The purpose of this questionnaire is to gain information on the first year Human Ecology students.

PLEASE UNDERLINE THE APPROPRIATE STATEMENT, FOR EXAMPLE (A/B/C/D/E).

ALL INFORMATION WILL BE REGARDED AS HIGHLY CONFIDENTIAL.

THANK YOU FOR YOUR PARTICIPATION.

1. What is your age group? .....(19-21/22-25/26-30/ other please specify).....

2. Is English your First Language?..... (yes/no)

   2.1. If no, is English your (second/third) language?

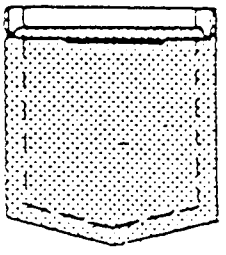
3. Did you do Needlework as a subject at secondary school? (yes/no)

4. Do you ever sew at home?..... (yes/no)

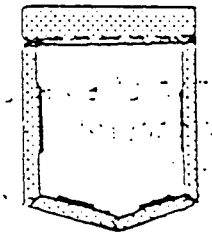
5. Have you ever made a garment by making use of a commercial pattern?.....(yes/no)

pocket

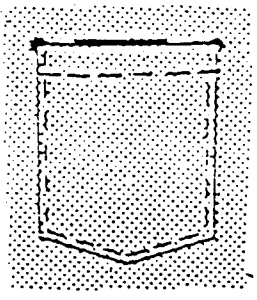
Press under 1/4"(6mm) on upper edge of pocket. Turn upper edge to OUTSIDE along fold line, forming facing.
Stitch 5/8" (1.5cm) from raw edges; trim to 1/4" (6mm).



Turn facing to INSIDE, turning under raw edges along stitching; press.
Stitch close to inner edge of facing, as shown.



On OUTSIDE, pin pocket to LEFT front placing upper corners at large dots.
Stitch close to side and lower edges.



LEFT FRONT

QUESTIONS RELATING TO THE COMMERCIAL PATTERN

POCKET SECTION

1. How would you :

1.1.1. press under 6mm on upper edge of pocket?.....(fold/iron/tack/cut/neaten) the seam with a seam finish

1.1.2. turn upper edge to OUTSIDE along foldline.....(fold/iron/tack/cut/neaten the seam with a seam finish)

1.2. What is the "OUTSIDE" the pattern is referring to? .....(right side/wrong side/left-hand side/right-hand side)

1.3. Using the instruction sheet that was provided, write the word "*facing*" (or 1.3.) on the section (place) you think the instructions are referring to as the facing.....

1.4. Would you be sewing a single or a double layer of fabric, when stitching 1.5cm from raw edges?.... (single/double)

1.5. Stitch means sewing approximately (8/15/20)stitches per 2.5cm.

1.6. Trim to 6mm means to (fold/iron/tack/cut/neaten) the seam with a seam finish.

2. 2.1.1. Turning the facing to INSIDE means, one has to turn the facing (inside out/to the right side/to the wrong side)

2.1.2. How do you know this?....(the theory instruction says so/the illustration shows it/you know it because you have made such a pocket previously/you can work it out on "general knowledge")

2.1.3. Turning under raw edges along stitching means that one has to fold the fabric (1cm/1,5cm/1,8cm/2cm) from the raw edge.

2.1.4. This above-mentioned fold of fabric would be folded to the (right/wrong)side.

2.1.5. How do you know how to fold this fabric?..... (the theory instruction says so/the illustration shows it/you know it because you have made such a pocket previously/ you can work it out on "general knowledge")

2.2. Press means .....(fold/iron/tack).

2.3. Stitch close to inner edge of facing means, to stitch on the (upper/lower/left-hand side/right-hand side) of the facing.

3. 3.1. The pocket must be pinned to the left front and then stitched (between the large dots/close to the sides and lower edges/along the folded edges).

3.2. Where would one use reinforcing stitches?....(the lower edges of the pocket/the upper corners of the pocket/along all the edges of the pocket).

3.3. The reinforcing stitches would be used as (a guide for the stitching/top stitching on the edges/ strengthening the upper corners of pocket).

3.4. Where did get your notions/ideas on the function of reinforcing stitches? (from the pattern/you have made this type of pocket before/you have used reinforcing stitches in other places when constructing garments)

THANK YOU VERY MUCH FOR YOUR CO-OPERATION !!!

Annexure Three : Correspondence with the Department of Human Ecology at UWC

18 Geelhout Street
Forest Heights
Eerste River
7100

26 October 1993

The Head of Department of Human Ecology and Dietetics

Re: Request for permission to complete questionnaire in 1994

Dear Ms Daniels

I hereby wish to request permission from the staff of the Division of Human Ecology, to make use use of the first year students for the completion of a questionnaire which is related to the study which I envisage to embark on in 1994.

The proposed date for the data collection would be in the latter days of the first week of academic classes in 1994 (approximately 17 February). This would ensure that the first year students would have completed all the registration procedures. I will make prior arrangements with staff members if I am at all to inconvenience them.

Thanking you in anticipation for your favourable approval.

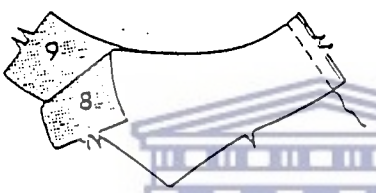
Yours sincerely

Mrs A Cairncross

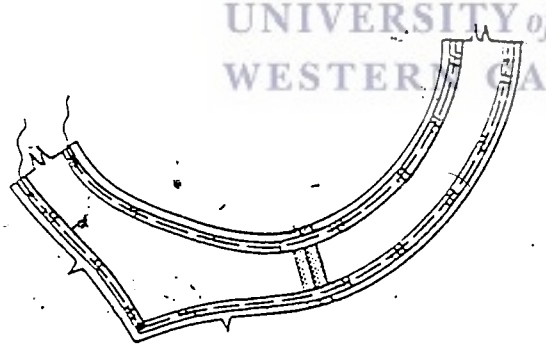
Annexure Four :SECTION OF INSTRUCTION SHEET USED IN PROTOCOLS

STEP 2 - YOKE AND ZIPPER

Stitch one YOKE FRONT 8 section and one YOKE BACK 9 section together at right side. (Remaining yoke front and yoke back sections will be used as facings.)



To stay upper and lower edges of yoke, on inside, center seam binding over seamline, folding in fullness at large ●, as shown. Baste.



Annexure Five:

TRANSCRIPTIONS OF THE INTERVIEWS

I - The interviewer

R - The respondent

[]- Quotation numbers for referencing in the text

INTERVIEW ONE

I : Please read step 1 from the instruction sheet [1]

R : Gather the upper edges of front and back between small dots, on left side as shown. [2]

(.....pause.....)

I : All right, does the pattern instruct you where the dots are? Is it easy to find the large and the small dots? [3]

.....(student fumbles through the pattern and instruction sheet).....

R : Here's the small one and here's the large one. Yea, they are clearly illustrated. [4]

I : What do you understand by the pattern's term "gather"? [5]

R : uh, uh, you sort of make little pleats. [6]

I : How? [7]

R : Using a machine, ...uh...,you first...er.. can I explain the way you sew it? (The I nods in agreement)..... Okay, use a big stitch, like "ryg" [8]

I : A tacking stitch [9]

R : Tack ja, a tacking stitch. 1cm from large edge to the small one. After you make two stitches and you pull... [10]

I : Two stitches ??!! [11]

R: I mean two stitches from the, ... I mean from the first... I mean in case the other one brokes in between..... [12]

.... student becomes very flustered at this point... gesticulates with hand movements to attempt to express herself

I: Okay,.... two **ROWS** of stitches (laughs to make the student feel comfortable in the situation again) [13]

R : (...also laughs) two rows ja, and then you pull the stitches..... [14]

I : Can the stitches be anywhere or where must the stitches be? [15]

R : From the large edge, ...like here you've got.....

I : No, I want to know how far from the top edge, anywhere or where do gathers normally occur? [16]

R : It must be in the centre..... (gesticulates...) [17]

I : It must be within the seam allowances [18]

R : Yes [19]

I : Okay, two rows of stitches within the seam allowance...[20]

R : Yes, then you pull them....at the ends....at the ends [21]

I : To ?

R : You pull them from both ends to the middle, ja, to the the waist part ....and (student cannot explain any further) . . . . . [22]

I : In order to distribute the fullness evenly. What is the next instruction? [23]

R : Yoke and zipper. You stitch one yoke front (8) and back yoke (9) together at the right side. Remaining yoke sections will be used as facings. [24]

I : So, these are your yoke sections (these pattern pieces are given to R). What does the pattern tell you? [25]

R : ..... (lengthy pause) .... uh uh , you take yoke front and yoke back.... ne, ...um um..... you put them together,.....right sides together,..... [26]

I : How do you know it's right sides together? [27]

R : ..... I mean from your fabric..... [28]

I : How do you know it's right sides together? Does the pattern say so? [29]

R : Yes, it says so. [30]

I : No, it does not! [31]

R : Here it says, stitch front and back sections together at right side (the latter part of the sentence is read very slowly and softly). [32]

..... student reads softly yet again and shakes her head in disagreement with the Interviewer's last remark

I : It says at the **RIGHT** side, not right sides facing. [33]

R : laughs..... I just took it for granted from ... from the knowledge I gained,..... I mean, so you put it together at the right side [34]

I : That's right,but you also put right sides together because that's what is shown by the diagram. Do you agree? [35]

R : (..... puzzled) [36]

I: Your key on the instruction sheet will show right and wrong sides clearly. [37]

R : (.....laughs....) Oh yes. The colours show you.

(Student attempts to assemble the templates/pattern pieces but still is unsure of the method.)

I : What does the pattern show you? The 9 is at the bottom. Does one not look at the sketch they give you? [38]

(At this point, the interviewer gives a complete discussion on the construction of the yoke)

R : oh..... [39]

I : They say stitch the yoke together at the right side, how would you do that now? [40]

R : (...very long pause...) You turn it around, ne. You'll stitch it here. [41]

I : Why? [42]

R : (..sighs ...) because, first of all, the instruction sheet shows the notches on that side, there's a double notch this side and only one notch on the other side.

I : That's right, and also because the instruction says on the right side. Now what is the next step? [43]

R : Stitch on the seamline . [44]

I : Stitch means? [45]

R : (...Laughs) You put the sides together , and you stitch on the seamline which is one point five from the edge [46]

I : Seamline is not given here on the instruction sheet, but you know that from previous experience, don't you? [47]

R : Yes! [48]

I : Is the stitching the same as the tacking? [49]

R : No, it's a smaller stitch. [50]

I : What is the next step? [51]

R : To stay upper and lower edges of yoke on the inside, centre seambinding over seamline folding in fullness at large "s", and then you baste. [52]

I : What does that tell you? [53]

R : (..... um, long pause..... um),that..... you put your binding over your seamline..... and then..... you..... baste it. The fullness, ... you just kind of ease in..... or you fold the fullness, I don't know where... how you fold it in. [54]

I : (reading from the instruction sheet) Folding in the fullness at the large dot. Why do you think we would have fullnes? [55]

R : (.....long pause....) Fullness... because,..... the other one is pointed and the other one is round. [56]

I : Right! When we have a long edge it's not so wide. [57]

(Brief dicussion on the construction process ensues)

I : Okay, thank you very much !!!

INTERVIEW TWO

I : When you look at this pattern, where do you think the yoke is? [1]

R : It's the top part of the skirt. [2]

I : The pattern instructs you to gather. Does it explain how to gather? [3]

R : Let's look in front of this page (.....looks at the list of explanations/definitions provided on the pattern) Yes. It says so here! [4]

I : Does the pattern tell you where to do the gathering stitches? [5]

R : They didn't show you. [6]

I : Do you know where to gather? [7]

R : How to gather? You gather in between the ..... the.... notches..... [8]

I : You gather between the notches, and what can you tell me about the distance of gathering stitches? [9]

R : The distance away from the edge..... it should be 3mm [10]

I : You mean within the seam allowance. Fine, now read what the next instruction is. [11]

R : .....(reads softly)..... [12]

I : They say, stitch one front yoke section to one back yoke section at the right side. Now what would you do now? [13]

R : You just measure the notches.....(very lenghthy pause).... [14]

I : Why do you think you are experiencing problems now? [15]

R : .....(mumbling to herself continually).. [16]

I : Did they tell you to put it right sides together? [17]

R : Uh Uh (meaning no),they didn't . [18]

I : What is showing you that you place them right sides together? [19]

R : They .... they say so. Put the right sides together. [20]

I : Do they? [21]

R : Together at right side. [22]

I: At right side. [23]

R : ...(laughs).. at right side, not right sides facing [24]

I : .... (laughs)... Which means that they are not talking about right sides and wrong sides, they're refering to right and left sides. [25]

R : Wow, wow,wow (and laughs sheepishly) [26]

I : Now can you see what they are saying? [27]

R : Right sides together at the right side. [28]

I : Yes, the pattern is actually showing you right sides facing on the sketch that is provided. But which side is at the bottom, the yoke back? [29]

R : (Softly)....which side is at the bottom? .....um,um..... (positions pattern pieces) [30]

I : Is your yoke back at the bottom? [31]

R : (checks her placement) Yes. [32]

I : Next, you would be stitching these pieces together. Would you have been confused had you been making this skirt? [33]

R : It's very confusing [34]

I : (reads from the instruction sheet) To stay the upper and lower edge centre seam binding over seamline? [35]

R : (responds very quickly) I don't know what to do! It's not clear. [36]

I : What is not clear? [37]

R : The information is not clear. You don't know what to do. [38]

I : Look here, now they say, stitch the yoke front and the yoke back sections together at the right side (describes the construction of the yoke). What did they not say? [39]

R : They're talking about the interfacing. [40]

I : Where do they say anything about the interfacing? [41]

R :.....(softly ..somewhere here.).This is not an interfacing?(holds up a pattern piece). I'm thinking of the other piece. (reads instruction sheet again) [42]

I : We've now stitched it together at the right side. What do we do next? [43]

R : They don't tell us clearly what to do. [44]

I : What don't you understand? [45]

R : They don't tell us to ..... to.. make the ..the edge stitch the edge seam or take in some of the edge of the... piece [46]

I : Also, they never told us to finish off the seam even though the sketch shows that the seam is finished off. Would you have been able to do it? [47]

R : Uh uh (meaning no), but don't you think that here's a lot of hidden information. [48]

I : Yes, that's what I'm trying to establish. [49]

R : I don't think that it should be as hidden as all that.... I cannot understand because I was definitly not going to understand it unless I call the lecturer. [50]

I : They tell you to stitch it, but what could they have said? [51]

R : It is .....you have open it,...and press it open...and

I: When the say centre seambinding over the seamline. What will you do? [52]

R :.Centre the seambinding over the seamline....I don't know the seamline..... [53]

I : Oh goodness, what is the seamline? [54]

R : The seamline.....oh (laughs) its normally 1,5cm from the edge...ja [55]

I : Now you've determined the seamline, centre the binding over the seamline [56]

R : Centre.....seambinding..... What's the seam binding? Seam binding .....(long pause)..... Does one have to insert a binding or something? [57]

I : Yes. [58]

R : Then.... you put it here (indicates to pattern pieces) [59]

I : Where specifically? [60]

R : (giggles softly)...on the seamline. [61]

I : What do you mean? [62]

R : Centre it on the seamline [63]

(Brief discussion on the attachment of binding to seamline)

I : Where do they show the seam binding? [64]

R : Don't they show you the seam binding here? Actually they don't show much. [65]

I : Don't you see seam binding? [66]

R : Um ,....ja, I see it. [67]

I : What they mean is, that the binding must be placed over the centre of the seamline, like this... illustrates [68]

R : Now I understand [69]

I : Then, they say, fold in fullness at the large dot. How would you fold in fullness? [70]

R : ..... long pause. They have not told you, they have not told you how to go about ..... they take it for granted that the pattern is going to be used by someone who knows. [71]

I : And if you look at this pattern,it's a See and Sew, which should be a simple, simple pattern. [72]

R : Which it is not! [73]

I : Thank you very much for your time. [74]

INTERVIEW THREE

I: I want you to read step two aloud and using these two pattern pieces show me what you would do if you had been constructing this section of the garment.
(hands over replicas of pattern pieces to the student) [1]

R: (student reads silently) [2]

I: Please read out aloud [3]

R: Oh yes!...Stitch one yoke front 9 section together and one yoke front back section at right side. Remaining yoke front and yoke back sections to be used as facings. [4]

I: Disregard the part about the facings. Now show me how you go about joining the two sections together. [5]

R: .....(long pause as the student rereads the instruction while fumbling with the pattern pieces.)
.....Now this is my right side,..... [6]

I: If that is your right side, what would you do next? [7]

R: .....(places the pattern pieces together).....
.....(long pause while looking at the illustration provided by the instruction sheet)..... I will stitch **THIS** side. [8]

I: What else would tell you that it's right sides together? [9]

R:.....(looks at instructions for a while). [10]

I: Does the instruction say so? [11]

R: No. It doesn't say so. It says you must stitch it together at the right side. [12]

I: What tells you to stitch right sides together? [13]

R: ....I don't know.....(laughingly says) it's my knowledge. [14]

I: Which knowledge? [15]

R: When you stitch a garment, right sides normally face right sides. [16]

I: This illustration shows one that the shaded sides face each other. [17]

R: (responds very quickly)But I didn't even look at that. [18]

I: So because you have constructed garments before, you have acquired that type of knowledge. [19]

R: Yes, I would say so. [20]

I: We've done that section, now let's do the next section. [21]

R: To stay upper and lower edge of yoke, on inside, centre seam binding over seamline, folding in fullness at large ... as shown [22]

I: That symbol means the dot, and so that part would read " folding in fullness at large dot". [23]

R:...."Oe"..(student giggles excessively at this point and holds up her hands, raises her shoulders and shakes her head to illustrate her lack of comprehension) [24]

I: .....(laughs too)..What do you think you would do? [25]

R: ...(still laughing)... You stay upper and lower edges of yoke ....(and continues reading the remaining statement softly).....(long pause) [26]

I: What does it say? [27]

R: Uhm, uhm ....(and throws her head back and laughs outrightly)..... I think these people are speaking in

German.... (and laughs again) [28]

I: Okay, let's try. You've stitched the seam. Now....? [29]

R:....(shakes her head).... [30]

I: Do you think a step was left out of the instructions? [31]

R: I think they're talking about ,...I'm supposed to add a bias binding to this edge .....(very slowly rereads the instruction) seambinding over seamline....Yea .... I think so [32]

I: So now you've done that. Do you think that there is a step left out or not? [33]

R: As far as I can see..... yes. But you see, I didn't read that. [34]

I: Between which two steps? [35]

R: Seambinding ....what is seambinding? [36]

I: Did they tell you to iron the seam open? [37]

R: No! and they said never you must finish the edge off. [38]

I: But it's not necessary to finish the edge off as the other section will be used as a facing which will cover that seam. [39]

R: Okay! Yes, of course. .... But isn't that like one of those..... (gesticulates in a waving fashion) [40]

I: Are you speaking about unwritten rules? [41]

R: That's right, it's an unwritten rule,..the ironing and that. [42]

I: And now, back to the bias. [43]

R: Is it a bias binding they're speaking about here? [44]

I: Yes, it is a type of binding, it's almost like the white tape that is used to make loops to hang a skirt from. It is wider though. [45]

R: So..... [46]

I: Where would you place the binding? [47]

R: Well,.....uhm.... [48]

I: What do they say? [49]

R: They say I must..... attach the binding to the upper and lower edges of this thing..... so we're going to put it up there(shows upper edge of skirt on illustration). [50]

I: Where up there? [51]

R: On the wrong side, first of all. .... with the binding open..... and on the edges [52]

I: Is it on the very edges? [53]

R:..... Lower and.... Yes, they say upper and lower edges. [54]

I: There's a piece that you're not reading. [55]

R: On each side....(softly but rapidly reads)...centre seam binding over seamline..... (laughs).... [56]

I: (laughs)...What is the seamline? [57]

R:.(...still laughing)...This is the seamline....(points to the seam which should have been completed in the previous step) [58]

I: Is that the only seam line? [59]

R: .....(very long pause)..... [60]

I: If you look at the picture... [61]

R: Yea? ...(laughs).... [62]

I: Where do they show that seam binding? [63]

R: ..... They show the binding on my upper .....
and my lower.... (uses examples of tape to illustrate)
this thing is supposed to be something like this... [64]

(short discussion of the attachment of binding to yoke followed)

I: If this was your binding (piece of binding is given to student), where would you be placing it? [65]

R: Okay, mustn't this thing go over here,... (points to upper edge of illustration).....

I: Over where? Anywhere? [66]

R: Here on the edge. [67]

I: Look at the picture.... [68]

R: They're saying this thing must be sewn down.... [69]

I: Read that part of the sentence (indicates the place) [70]

R: ....(very slowly)...on inside, centre seam binding over seam line..... Oh, Oh, the centre of the seam binding [71]

I: Let's do this...if that is your raw edge, 1.5cm away from it is the seam line. [72]

R: The centre of the binding must be over the seam line like this.....(looks at interviewer) [73]

I: .....(nods head in agreement) [74]

R: Halleluja!!! ...(and laughs in relief) [75]

I: Would you have known what to do if you had been constructing this garment? [76]

R: Not at all! The diagram is very vague. [77]

I: Folding in fullness at large dot. Would you have known

how to do that? [78]

R: I know, but if one did this for the first time, I'm sure you won't know. [79]

I: Do you think the pattern could have provided information like that? [80]

R: No they don't, they make it sound so casual (sways her head and in a lilting, poetic-like way says) folding in fullness at large dot. [81]

I: Thanks very much for all that effort. [82]

INTERVIEW FOUR

I: Please read step two aloud. [1]

R:.....(pulls instruction sheet close and starts to read silently) [2]

I: Please read it out aloud. [3]

R: Oh,oh.....Stitch one yoke front 8 section and one yoke back 9 section together at right side. (remaining yoke front and yoke back section will be used as facings) [4]

I: Okay,so what would you do? (student is provided with pattern pieces) [5]

R: So then you.....(very long pause)... this side you will stitch.... and this side you will use as a facing [6]

I: Read again [7]

R:....(soft giggle)...reads instructions softly and slowly [8]

I: Tell me what you would do. [9]

R: You'd obviously stitch here .....and then use this part as a facing [10]

I: Remember the instruction sheet said that the **other** two parts would be used for the facings.Please read the next step. [11]

R: To stay upper and lower edges of the yoke, on the inside, centre seam binding over seamline, folding in fullness at large dot as shown .....(looks up and smiles) [12]

I: Now imagine, you stitched the seam and ironed it, what would you do next? [13]

R: You would stay stitch it..... [14]

I: Why would you? [15]

R: It says to stay upper and lower edges..... [16]

I: Continue. [17]

R:.....(mumbles to herself) [18]

I: Loudly. Tell me aloud what you are thinking. [19]

R:....(giggles softly)...rereads the entire instruction... [20]

I: So how would you know what to do? [21]

R: I suppose you would use binding and then.....you apply the seam binding to the upper and the lower edges, to keep it in place [22]

I: The upper and the lower .....? [23]

R: Yoke... [24]

I: How would you know where to place it? [25]

R: They say you must centre it over the seamline [26]

I: Onto which seam line? .....(student indicates)... You mean the one that you've just sewn? [27]

R: Yes [28]

I: Why? Look at the picture, what does it show you? [29]

R: It shows the edges. [30]

I: Why do think it shows those edges? Because you're speaking about the completed seam. [31]

R:.....(long pause while student studies the instruction).... they talk about the centring of the seam [32]

I: Where else is there a seamline or is this the only seam line you have? [33]

R:.....This over here ...(points to upper edges) [34]

I: Only these edges? [35]

R: And these lower ones as well. [36]

I: So what is your seam line? When they speak about the seamline, what do you understand by it? [37]

R: Two pieces of fabric that have been stitched together like this.....(and illustrates on the pattern pieces) [38]

I: Is that a seam or a seam line? [39]

R:.....(laughs) This is a seam. The seam line is the ...uh,uh.... the edges. [40]

I: So this you would call your seam line....(indicating to edges) [41]

R: No, you stitch 1,5cm from there.....that's the seam line [42]

I: And the top edge, what would that be? [43]

R: The cutting line. [44]

I: Thank you, thank you!!! Now that you know where the seam line is, where would you place the tape? [45]

R:.....(very long pause)..... You would place it here [46]

I: How? [47]

R:.....(student looks at interviewer) [48]

I: If this is the binding.....(provides student with sample) [49]

R: .....(laughs)....Maybe you must place it like this and place the....uh,uh,uh.....binding on the seam. [50]

I: And then? What about the piece that you're folding up like that? What will happpen to it? [51]

R: I would open it up and neaten it. [52]

I: You would? ...(laughs)....What would you do?.... [53]

R: ......(laughs uncontrollably and shrugs her shoulders to show that she does not know) [54]

I: You would place the centre of the seam binding over the seam line. [55]

(Brief discussion of the attachment procedure is done at this point)

I: What are we supposed to do next? [56]

R: Seeing that it's a corner, one would probably mitre it,... or give it a pleat [57]

I: If you had to be constructing this garment, how would you have solved this problem? [58]

R:.....(very long pause).... [59]

I: Does the illustration help you at all? Could they just have provided the theory instructions? [60]

R: No, they can't leave out the pictures... like this part, I know what they mean..... but a person who can't sew will be lost. [61]

I: Thank you very much for your time. [62]