LIST OF TABLES

CHAPTER ONE

1. MODES OF THINKING AND LEARNING OF EDUCATIONALLY DISADVANTAGED LEARNERS

INTRODUCTORY ORIENTATION, STATEMENT OF THE PROBLEM AND PROGRAMME OF THIS INVESTIGATION

1.1. INTRODUCTION

The persistent lack of achievement among the majority of South African disadvantaged learners, led to an investigation into the cognitive and learning styles of a group of South African disadvantaged learners in the Ekhuruleni District of Gauteng, and the teaching methods used in the classroom of these learners.

Whitson (1994:2) believes that “an important function of education is to develop the individual’s creative powers and latent abilities”.

However, it seems that we, as educators in South Africa, ignore or suppress the latent abilities and creative powers which South African learners bring to school from diverse environments. In the preoccupation with imparting information, so evident in South African classrooms, we have missed the point of education, which is the ***self-actualisation*** of the individual. Whitson’s (1994:2) criticism of the education of modern society, is that education seems intent on “manipulating teachers and pupils into mechanically functional administrative arrangements”.

Educators emphasise recall of information, rational reasoning and standardised tests, almost to the exclusion of the development of creative potential. The concern is with how much information the child can be made to regurgitate, rather than how the information can help the child to be part of his community or how meaningful that information is to the child.

William B. Yeats, famous poet and writer, was of the opinion that “Education is not the filling of a bucket, but the lighting of a fire".

During numerous visits to schools in the Ekhuruleni Metropolitan area, in Gauteng, South Africa, it became apparent that disadvantaged learners in South Africa are usually concentrated in schools where resources are limited and much of the teaching approaches centre around lecturing or verbal presentations. In other words, subject material is presented in an abstract manner.

Teachers have as their focus, **teaching** rather than **educating** the child or training the child to think in a variety of ways to solve problems. Teachers in disadvantaged schools tend to resort to the written and spoken word from an early stage in the child's school career without a thorough initial orientation to school and assessment of basic skills, for example, motor skills.

It was noted that in several schools visited, Grade one learners sit passively at run down desks in a bleak classroom where nothing adorns the walls, while the only voice in the classroom is that of the teacher who teaches through lecturing. In these schools, which are mainly in the so-called black townships, learners have no learning equipment such as blocks and books in the Grade classrooms. Grade one learners are required to sit in front of a book with a pencil and copy from the board after the teacher has explained the lesson.

For some learners it may be the first time that they are exposed to the written word, yet on entering school they are given very little, if any, orientation to written information.

1.2. ANALYSIS OF THE PROBLEM

The relevance to the disadvantaged learner, of learning material and teaching approaches, seems to be a world-wide problem as has also been noted by Lopez, Assael, Neumann, (Lennon 1988:418) "that a discursive style of teaching prevails in these schools, teaching based almost entirely on the use of verbal formulations and

often made up of nominal or abstract components, that in addition, omit any pragmatic or utilitarian reference".

"This teaching approach does not give children who have acquired their knowledge and skills through direct participation in activities, who are used to stimulus from figurative rather than verbal material and to concentrating their attention on detailed observation of elements and empirical aspects, an opportunity to display their intellectual skills."

Lopez's et al (1988:418) description of the academic environment and teaching approaches is as relevant to schools in South African disadvantaged communities as anywhere else in the world.

Several schools attended by disadvantaged learners in the Ekhuruleni Metropolitan area, are poorly equipped, teaching methods are not varied, and learners are crowded within a very confined area. Furthermore, many teachers, despite numerous teacher training workshops on new teaching methods and Outcomes Based Education, depend on rote-learning without realising and acknowledging the importance of higher order thinking skills such as described in Blooms Taxonomy of the cognitive domain.

The 'chalk-and-talk' teaching method seems to be the most common method of imparting knowledge, which provides scant preparation for examinations and in the long term, life, and discourages probing questions, from learners. Learners are not provided with opportunities to develop critical and creative thinking so necessary to cope with survival in a fiercely competitive world.

Entwistle & Ramsden (de Villiers 1996:135) have also identified the lack of critical thinking in South African schools when they describe the emphasis in South African education, especially among so-called Black schools, as that of "rote learning and uncritical approaches, which has encouraged students to follow a **surface**

processing approach to learning as opposed to a **deep processing** of learning material".

Teaching methods will be discussed in greater detail in **chapter two**.

Adams & Adams (1991:43) identifies a number of problems in the educational environment in many South African schools where disadvantaged learners are found. Teaching accommodation is in short supply; the content of most school subjects is irrelevant to the immediate and future needs of the disadvantaged learner; many teachers remain under-qualified; the medium of instruction is foreign to many of these learners; teachers emphasise rote learning; there is very little opportunity for the development of creative and critical thinking skills; there is too much information to cover, which gives the creative teacher very little time for creative teaching; teachers often mete out corporal punishment when learners venture to ask questions.

In the schools visited in the Ekhuruleni Metropolitan district, it was found that often the teacher may ask a question, but before any learner in the class can respond, the teacher gives the answer and with almost lightning speed, goes on to the next concept, leaving already confused and disorientated learners further bewildered.

As each year goes by, as described by Van Heerden (1997:79), the picture remains the same in historically disadvantaged schools in South Africa.

In addition to the poor learning and teaching processes, other problems, which make academic success an even more remote possibility, is that the culture and religion of numerous culture groups continue to be ignored when presenting learning material.

The majority of schools promote a Christian philosophy despite the fact that many South African learners have been taught ancestor worship and other indigenous forms of religion.

Furthermore, learners are given very little opportunity to discover for themselves. Teachers are under pressure to cover the set curriculum and are therefore reluctant to deviate from the task set for the day. Large classes make it difficult to control learners and teachers tend to keep learners at their desks for the sake of order.

Outcomes Based Education is being implemented in South African schools, but the effectiveness of this system can be doubted for several reasons.

In South Africa, the vast difference between more affluent schools in previously so-called “white” areas and the historically disadvantaged schools in “black” townships will be exacerbated by this system which is expensive and too complicated to implement. More affluent schools would not find it difficult to implement this system as funds are more readily available, whereas in the historically disadvantaged areas it is almost impossible to stock up on the required equipment and materials.

Furthermore, as was noted during workshops conducted to familiarise teachers with the Outcomes Based Education, teachers from disadvantaged areas find it very difficult to understand the teaching principles involved in Outcomes Based Education. In addition to this, it was also noted that the creative input required to construct lessons within Outcomes Based Education which does not require the sole use of a textbook, was lacking and many teachers found it very difficult to generate ideas to make lessons interesting and varied. There seems to be little evidence of educationally disadvantaged learners and in many instances, their teachers to think critically, metaphorically and to effect lateral and vertical transfer of knowledge, all of which are demanded by the OBE system. Hence the trend for teachers to continue to overuse the textbook and the lecture method, remains.

Moreover, because of the great chasm between the life world of the disadvantaged learner and the school environment, the learner brings with him/her a special kind of

anxiety and a predetermined belief in his or her helplessness to cope with an alien environment. The will and motivation to succeed cannot present itself in learners who are out of their depth in a system with which they do not identify. Eventually many will become discouraged and give up.

Apart from an unfriendly school environment, many of these learners come from desperately poor homes where there is little exposure to educational materials. Is it any wonder that disadvantaged learners are lost almost at the start of their school careers and are unlikely to catch up as the gap between what they can do and what they are expected to do widens with each passing day.

1.3. AREAS OF INVESTIGATION

- This study will set out to discover whether a group of disadvantaged learners in the Ekhuruleni District of Gauteng, are predisposed towards particular modes of thinking and learning and whether the findings of this study confirm the findings of existing literature on modes of thinking and learning among disadvantaged learners.
- An attempt will also be made to establish whether teachers in the sample of schools drawn from the Ekhuruleni district, understand and cater for the modes of thinking and learning used by disadvantaged learners in those schools.
- Furthermore, this study attempts to establish the extent to which critical and creative thinking is encouraged in the EDL classrooms of the sample group used in this study.
- This study will therefore investigate the modes of thinking and learning common to disadvantages learners in a sample group of learners in schools in the Ekhuruleni District in Gauteng, who may have been educationally

neglected and to establish the extent to which knowledge and thinking and learning skills demanded by the world community of the 21st century is ***meaningfully*** linked to the disadvantaged child's life world.

1.4. RESEARCH QUESTIONS

From what has been discussed thus far, the following questions arise and need to be further investigated:

1.4.1. To what modes of thinking and learning are disadvantaged learners in the sample predisposed?

1.4.2. To what extent is critical, intuitive and creative thinking encouraged in the classrooms of the sample group as mentioned in 1.3 above?

1.4.3. Which instructional approaches are most frequently used by teachers in disadvantaged classrooms in the schools used in the research sample?

1.4.4. Do instructional approaches used by teachers in disadvantaged environments take into account the modes of thinking and learning of disadvantaged learners in their classrooms?

1.5. AIM OF THE INVESTIGATION

The primary aim of this investigation is to establish the modes of thinking and learning of educationally disadvantaged learners in a sample group of learners in Ekhuruleni, Gauteng.

In order to achieve this aim, the following secondary aims are postulated:

1.5.1. To establish the sensory modality preference of disadvantaged learners.

1.5.2. To establish whether there is a dominant mode of thinking and learning among disadvantaged learners.

1.5.3 To determine whether teaching methods most frequently used by teachers in

disadvantaged schools, take into account the modes of thinking and learning most

favoured by disadvantaged learners.

1.5.4. To determine the level of critical and creative thinking encouraged in classrooms of disadvantaged learners.

1.6. RESEARCH METHODOLOGY

1.6.1 A **literature study** will be conducted on **modes of thinking and learning**, specifically among disadvantaged learners.

1.6.2 A **literature study** will also include a **profile of disadvantaged learners.**

1.6.3 An **empirical study** will be conducted using a **nomothetic** approach. The study will include the use of **questionnaires**, classroom **observation** and **interviews with both teachers and learners**.

1.7. PROGRAMME OF INVESTIGATION

In order to establish what modes of thinking and learning, educationally disadvantaged learners incline towards and to determine to what extent creative and critical thinking is encouraged in South African disadvantaged learners, through the teaching methods of their teachers, the following chapters will include the following information:

In **chapter two** the investigation will include a literature review of the following aspects:

Theories of modes of thinking

- Modes of thinking of educationally disadvantaged learners
- Creativity/intuitive cognitive processes among educationally disadvantaged learners

In **chapter three** the investigation will focus on the following aspects:

The profile of educationally disadvantaged learners:

- Identifying the Educationally Disadvantaged Learner
- The Physical Environment
- The Socio-cultural Environment
- The Psycho-social Environment
- The School Environment

Chapter four will comprise the design of the empirical investigation and will focus on the following aspects:

The study will involve an empirical investigation into the modes of thinking of educationally disadvantaged learners in the Ekhuruleni Metropolitan area, Gauteng, South Africa .

The populations of the schools are composed of several cultural groups who include learners who have been reared in rural areas and who have relocated, and learners who have been reared in historically disadvantaged townships.

Data will be obtained through:

- Classroom observation
- Questionnaires to teachers, and learners
- Interviews with learners, and teachers

Chapter five will consist of the interpretation of the results of the empirical investigation.

The **final chapter** will include:

- A synopsis of the findings from the literature study
- Recommendations.

CHAPTER TWO

2. MODES OF THINKING AND LEARNING WITH THE EMPHASIS ON DISADVANTAGED LEARNERS

2.1. INTRODUCTION

The goal at every school should be for every learner to reach self-actualisation. But

what does self-actualisation involve? How does the learner reach self-actualisation? Is education all about acquiring sufficient marks to obtain a South African matriculation certificate, or acquiring enough book knowledge? Does the learner regard the book knowledge as useful in his or her life circumstances? Do we as South African educators strive to encourage learners to use a variety of modes of thinking to enhance the quality of life or solve problems that learners encounter in life? In other words, what is the **purpose of education**?

According to Neil Postman (Goree 1996:36) “Children enter school as question marks and leave as periods”. This cynical comment is in reality a disturbing reflection of many of the products of the South African school system.

In an experiment done by Svensson on the processes of learning (1977:237), he feels that “the acquisition of knowledge as the primary goal of education must be reconsidered. To neglect skill is to forget about how an individual acquires and uses knowledge”.

Ginsburg & Opper in Fritz (1995:54) believe that “genuine learning occurs when students have the mental skills needed to make proper use of a new experience”.

The above observations indicate a need for a shift in the approach to the function of education. The purpose of education should therefore not be about disseminating information for its own sake as seems evident in many South African classrooms.

As the focus of this study is schools in the South African education context, questions arise about how much attention is given to how South African learners think and learn and to what extent effective thinking and learning are encouraged in South African classrooms. Nickerson, Perkins and Smith (1985) in (Botha and Cilliers (1993:57) state that students do not ‘acquire the ability to think very effectively as a

consequence of their educational experience' and believe that the teaching of thinking skills does not appear to be a priority.

Is there any one mode of thinking, which is encouraged over and above any other mode of thinking in our school environment? What place, for example, do sport and cultural activities play in helping the learner to develop a variety of modes of thinking? Furthermore, very little cognizance is taken of what mode of thinking each learner has developed, during these educational activities and in prior life experience. Do teachers realise the link between the above-mentioned activities and the development of various modes of thinking, or are these activities just a means to an end? .

In the majority of disadvantaged schools in South Africa, very little sport or physical education takes place, while in advantaged schools, it is high on the list of priorities and is fiercely competitive. The extent of cultural activities in disadvantaged schools is usually the school choir where, nevertheless, a great deal of talent is to be found. Van der Spuy and Vorster (1995:64) observe that learners who are educationally restrained, i.e. educationally disadvantaged, tend to be passive and show no interest in sport or cognitive activities.

There does not seem therefore, to be a consensus about where the emphasis should lie with regard to skills building in South African schools. And at the same time, as mentioned above, very little thought is given to how the modes of thinking developed by learners during scholastic activities and away from the classroom, influence their learning. According to Gildenhuys & le Roux (1993:38), extra-mural activities could prove useful in providing opportunities for learning and cognitive development among educationally disadvantaged learners.

Furthermore, education in South Africa remains a number of unrelated activities. Subjects are not meaningfully linked. Academic work does not serve the purpose of teaching learners to think creatively and critically about the reality of their world.

As observed by van Heerden (1997:79), the academic work that learners are expected to master is often not related to their life world. Disadvantaged learners therefore often do not see the relevance of academic activities and therefore do not attach meaning to it.

What is the point of the implementation of an educational system that ignores the diversity of potential and talent, traditions and culture of its clients, the learners, as well as the demands of their communities? According to Hickson and Skuy (1990:295) disadvantaged learners represent a 'substantial untapped source of talent.' According to van Niekerk & Meier (1995:74), confusion about and rejection of traditional cultural values result when learners are exposed to conflicting cultural norms, which leave many South African learners 'in limbo' Many South African learners are to be found in historically disadvantaged communities, which sadly are in the majority in South Africa. Within the South African context, many learners often do not share the values promoted by a predominantly Western culture (v. Heerden 1997:77).

Although each learner is a unique individual, each learner is also part of a community as well as a product thereof. Each learner comes to school with values, background knowledge and people who have played a significant role in his or her life. As educators, we cannot therefore ignore these factors. Educators cannot ever assume that learners are a clean slate, which can be filled with knowledge, to mould them into 'acceptable' adults. Nor can we assume that all learners will process information presented to them, in the same way.

A balance must be sought between what is relevant to the disadvantaged learner, and preparing the learner for his or her role in a predominantly Western world.

South Africa is a multicultural country and the system of education therefore has the responsibility to cater for the cultural diversity within this nation as well as prepare learners for their role in a global society.

This means that educationists in South Africa should consider several factors, including how learners think and learn, and how they have come to think the way they do, before trying to implement new systems of education, which might have been successful in other countries with learners who come from totally different environments. Based on the fact that South Africa is one of the most culturally diverse countries in the world and that with cultural diversity must follow diversity in modes of thinking, educationists in this country are faced with a major challenge. We need to define a system that caters for all modes of thinking grounded on how these have developed in a multicultural environment. According to Goody (1989:477), defining a suitable system that would meet the needs of the learner population, would include a reconsideration of "educational planning, educational policy, school system, curricula and teacher training".

It would mean developing an adaptive education system, which would "match an individual's abilities to alternative ways of learning" so that he or she can benefit from all the available alternatives. (Resnick 1976:23).

2.2. DISCUSSION OF CONCEPTS

2.2.1. Cognitive Abilities

A distinction can be made between '***cognitive abilities'*** and '***cognitive styles'***.

Cognitive abilities refer to the ***level*** of performance, while cognitive styles refer to ***manner*** of performance. Whereas cognitive abilities brings with it value judgements, that is, suggesting that one individual's abilities are superior to another's, cognitive style suggests that processing information is different rather than superior or inferior.

This study is concerned with cognitive styles or modes of thinking rather than cognitive abilities.

2.2.2. Cognitive Styles

It is difficult to define the term 'cognitive style' or 'mode of thinking'. In essence, it can be understood as the link between personality and cognition. (Wyss 2002:1)

From the many definitions that exist, it seems that some educationists, e.g. Morgan (1997:141), Hylton & Steve (1997:103,104), Kolb (1984) and Biggs (1988:128) see cognitive and learning styles as one and the same thing, while others, e.g. Morgan (1997:141); Greeno (1980:713) and McFadden (1986) in Heineman (1995:1) refer to learning and cognitive styles as two separate concepts when discussing cognitive processing. Nevertheless, the terms are often used interchangeably (Heineman 1995:1). Perhaps it is because they are so inextricably linked as described by Mugler & Landbeck (1997:231) in their two dimensional model of Learning.

Cognitive styles or modes of thinking refer to the preferred way in which an individual ***processes*** information, which is different from how other individuals process information, i.e. the cognitive ***strategies*** learners use to deal with each situation are determined by cognitive style.

Messick (1976) in Heineman (1995:2) explains cognitive style as ‘variations among individuals in preferred ways of perceiving, organizing, analyzing or recalling information and experience.

Messick (1987) in Fritz (995:53), explains cognitive style as a specialized personality trait, i.e. how an individual uses perceptual and intellectual activity when relating to a range of sensory and task situations. Bloom (1984); Gagne (1985); Witkin & Goodenough (1981) in Fritz (1995:53) states that ‘higher order problem solving requires use of special cognitive skills such as restructuring ability’ and that this skill is regarded as a personality trait.

Morgan (1997:141) distinguishes cognitive styles from learning styles by explaining that *cognitive style* needs to be differentiated from *learning strategy*. “A style is considered to be a fairly fixed characteristic of an individual, while strategies are the ways that may be used to cope with situations and tasks.” Zarghani (1988) in Heineman (1995:1) defines learning styles as the ‘cognitive, affective and psychological traits’ used to ‘perceive, interact with and respond to the learning environment.’

In 1937, **Allport** introduced the concept of **‘cognitive styles’** as "a style of living and adapting influenced by distinctive personality types." According to Allport, ‘cognitive styles’ refers to how each individual adapts to living, which is further influenced by personality types. The latter are vital if the learner is to cope in an environment, which demands complex abstract and analytical thinking and application of knowledge to real-world problems.

Rabianski-Carriuolo (1989:18) defines ‘cognitive styles’ as “characteristic ways of responding in learning situations”. For example, one learner may prefer to interact physically with what he or she has to learn, while another

learner finds it easier to process information through symbolic representations, for example, words. In other words, one learner may process information by means of a tactile approach while the other may use abstract thought processing.

Saracho (1997:19) explains 'cognitive style' as "broad systematic characteristics that influence the persons' responses in different situations. It identifies the persons' stylistic behavioural attributes that they exhibit in their perceptual, social and intellectual activities." Saracho (1997:19) further explains that these attributes show how an individual understands, thinks, remembers, judges and solves problems.

Richter (1992:19) explains 'cognitive style' as "stable individual preferences regarding the manner of perceptually organising and conceptualising the environment as well as reacting thereon or adapting thereto".

Cognitive styles are therefore distinct from scholastic ability and general intelligence.

The above researchers have suggested several elements, which make up the complex cognitive processes. These include personality, behavioural attributes and adaptation to environment.

Personality traits and behavioural attributes contributing to the development of complex cognitive processes would include traits, which would, for example, differentiate between Field Dependent and Field Independent learners as discussed at length in section 2.3.6 below. According to Saracho (1997:20) learners' cognitive styles relate to their social behaviours. Field dependent learners, for example engage in more social orientated activities during problem solving and are more impulsive, while field independent learners favour a more

solitary, independent approach and are more reflective in their approach to problem solving.

2.2.3. Atomistic and Holistic Cognitive Processing

According to Svensson (1977: 238), two approaches to cognitive processing need to be identified. These are the ***atomistic*** and ***holistic*** approaches. Students using the holistic approach try to understand the text as a whole, to understand the purpose of the text and its main arguments as well as trying to relate it to a wider context. In contrast, students using an atomistic approach, view the text in a fragmented way, thereby failing to see the "whole picture".

How learners remember a text is also approached differently. Atomistic learners try to remember fragmented, unrelated parts of the text, while holistic learners try to remember the main gist of the text and how it relates to a wider context. Svensson's study (1977:240) revealed that learners using an holistic approach to their studies relate new material to existing knowledge while learners using the atomistic approach more frequently stress rote learning, i.e. learning "parrot fashion". According to Svensson's study, examination results are reflected in these two cognitive approaches, i.e. the holists are more successful than the atomists. Svensson's study (1977:242) suggests " a holistic learning process is a necessary prerequisite for the acquisition of a deep level of understanding". A holistic approach allows for critical thinking skills and critical thinking skills are a necessary factor in academic achievement.

The approach taken to education in South Africa is largely fragmented as mentioned in the introduction to this chapter. An holistic approach to thinking and learning is for the most part not encouraged in the majority of South African classrooms.

2.2.4. Cognitive Structures vs Cognitive Skills

Moll & Slonimsky (1989:160) speak of **cognitive structures** and **cognitive skills**, and define each respectively as "typical patterns of activity, viz the organised totality of a person's interaction with (acting on and responding to) the social and material environment"; and "the contextually specific mobilisation of particular units of structure, in some combination, which is required to complete a particular task". Cognitive styles are concerned with processes of thought, while skills deal with how these processes are manifested.

2.2.5. Learning Styles

For the purposes of this study, learning styles will be regarded as a component of cognitive styles, as demonstrated by the diagram below.

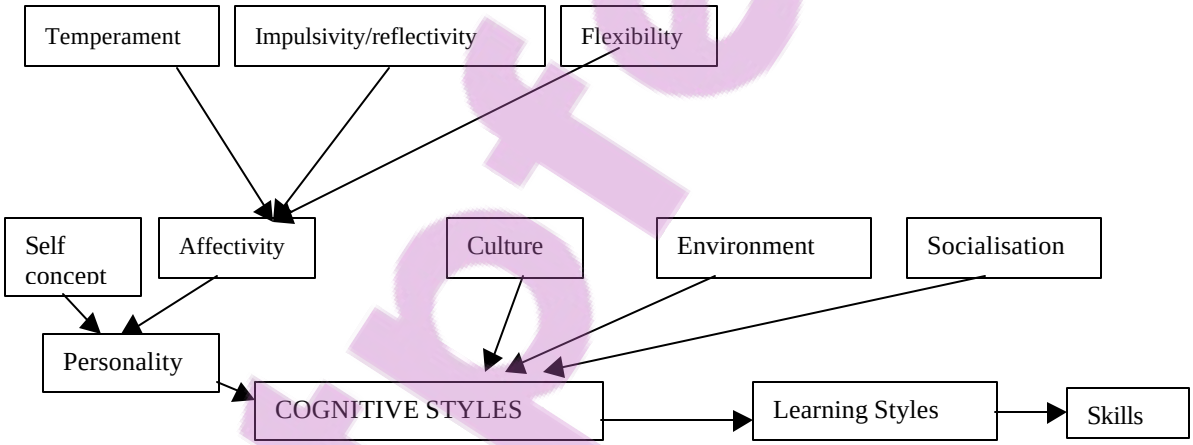


Diagram 1: Learning Styles as Component of Cognitive Styles

The diagram above illustrates that cognitive styles are the result of the learner's adaptation to his/her environment and life experiences and in turn, the cognitive style will influence the learning style and ultimately be manifested in skills.

Keefe in Park (1997:69) sees learning style as "cognitive, affective and physiological traits that are relatively stable indicators of how learners perceive, interact with, and respond to the learning environment".

Dunn & Dunn in Park (1997:69) believe that learning style is a “biological and developmental set of personal characteristics that make the identical instruction effective for some students and ineffective for others”. They also established that 20 to 30 percent of learners preferred an auditory learning style, 40 percent preferred visual and 30 to 40 percent preferred tactile/kinaesthetic, visual/tactile or some other combination of learning style.

While cognitive styles refer to how the learner **processes** information, i.e. how he or she analyses, perceives, reasons about it, the learning style refers to how the learner **utilises** the information. That is, will the learner approach the material in a logical, systematic manner or will the learner approach it by learning it without understanding, using rote learning. In other words, the cognitive style will determine how learning material will be manipulated.

Paul (1990:560) explains rote learning as lower order learning which reveals a lack of logic. He states that "lower order learning is learning by sheer association or rote". He believes that the information remains unrelated, a "jumble of undigested fragments, scraps left over after they have forgotten most of what they stored in their short-term memories for tests". Learners who use rote learning never really **understand** or **think** about what they are learning, which could influence, negatively, any attempts to apply learned information, to new unfamiliar situations. For the rote learner, new and existing knowledge remains unrelated and meaningless information, which has been memorized, but quickly forgotten.

The teacher therefore needs constantly to evaluate whether the learner is able to relate the new knowledge to existing knowledge and apply it to new

problems. The teacher needs to encourage a holistic approach to thinking and learning.

2.3. THEORIES OF COGNITIVE DEVELOPMENT AND COGNITIVE STYLE

Both Gardner's 'Theory of Multiple Intelligences' (Greg 1997:146) and Vygotsky's 'Zone of Proximal Development (de Villiers 1996:136), as theories of cognitive development, provide significant insight into the development of cognitive styles. Then for example, there is Feuerstein's 'Mediated Learning Experience' or MLE where a mediator takes over the cognitive responsibility for problem solving until the learner is able to internalize the cognitive strategies needed for problem solving (Feuerstein et al 1981: 275).

Theories about cognitive styles are more concerned with ***process differences*** in ***thinking***, rather than with ***differences in intellectual abilities***.

Cognitive style theorists support the view that ***affect*** and ***personality*** are part of the cognitive styles adopted by each individual.

Apart from identifying aspects influencing cognitive styles, theorists have also identified numerous styles of cognitive thinking.

Despite the fact that theories about cognitive styles abound, educators have neglected to attach the necessary importance to these in curriculum development and teaching approaches.

2.3.1. Gregorc's Four Cognitive Styles

Gregorc in Taylor (1997:41) identified four learning style groups which for the purpose of this investigation will be regarded as cognitive styles:

- Concrete Sequential. These learners prefer 'hands on' and structured activities.

- Abstract Sequential. These learners prefer reading, essay-writing and listening.
- Abstract Random. These learners prefer peer discussions, role play and art.
- Concrete Random. These learners prefer games, simulations and open-ended work.

Specific research done by Gregorc in Taylor (1997:41) into cognitive styles and science activities in the classroom, indicated that there was a significant discrepancy between cognitive style and science activities in the classroom, in other words, the teaching methods selected by the teacher in the classroom, with Abstract Sequential and Concrete Random learning styles being the least accommodated in the classroom.

2.3.2. Silver, Strong and Perini's Four Basic Cognitive Styles

Silver, Strong & Perini (1997:22) explain the difference between multiple intelligences or cognitive processes, and learning styles as the process of learning and the content and products of learning respectively.

Silver, Strong & Perini (1997:22) have identified four basic cognitive styles.

- The Mastery style learner: This person absorbs information concretely, processes information sequentially and evaluates learning by how clear and practical it is. This is similar to Gregorc's (Taylor 1997:41) Concrete Sequential cognitive style.
- The Understanding style learner is concerned with ideas and abstractions, asks questions, reasons and evaluates learning based on logic and evidence. This cognitive style corresponds to Gregorc's (Taylor 1997:41) Abstract Sequential style.

- The Self-Expressive style learner prefers images, uses feelings and emotions to construct new ideas and evaluates learning according to its originality, aesthetics and its surprise element. The Self-Expressive style closely resembles Gregorc's Abstract Random cognitive style.
- The Interpersonal style learner concentrates on concrete information, learns socially and evaluates learning based on how it can be used to help others. This style corresponds with Gregorc's Concrete Random style.

2.3.3. Vygotsky's Theory of Cognitive Development

Flavell in De Villiers (1996:136) focuses on a theory developed by Vygotsky of cognitive development, which centres around the idea that "higher levels of thinking are dependent on social transactions and social relationship with a mediator, while the internalising of regulative processes such as meta-cognition is necessary for effective individual learning". In other words, there is a difference between what a child is capable of independently and what a child is capable of with the guidance of a mediator. Vygotsky called this the **zone of proximal development** which he defined as 'the distance between the actual development level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers' (Wertsch 1985: 11). This would suggest that cognitive development is not static, but can be influenced by remediation in most cases.

Vygotsky believed that thinking patterns are more a result of our interactions in social and cultural situations than from biological attributes. According to Vygotsky, children develop cognitive patterns from internalizing cultural tools such as language and that social interaction is vital to the development of

cognition. Research done by Vygotsky and Luria in the 1920's, show that abstract cognitive skills do not develop in social environments that are concrete and functional in nature (Torrance 1994:164).

This theory is backed up by studies conducted by Ginsburg and Opper (1979) in Fritz (1995:53) which reveals that a lack of environmental stimulation could hamper the development of the ability to use advanced mental skill; and research by Fritz (1955:53) which suggests that controlling parents may also contribute to limited cognitive skills.

2.3.4. Gardner's Theory of Multiple Intelligences

Gardner in Gregg (1997:146) has developed a theory of what he refers to as multiple

intelligences. This theory is rooted in cognitive science.

Nevertheless, complemented by Learning Styles Theory, it provides an 'integrated model of human intelligence and learning' (Silver, Strong and Perini 1997:22).

Gardner's theory differs from Vygotsky's theory of cognitive development in that while Vygotsky's theory states that cognitive development is significantly influenced by 'social transaction', i.e. social interaction with a mediator (Wallace & Adams 1987:6; de Villiers 1996:136), Gardner's theory of cognitive development focuses on the content of learning (Silver, Strong and Perini 1997:24).

According to Gardner in Gregg (1997:146), different ways of **processing** information are presented by different symbol systems, e.g. linguistic symbols. Gardner believes that learning activities should be structured around all seven

modes of thinking so that learners could be exposed to a variety of methods of processing information. Gardner's seven cognitive processes are:

- Logical-mathematical (ability to perceive logical and numerical patterns and relations);
- Linguistic (ability to absorb a large and elaborate vocabulary and to manipulate language);
- Musical ability to recognise visual-spatial perceptions and adapt these perceptions to new situations);
- Bodily-kinaesthetic (ability to use movement optimally); interpersonal(ability to adapt to a group and its activities); and
- Intrapersonal (ability to be introspective).

Silver, Strong and Perini (1997:22) explain the difference between learning styles theory and multiple intelligence theory as an emphasis on different aspects of learning, namely the ***process*** of learning in the case of learning styles theories and ***content*** and ***products*** of learning in the case of multiple intelligences theory.

2.3.5. Messick's 19 Styles of Cognitive Thinking Theory

Messick's theory (1976) in Messick (1984:59) identified 19 styles of cognitive thinking. Among these is the very widely researched field dependence/independence cognitive style developed by Witkin. Witkin's development of the field dependence/independence type of cognitive style has important consequences for education, since it influences instructional style, interaction between teacher and learner, as well as remediation programmes.

2.3.6. Field Dependence/Field Independence

Among the many theories attempting to explain cognitive styles, a significant cognitive theory is the theory of **field dependence/independence** developed by Witkin.

This theory makes a distinction between field dependent and field independent learners. Specifically, field dependent learners have a socially orientated cognitive style compared with field independent learners who prefer an independent, analytical cognitive style, i.e. the field dependent learner relies on others while field independent learners rely on themselves, i.e. they are self-reliant during problem solving. Self-reliance is, according to Bloom (1984); Gagne (1985) in Fritz (1995:53), a required trait of advanced problem solving. While the field dependent learner uses a social reasoning cognitive style, the field independent learner prefers an analytical style.

2.3.6.1. Field Dependence

Field Dependent (FD) learners prefer the company of others, regard themselves as part of their environment and need external referents to be motivated and to solve problems. Field dependent individuals tend to be attracted to social situations, are very interested in other people and are emotionally open. These children are also orientated towards concrete and structured information and frequently communicate with others.

Because they tend to pay attention to the faces of the people with whom they are interacting and looking to for guidance, they tend to remember people's faces better. Jacobs and Gideon in Saracho (1997:21) believe that because FD learners are more socially orientated, they remember verbal messages with a strong social content better. Witkin &

Goodenough in Fritz (1995:53) also suggest that learners with a social learning style prefer more specific instruction and sequenced assistance. Bennet (1999:188) believes that FD learners need much structure as they have shorter attention spans, having no inner control, often testing the rules, finding it difficult to work within a group without becoming aggressive, being unable to make inferences and lacking self-confidence. According to Saracho (1997:23), FD children need to be involved in physical, manipulative, block and dramatic play. Without close guidance, FD learners are not able to progress. FD learners achieve a higher degree of success in everyday language situations and tasks requiring interpersonal communication skills.

According to Goodenough (Richter (1992:37), while field-independent individuals show more intrinsic motivation, FD individuals are often only motivated to work under conditions of negative reinforcement. Child rearing practices in the homes of disadvantaged learners are often punitive in nature. In these homes, although learning is highly prized, it is not high on the list of priorities, unlike in more advantaged homes where learning is regarded as extremely important and children are encouraged from a very young age to think their way through problems.

South Africa has a large disadvantaged learner population. It may be suggested that many of these learners have a tendency towards Field Dependency.

In classes of 50 learners or more, it is a physical impossibility for teachers to meet the needs of FD learners, who would require more intensive teacher-

learner interaction. Learners in overcrowded classrooms are therefore further disadvantaged.

2.3.6.2. Field Dependence and Advanced Problem Solving

Witkin and Goodenough in Fritz (1995:53) explain that FD learners "rely on other people, particularly when tasks are complex, whereas field-independent learners use themselves as a decision-making referent". Since self-reliance is necessary in advanced problem solving (Bloom 1984; Gagne 1985 in Fritz 1995:53), it follows that FD learners will have difficulty in applying the necessary cognitive skills in advanced problem solving. This becomes evident in the approach of matriculants entering tertiary education, where students clearly do not know how to tackle problems because they lack the ability to apply known principles in new, unfamiliar settings or to make inferences (Bloom 1984; Gagne 1985 in Fritz 1995:53). They are accustomed to 'rote learning and uncritical approaches.' (de Villiers 1996:135).

According to Bennet (1999:189), FD learners have a wide range of abilities, but are incapable of thinking through a problem, resorting to a great deal of guesswork. The FD's ability to analyse, synthesis and evaluate fails them and their approach to problem solving is haphazard (Bennet 1999:189).

Hence the continued failure to cope in an examination situation where the learner is required to apply advanced problem solving skills to new, unfamiliar situations.

2.3.6.3. Disadvantaged Learners and the Field Dependent Cognitive Style

Many disadvantaged learners show a FD cognitive style with the result that they may exhibit many of the characteristics of FD learners. Haywood (1982:277) pointed out that lower-income children are "deficient in basic processes of thought, construction of reality, problem solving, and learning relative to their middle-class age peers".

Fritz (1995:52) believes that many disadvantaged learners have a social cognitive style and do not always possess the necessary cognitive skills preferences as well as attitudes to apply abstract knowledge to solve complex problems such as demanded by an education system, which favours the analytical thinker in South African schools.

The present study therefore attempts to establish whether disadvantaged learners in South Africa tend towards the more socially orientated cognitive style. At present, our educational system favours the Field Independent Cognitive Style. Schools in disadvantaged areas do not use concrete methods of teaching and learning such as physical and dramatic (three-dimensional) activities with their learners. More often than not FD, disadvantaged learners sit passively at desks with a scrap of paper or well-worn exercise book and a pencil, passively copying from the board. No peer interaction and very little meaningful teacher-learner interaction take place. There is an absence of opportunities to use and hone analytical skills. This situation prevails from the very first year of school to the final year of school, in schools in disadvantaged areas of South Africa. Learners are then suddenly required in the matriculation examination to utilise

cognitive skills, which they have never been required to use before and which many learners have not developed.

2.3.6.4. Field Independence

Field Independent (FI) learners seem more socially detached, depend more on their own values, tend more towards analytical thinking, engage in active learning which is defined by Watts, Bebtley & Hornsby in Taylor (1997:39) as “learning which is fruitful and relevant to the youngsters concerned”; and often lack social skills and prefer to work independently, solving problems in different contexts. They are also more intrinsically motivated, i.e. they have an inner need to gain knowledge, which is not influenced by outside pressure. Sadow (1994:243) states that intrinsic motivation is vital to learning. Amabile (1983) in Sadow (1994:244) believes that individuals who are highly intrinsically motivated are more likely to “become emotionally engaged in relevant tasks.” The significance of the above words cannot be stressed enough. Too many South African learners never become emotionally engaged in relevant tasks.

According to Richter (1992:37), FI learners seem more able to distinguish important information from irrelevant information. Furthermore FI persons are “verbally fluent, attentive, competent, reflective and make use of reason to respond to a situation”. (Richter 1992:37).

FI learners excel in classrooms where learning involves analysis, attention to detail, mastering of exercises, drills and other focused activities.

2.3.7. Dreher’s Nine Learning Styles Theory

Dreher (1997:26) has identified nine learning styles. Dreher does not appear to distinguish between learning styles and cognitive styles, but uses 'learning styles' as the umbrella term to refer to both cognitive and learning aspects. According to Dreher (1997:28), how we learn requires an evaluation of how we 'solve problems, act creatively, utilize logic, develop our personalities, and think in a critical manner'. These aspects are referred to by others, namely Witkin (Fritz 1995:53) and Keefe in Park (1997:69), as cognitive skills.

Dreher (1997:26) believes that learners may use any of nine ways to process information cognitively. According to her, the nine cognitive styles are: 1) Sensory processing, which involves being aware of and studying in some detail, the surrounding world. The preference is for statistics and data. Problem solving is not approached creatively; 2) Intuitive processing: the preference is for finding relevance between what is being learned, and life. Problems are solved intuitively and innovatively. Learners with this learning preference are impatient with repetition; 3) Visual: The preference is for visual representation of the information rather than auditory. Information is processed through diagrams and pictures; 4) Verbal: preference is to learn by hearing or reading; 5) Inductive processing approaches information from the specific to the general; 6) Deductive processing takes place using rules and principles to deduce phenomena; 7) Active learners prefer working with their peers in groups, being actively engaged. Active learners are often impulsive; 8) Reflective learners prefer to work alone; 9) Sequential learners enjoy analysing, using step-by-step methods; 10) Global learners prefer seeing the "big picture", can synthesise information effectively, but often disregard details.

Dreher (1997:26) believes that if a learner is allowed to use his or her preferred cognitive style, while discovering alternative cognitive styles, he or she is more likely to reach his or her potential. "When an association between the students' styles, the lesson, other areas of the curriculum, and the tie to reality is emphasised, the students excel, regardless of educational or cultural background." (Dreher 1997:26.) This is echoed by Guild (1997:31) who feels that "accommodating the students' learning strengths and individual intelligences and attending to ways the brain absorbs and processes information result in more effective learning".

2.3.8. Kolb's Learning Style Model

Kolb's Learning Style Inventory takes the form of a continuum between the Extremes of concrete experience and abstract conceptualization and measures how people perceive information between the two extremes (Sharp1997:130).

According to Kolb (1984), thinking is processed in four different ways.

2.3.8.1. Feeling/Sensing Mode

Learners mainly using the **feeling or sensing** mode tend to look to their peers for support in academic activities. Getting along with others is very important to them. They learn best through group work and feedback from their peers.

According to Sharp (1997:132), the strength of these learners lies in their ability to adapt information to new circumstances and they excel in problem solving. They may have problems with completing work on time and may have impractical plans. They are often referred to as accommodators because of their ability to thrive on change and unstructured situations.

2.3.8.2. Reflective Mode

Learners who can be grouped as **reflective thinkers** tend to make careful observations before assimilating information. They learn best through lectures, which are visual and auditory in nature. Their strengths lie in their ability to be logical and rational. They are able to assimilated separate data in an integrated whole. They prefer to work alone. They may sometimes be hampered in the learning process because they tend to be overly cautious and impractical. (Kolb 1984, 1985; Smith & Kolb 1986; McCarthy, 1986) in Sharp (1995:131). Learners using this learning style are often referred to as assimilators.

2.3.8.3. Abstract Generalisation

A third category in Kolb's theory is **abstract generalisation.** These learners are more orientated to things and symbols than towards people. They prefer to indulge in reflective thinking activities such as theoretical and systematic analysis.

The strengths of this group are their ability to reach conclusions quickly and are decisive. Their weakness may be that because they work quickly, they may omit ensuring sufficient data before drawing conclusions (Kolb 1984, 1985; Smith & Kolb 1986; McCarthy, 1986) in Sharp (1995:131).

These learners are commonly referred to as convergers because they are able to draw conclusions quickly.

2.3.8.4. Active Experimentation

The final category, which Kolb (1984) identified was **active experimentation** where learners prefer to be actively and physically

engaged in acquiring new information through, for example, projects and group discussions.

These learners are kinaesthetically orientated (Kolb 1984).

The strengths of these learners, according to (Kolb 1984, 1985; Smith & Kolb 1986; McCarthy, 1986) in Sharp (1995:131), center around their ability to 'excel at viewing an event or idea from many perspective and at generating many different ideas'. They are also imaginative. However their ability to generate many ideas may cause them to be indecisive. These learners are generally referred to as divergers because they can view a concept from many different angles.

2.4. VARIABLES INFLUENCING COGNITIVE STYLE

In Bagley and Verma (1983:3), cognitive style is described as the ***manner*** in which an individual perceives and interprets his/her social and physical milieu.

According to Burke (1997:299), cognitive styles are determined by 20 variables. These are categorised under the headings of: environmental or cultural, emotional, socio-logical, physiological and cognitive-processing preferences, which in turn influence learning style.

Burkes's (1997:299) theory that environmental factors influence the development of cognitive styles confirms Ginsburg & Opper (1979) suggestion that a lack of stimulation negatively affects the development of advanced mental skills. Wallace & Adams (1987:7) also felt that under-achievement among high school learners in Kwa-Zulu Natal, South Africa was as a result of poor social environment, including poverty, disruption of family life, discontinuity of cultural traditions.

2.4.1 Culture

According to (Bybee & Najafi, 1986; Jegede & Okebubola 1992; Ogawa 1986 & Hunt1975) in Letsoalo, le Grange and Rochford (1997:154), 'culture' can be defined as 'a complex multifaceted phenomenon which encompasses the human acquisition of knowledge, beliefs, customs and religions described as an ordered system of meaning and symbols, in terms of which social interaction takes place.'

Lennon (1988:413), believes that the way of thinking and acquiring knowledge is a significant feature of a culture and "all aspects of cognition are inseparably bound up with the socio-cultural context". Lennon (1988:413) clarifies the concept 'culture' as also including living conditions which does influence ways of behaving and thinking as well as ethnic characteristics.

Bagley and Verma (1983:3), Bruner (1966:319); Vygotsky (de Villiers 1995:136); Lennon (1988:413) and others agree that how a child acquires and uses cognitive skills is significantly influenced by the surrounding culture.

Worthley in Bennet (1999:200) has identified five **cultural factors** that may influence learning styles. These include how the child has been **socialised**, for example, ranging from authoritarian to laissez faire. She suggests that the more restrictive child rearing is, the more field dependent the learner will be. Field dependent learners also tend to come from a culture that expects rigid conformity. In the South African context, for example, conflict between western cultural values and the traditional Zulu values can have a significant effect on scholastic achievement, according to Wallace and Adams (1987:7). Whereas Western culture demands that

learners actively participate in the learning environment, 'traditional Zulu society is very authoritarian' and children are expected to submit to authority and be unquestioningly obedient (Wallace and Adams (1987:7).

Highly developed perceptual skills will only develop when a society demands that the child must be keenly aware of environmental changes, which implies that learners should explore and question their surroundings.

Hilliard in Bennet (1999:201) quite succinctly states that learning styles "are a component of cultural behavioural styles - the habits, values, predisposition, and preferences that develop during the child's cultural socialization process. Children of equivalent intellectual potential who grow up in different cultural milieus learn to manifest their mental power in somewhat different ways".

In a study on college students with English as a second language done by Reid (1987) in Park (1997:70), it was found that there were significant cultural differences in learning styles with ESL students strongly preferring kinesthetic and tactile learning styles and a negative preference for group learning.

A further factor influencing learning style would be the **biological** effect, where for instance nutrition and physical development play an important role. There seemed to be a link between the cognitive style of field dependency and a lack of essential protein in children's diets Bennet (1999:200). Park (1997:69) explains cognitive style as the 'biological and developmental set of personal characteristics' which allow some learners to cope while others do not.

A final aspect would be the all important **language** factor. A significant element in the acquisition of language is the socio-cultural frame of reference linked to language. South African learners with their many and diverge languages and cultures are bound to encounter problems with 'effective comprehension of the content of academic material, analysis of questions and presentation of answers' (van Heerden 1997:80) as many of them are required to process information in a language which is not their mother tongue. Although learners may have a good command of the language of instruction, their ability to use it at a symbolic level, may be limited, i.e. comprehension of subtleties and the means of expressing the language (Flemming & Forester 1997:179).

Literate societies tend to emphasise the written word. Reading is highly prized and encouraged, which will negatively impact those who do not have the financial resources to acquire reading material and where the main priority would be basic survival.

Since disadvantaged parents can often not provide the resources necessary for access to books and other media and are also more concerned about the physical provision of basic necessities, the opportunity to develop more advanced cognitive skills is not readily available to the disadvantaged learner (van Heerden 1997:79).

2.4.2 Cultural Transmission

Culture and the development of specific modes of thinking are closely aligned.

Approaches to problem solving and cognitive processing seem to vary in different cultural groups. Gumede (1991:82), points out that we need to

realise that cognitive processing is not the same in every cultural group. This view was held by Feuerstein (1981:270) where he stated that different cultures organized, interpreted and understood concepts within their own frame of reference. Vygotsky (de Villiers 1996:136) stresses the social foundation of cognition, i.e. the social transactions and social relationships with a mediator. Vygotsky in Adams & Adams (1991:44) also believes implicitly in cultural transmission and intentional mediation of the learner's experience for the development of cognitive functioning.

Feuerstein's view (1981:270) mentioned above, is clearly illustrated by Lennon (1988:414) in his discussion about the cognitive patterns of rural people, which developed as a result of their practical interaction with the outside world, which requires an outcome based on physical activity and which is therefore concrete in nature.

Resnick's view (1976:175), stating that each culture develops the kind of cognitive structures that will prove necessary for survival in that society, should be noted as it is important that education should focus on teaching cognitive skills to assist the learner to cope with problems in his or her cultural milieu rather than acquire knowledge just for the sake of acquiring knowledge (Manfredi/Petitt 1994:72,73; van Niekerk & Meier 1995:77,78; Gildenhuys & le Roux 1993:36).

2.4.3 Iconic and Symbol Stages

Bagley and Verma's (1983:3) research has centred on the cognitive structure of Western children between the ages of five and seven. It is at this stage that the transition from 'iconic' to the 'symbolic' mode of representation takes place. At the 'iconic' stage the child deals with bits of

information one at a time and therefore has little use to store information. However, at the 'symbolic' stage, the child deals with a variety of perceptual images, structuring them into relationships and attaching new attributes to this information (Bagley & Verma 1983:3).

The more privileged learner will make the transition from iconic to symbolic stages effortlessly as he/she is exposed to symbolic representations on a regular basis from a very early age.

Cognitive developmentalists focus more on developmental patterns within the structures of abstraction. They theorise that 'significant learning and development takes place in the cognitive structures of abstraction'. (Moll & Slonimsky (1989: 165).

The Western system of education is based on the use of different levels of abstraction. Ford (1981:345) describes 'abstraction' as the 'identification of an underlying structure' and the processing at various levels, including describing facts, identifying overall arguments, justifying conclusions, questioning the validity, and presenting counter-arguments of the distinct components necessary to understand the subject.

Understanding can only take place when links are made between new concepts and existing knowledge. These links must of necessity entail an adaptation of existing knowledge before it can be successfully linked to new information. How successfully the new information is processed at different levels of abstraction, is influenced by how well existing information has been adapted to accommodate the new concepts (Ford 1981:349).

2.4.4 Symbolic Thinking

According to Moll & Slonimsky (1989:163), learners will have problems attempting to process new information at a deeper level if they have failed to develop cognitive structures necessary to be able to process knowledge critically and symbolically. They add that this is often as a result of unfavourable social and educational circumstances. Learners do not develop abstract thinking abilities and therefore rely on surface approaches such as rote learning to attempt to internalize new information (Biggs 1988:129). Many disadvantaged children seem unable to think at symbolic, figurative and abstract levels. Adams & Adams (1991:43) and Weinstein (1989:17) believe that teaching which encourages rote learning and uncritical regurgitation rather than deep processing or elaboration, foster only short term retention of information. Many disadvantaged learners are as low achievers, according to Foster (1989:461) denied learning activities, which should encourage higher order thinking skills. Weinstein (1989:17) adds that elaboration requires deep processing and adds a symbolic construction to the learning activity.

Greenfield, Reich and Olver (Bruner 1966:319), identify a number of features that should be present in the learner's environment for the learner to develop symbolic thinking. These features are: variety and diversity of stimuli, and educating the child to combine elements in his world whether at home or at school.

2.4.5 Attitude to Education

Learning success of low-income, low-socio-economic status, and culturally different children is hampered significantly by several factors including

inappropriate motivational structures, unproductive attitudes toward learning, and frequent failure of the social environment to inculcate a high value on learning, according to Haywood (1980a). If education is not a top priority in families and communities, learners are not motivated to be committed to it. This was clearly observed in several schools in the Ekhuruleni Metropolitan District where children frequently come to school late, there are frequent absences of learners and teachers, classes are frequently disrupted and learners mull aimlessly around the school grounds, sometimes for the entire school day.

2.5 THE DEVELOPMENT OF COGNITIVE AND LEARNING STYLES

Resnick (1976:175), characterises learning environments according to whether learning takes place mostly through **doing** or whether it takes place through **stimulus exposure**. Learning through doing or learning by experience would include for example, everyday activities such as milking cows, planting crops, while stimulus response would include exposure to a variety of printed and visual media. In South Africa there are learners who develop cognitive and learning styles through physical activity, especially in rural areas where schools are too far from home and so not a top priority. Other learners develop cognitive and learning styles through stimulus response, i.e. exposure to media and technology.

Many disadvantaged learners in South Africa do not have access to media at home and only limited access at school. Most disadvantaged pre-schoolers learn by playing in and around their homes in the dust with whatever is available on the ground around their homes.

McKendrick (1993:219) believes that adverse social conditions contribute towards the development of creative ability and ingenuity and should be acknowledged.

According to Gumede (1991:82), modes of thinking develop “differently in different environments and in Western civilisation it refers mainly to grasping relations and symbolic thinking”.

Rural learners are less likely to develop symbolic modes of representation as their exposure to such opportunities is extremely limited. However, this problem is not only confined to rural learners but also to urban dwellers who live in extreme poverty where opportunities to develop an understanding of symbolic modes of representations is severely hampered.

2.5.1 Exposure to Technology

Cohen (1997:153) found in her study on the effect of a technology-rich environment on learning styles, that cognitive and learning styles “are affected by factors within the environment, such as exposure to technology and that instruction must encourage many different forms of learning styles”.

In South Africa the majority of learners do not come from a technologically orientated environment. However, much of the school curriculum is based on an understanding of the technological world.

A simple example would be the study of electricity, which many rural learners do not encounter in their everyday lives. Many in South Africa do not use or have access to electricity at home and some schools are without electricity as well. A further example is the role that computers play in the 21st century. Many South African children have never had access to a computer and have no knowledge or skills required to use computers effectively, while other learners have become expert in the use of computers from a very early age. So the gap between those learners who are more privileged and those who are disadvantaged continues to widen.

2.5.2 Socialisation

Van den Aardweg & Van den Aardweg (1988:217) define socialisation as " the learning process related to the growth of social relationships and social behaviours which encourages the acceptable assimilation of the individual into society", or as defined by Binswanger, in Van den Aardweg and Van Den Aardweg (1988:217), the 'Miltwelt' where the child learns about interpersonal relationships.

According to Saracho (1997:20), cognitive style is influenced by social behaviour. A distinction is made between field dependent and field independent people who have been defined as **socially orientated** and **socially detached** respectively.

In disadvantaged environments, teachers tend to insist on conformity, submissiveness and passivity from the learners. Bagley and Verma (1983:5), claim that learners who come from a very authoritarian background, tend to be more field dependent than children where the upbringing is less formal and more relaxed.

In other words **patterns of socialisation** whether in the home, school or community, significantly influence whether the child develops a field dependent/independent cognitive style. This is confirmed by studies done at the Institute for Behavioural Sciences at Unisa (1986:1) where it was established that a high degree of conformity in social groups, tended to encourage field dependence.

According to Witkin and Goodenough in Fritz (1995:53), a **social learning style** is more likely to develop in an environment which is **socially** very **highly**

structured, while **analytical learning styles** develop in an environment which encourages autonomy and which is more **loosely structured**.

Park (1997:68) found in her study of the learning style preferences of Asian American students, that those who had been in the United States only for a short time had **different learning styles** to Anglo students because of **cultural differences** in family socialisation. She found that Asian American students were more passive and nonverbal and seldom initiated class discussions. This was because in Asian culture, reticence and humility are highly valued.

In Asian countries, learning takes place through rote memorisation. Classrooms are highly structured. Students are not encouraged to voice opinions (Park 1997:68). Yet the question arises as to why these learners are able to achieve academically, while disadvantaged South African learners who often find themselves in a highly structured learning environment, fail to achieve.

It could be suggested that the difference between the Asian learners' academic achievement and South African disadvantaged learners' failure to achieve in the school environment, is the level of motivation, parental involvement and access to media and other factors as mentioned above (Haywood 1982:274).

According to van Niekerk & Meier (1995:72,73) and Rutter (1985:700), many disadvantaged learners come to school with a negative sense of self as a result of neglect and a lack of suitable role models.

They look to their teachers to encourage a positive sense of self worth and because the teacher in the South African context, faces impossible odds in the teaching situation, (Botha & Cilliers 1993:56), for example, very large numbers in the classroom making frequent interaction difficult, as well as having poor

expectations of these children, the learners' need to develop a positive sense of self worth will not be met.

2.5.3 Affectivity

It has been suggested that affective aspects such as temperament, level of impulsivity, and flexibility, play a significant role in the development of cognitive styles.

2.5.3.1 Temperament

Van den Aardweg and Van den Aardweg (1988:229) define 'temperament' as a 'consistent pattern of response to stimuli that is characteristic of an individual especially in his mood and behaviour". How active is the child, how responsive to others is he, and how easily does he show irritability? These factors influence the learner's approach to problems as well as the cognitive style the learner uses in problem solving.

According to Visser (1988:4), substantial evidence exists to suggest that temperament influences academic performance, i.e. the extent motivation and self-confidence is evident in learners' approaches to problems. Does he or she take the road of least resistance and give up, or on the other hand, make a determined attempt to overcome the problem?

Skuy, Snell, & Westaway (Visser 1988:18), found differences in temperament between coping and non-coping black disadvantaged children and a relationship between temperament and academic achievement.

It seems that the link between disadvantaged learners who rise above their problems and those who don't, could be temperament, that is, how learners deal with frustrations and hinderances in their lives.

2.5.3.2 Impulsivity vs Reflective Thinking

Impulsive behaviour is evident in problem solving, which is done in an unsystematic manner.

Impulsivity, defined as the unplanned and unsystematic approach to activities, is according to Feuerstein (Visser 1988:16), a reflection of **cognitive deficiency**. However, Visser (1988) questions the assertion that impulsivity is the result of cognitive deficiency and suggests that impulsivity may be due to behavioural style rather than to cognitive deficiency.

Richter (1992:20), identifies those who are impulsive as showing less concern with accuracy and little care in considering alternative solutions to a problem. Impulsive individuals **reflect on information** to a far lesser degree than those who are more reflective. They are less concerned with **working systematically** and **analytically** in order to find the most suitable alternative, and are less concerned about the quality of the solution, than are those who are more reflective.

Meichenbaum and Messer in Richter (1992:25) concluded from their research that **sophisticated speech** is often related to reflective thinking. Reflective thinkers verbalise more and use more self-guiding private speech than impulsive thinkers who tend to use more egocentric speech. Consequently, learners who are more eloquent would cope better in the classroom situation and produce better quality work than impulsive children with poorer verbal skills.

Kotze in Richter (1992:20) suggests that substantial evidence exists that impulsivity as well as a less advanced problem-solving approach, a lack of

task persistence, and according to Kendall, Pelligrini & Urbain (1981), also certain classroom behaviour problems, give rise to learning problems.

According to Taylor (Richter 1992:27), impulsive learners tend to scan and gather information ineffectively and **extensive coding** does not take place. The consequence of this is that it negatively impacts on problem solving and results in poor academic performance.

Children from disadvantaged backgrounds often seem to respond indiscriminately to questions in a classroom without considering or thinking about the problem at hand, often resulting in wild guesswork. All facets, including nuances and the structure of the question, are not taken into consideration. All too often it gives rise to misinterpretation of the question with an inappropriate response.

Impulsive thinkers do not demonstrate **intuitive thinking**. Intuitive thinking goes through four stages: 1) Preparation, 2) incubation, 3) illumination, and 4) verification. Impulsive thinkers do not go through these stages. **Preparation** involves data gathering and the formulation of a problem. **Incubation** involves unconscious synthesis of information. During **illumination**, the solution is represented by any number of communication means. **Verification** involves weighing up the consequences of the solution.

There is no evidence of deep processing, nor internalisation of information, in the impulsive thinker.

2.6 MODES OF THINKING AND INSTRUCTIONAL STRATEGIES

Instructional Technology as part of instructional methodology is defined by the Commission on Instructional Technology in the United States of America (Knirk & Gustafson 1986:17) as " a systematic way of designing, carrying out and evaluating

the total process of learning and teaching in terms of specific objectives, based on research in human learning and communication, and employing a combination of human and nonhuman resources to bring about more effective instruction".

Gordon in his interview with Rabianski-Carriuolo (1989:20) includes several factors other than cognitive style to be borne in mind in instructional design. He has categorised these factors into two groups, namely **status characteristics** and **functional characteristics**. Functional characteristics include learning style, temperament (including cautiousness/impulsivity) and motivation or interest.

Status characteristics include social class, ethnicity and gender. According to Gordon, these variables alone may have no bearing on learning style. However, the way in which they **interact** may have a significant effect on learning style.

Natriello(1990:158) believes that for a school to produce successful learners, a number of factors need to be considered:

- Recognise and deal with ***diversity*** and uncertainty of disadvantaged learners. Understand circumstances within and outside school, past and future, which affect these learners.
- Provide the learners with **appropriate** academic and non-academic **resources** to assist them to achieve successful learning.

2.6.1 Programmes

2.6.1.1 Matching Teaching Approaches to Thinking Styles

Cohen (1997:173) suggests that teachers need to cater for all cognitive styles in the classroom and to design teaching programmes that develop **all types of cognitive thinking,** which would include the concrete (tactile orientated) and abstract (symbolically orientated) learners (Rabianski-Carriuolo 1989:18). For example, during one lesson the teacher may use

group work to encourage co-operative activities, while in another lesson on the same learning material, independent self-analysis could be encouraged.

Bruch (1971:271) found that black disadvantaged children tended towards visual and kinaesthetic cognitive activities. According to Amiri Baraka (Rabianski-Carriuolo (1989:18), the use of rhythmic patterns and the beat of a drum helped her students to organize their learning behaviour.

A variety of teaching approaches will make it possible to reach many more learners as it will cater to a variety of cognitive styles.

Rabianski-Carriuolo (1989:19) believes that we, as educators, have not provided a broad enough range of variation in educational activities.

In Jausovec's (1994:213) study to determine whether cognitive processes could be taught, it was found that "the training influenced strategic flexibility and the meta-cognitive processes used in problem solving". However, it was found that responses could be improved much more easily to closed problems than to open problems, because open problems required creativity.

Numerous educationists have attempted to develop programmes in order to develop optimal learning in learners. Many show favourable results. However, it seems that many of these programmes are used as experiments or only in the short term and then shelved. A lack of resources, both human and material, including qualified, motivated teachers, books and other equipment, makes it almost impossible to implement them on a long term basis.

According to Means & Knapp (1991:287), in-school instruction would be more meaningful if it is linked up with knowledge, which the learner has learned outside of school. An example described by Griffin & Cole in Mean and Knapp (1991:287) is the use of rap lyrics in collaborative sessions using computers.

Ruiz & Figueroa (1995:480), state that prevailing teaching methods which attempt to 'transmit knowledge by lectures, dittos, preassigned topics and total control of what is to be memorized' should be replaced by methods which would encourage the construction of new knowledge from old knowledge.

2.6.1.2 The Creative Use of Resources in Instructional Activities

According to McBeath (1994:170), attention should be paid at policy and support levels to help teachers develop their skills, make optimal use of resources and to provide educators with the facilities to achieve effective learning among learners. Teachers should be trained to use what is available in the learner's environment as teaching material. This would of necessity call on the teacher's creative ability. Ruiz & Figueroa (1995:469) describe a learning situation where the teacher had used a blank piece of paper and a pencil and focused on the interests and experiences of her students in the presentation of literacy lesson.

According to Sadow (1994:242), resources such as using the students themselves in story-telling, role play and drama, can be a way of increasing motivation among learners. It is suggested by Zalanowski (1990:198), that various types of visual stimuli together with music enhanced the assimilation

of new knowledge, especially among learners who were predominantly right-hemisphere orientated.

2.6.1.3 Programmes for Disadvantaged Gifted Learners

An area of profound neglect in disadvantaged areas is the development of educational programmes for disadvantaged learners who are gifted.

Passow in (Aamidor & Spicker 1995:42) has identified a number of factors to bear in mind when developing educational programmes for disadvantaged gifted students. These factors include: a) teaching how to learn; b) presenting content in diverse ways, both convergent and divergent; c) using multicultural focus; d) teaching ways to learn and study creatively; e) using small group and one-on-one interaction; and f) concentrating on developing language.

The above-mentioned factors in the development of educational programmes have been implemented in most advantaged schools for many years already. However, this is not the case in the disadvantaged schools where giftedness is largely ignored or misunderstood.

Whether all cultural groups define giftedness in the same way is another question begging to be examined.

Aamidor & Spicker (1995:44) suggest that children who do not fit the profile of conventional giftedness should be provided with “nontraditional program options, learning experiences and teaching strategies” suited to their special abilities. In disadvantaged schools in South Africa, no mechanisms to identify giftedness exist and teacher knowledge of giftedness is limited. Many gifted and creative individuals in disadvantaged schools are lost to their communities: a tragic loss of human potential.

2.6.1.4 The Relevance of Programmes

Schon in Greenleaf (1994:526) suggests that teachers should attempt to "uncover the reason, the sense underlying student behaviour" so that educational programmes relevant to them could be developed. Sadow (1994:241); Martin (1993); Christie (1992); Cope and Kalantzis (1993) in (Starfield 1997:161) point out that teachers are often not aware that disadvantaged learners may "not have access to the dominant genres of the classroom. Genres such as the argumentative essay, the report and the seminar, and learners are seldom explicitly taught how to perform them."

Bell & Pearson in McGarvey, Marriott, & Morgan (1997:352) believe that learning is accomplished more successfully when learners **build on what they already know** because they are better able to relate to what they have to learn.

- **Motivation**

Fleming and Forester (1997:178) in their work with disadvantaged learners who had learning and reading difficulties, realised that any programme designed to remediate their problems, had to take cognisance of the **level of motivation** of these learners. Programmes had to aim to sustain their learners' interest, for example, for Ramsden (1990), role play activities could be used to motivate girls' interest in physics and for Greenlaw in Taylor (1997:39), poetry may help girls to become more interested in science.

In order to make the learning material as relevant and current as possible, they selected reading material from such sources as newspaper articles, articles from the school newspaper, and low level reading material by educational publishers.

- **Differentiation**

McGarvey et al (1997:352) suggested **differentiation** as a way of reaching all children regardless of ability. Simpson in McGarvey et al (1997:353) defines differentiation as meeting the various needs of all learners irrespective of ability. Differentiation involves distributing the limited resources, not equally, but in proportion to where they are needed most, for example more teacher time to learners who are less able as more able children would be able to learn anyway and be a further resource to less able learners.

Postlethwaite (1993) in McGarvey et al (1997:354) pointed out that successful differentiation would depend on the **instructional approaches** used by teachers in the classroom.

- **Teacher Attitudes**

According to Schon (1990) in Greenleaf (1994:526), this involves “listening to things kids say, adopting a stance based on the assumption that what they say or do makes sense; attending to the surprising, puzzling things they do or say; discovering the sense that underlies their words and actions; fashioning descriptions or demonstrations of privileged knowledge that meet their initial understandings; and creating situations that enable them to coordinate school knowledge with the knowing already built into their doing”.

In many disadvantaged schools in the Ekhuruleni Metropolitan district, teachers do not expect nor encourage learners to develop their own opinion about the subject matter and learners are not readily given opportunities to share their views on learning material. With the result that the teacher’s understanding of the learner is based on the teacher’s own perceptions of

what the learner is capable of without due regard to the knowledge the learner already has or how the child perceives the learning material.

Teachers who misunderstand their students' cultural behavioural styles frequently underestimate their intellectual potential, with the result that they may underestimate their students' cognitive abilities, academic achievement and language skills. When teachers have low expectations of their learners, they tend to simplify, concretize, fragment and slow the pace of instruction, or fail to encourage abstract thinking (Mean &Knapp 1991: 283; Watt 1996:142; Foster 1989:461).

2.6.1.5 Problem Areas in Teaching Programmes

Obstacles in the development of an effective education environment are not only limited to the home environment and poor self images. Other problems include teachers who often do not know how to develop programmes for or adapt their teaching methods and class work to a wide range of abilities.

Most teachers assume that all learners process information in the same way. Baratz & Baratz in Natriello et al (1990:7), point out that disadvantaged learners are **culturally different** rather than deficient and that many social programmes fail because educators fail to consider the strengths, these learners have. Torrance (1994:159) has identified some of the **strengths** that learners have developed as creative movement, dance, music and physical activities such as sport and games. According to him, utilising these 'strengths' in the teaching and learning process, enables the disadvantaged child to achieve higher levels of mental functioning.

Schools in disadvantaged areas of South Africa more often than not neglect the physical and creative strengths of learners. Stressed teachers have as their focal point the dissemination of information.

2.6.1.6 Subject matter

According to Gunther (1983:136), subject matter is selected according to specific criteria selected from the accumulated knowledge, experience and culture of the race, and is then organised and arranged in the syllabuses of the various subjects, which are forged together into a whole in what is known as the curriculum of the school. Gunther (1983:136) believes that the relevance of what is taught to children should be built on their experiences and existing knowledge rather than what we think the child ought to know at a particular stage.

Taking into account the above considerations about subject matter, to what extent South African learners identify with subject matter, given the fact that South Africa is one of the most culturally diverse countries in the world, is a matter, which merits closer inspection.

The reason for the lack of motivation and the failure to achieve, of the majority of learners in South African classrooms, might be that learners regard the subject matter, which does not form a part of their life world, as irrelevant. Learners are not motivated by or interested in knowledge that they may feel does not serve to help them solve their immediate social and environmental problems.

Fogarty & McTighe (1993:161) point out that rather than be the be-all and the end-all, subject matter should simply be the **vehicle** through which the skills of critical and creative thinking is taught. It should not therefore be an

end in itself, which is often the case in South African schools where learners simply memorise information to answer questions that purely require recall.

Another aspect to be considered was suggested by Jausovec (1994:214) who pointed out that subject matter should be taught in an **integrated manner** rather than as separate units, and that instruction to encourage metacognition (knowledge about problems, knowledge about strategies and of when and how they should be applied) improved problem-solving skills.

2.6.2 Teaching Styles

It is important for the teacher to expose the learner to a variety of teaching styles and experiences, including concrete and abstract situations.

Many teaching approaches to learning have been developed. Below are a few of these approaches.

2.6.2.3 Four Teaching Approaches

Sternberg, Sternberg & Spear-Swerling, Sternberg & Williams, Williams in Sternberg (1997:21) suggest four ways in which to approach teaching so that all students will have the opportunity to learn in their preferred modes of thinking and learning. The four ways are: 1) recalling "**who** did something, **what** was done, **when** it was done, **where** it was done, or **how** it was done; 2) analysing, comparing, evaluating, judging or assessing; 3) creating inventing, imagining, supposing or designing; 4) using, putting into practice, implementing and showing use". This will give the learner more of a chance of mastering the subject matter, as at one time or another the teacher will use a teaching approach that will match the learner's learning style preference.

Dunn, Beaudry & Klavas's (Cohen 1997:155) study confirms that children do significantly better even at difficult academic information, when instruction matches their learning style preferences.

Sternberg (1996); Sternberg & Clinkenbeard (1995); and Sternberg et al (1996) in Sternberg (1997:21) in their studies also assert that learners do better when they are taught in a way that at least partially matches their learning ability. They found that: a) learners who were taught in a way that at least partially matched their learning ability, did perform better than the others; b) how well learners would achieve in the course could be predicted by a measurement of creative and practical abilities; c) there was a significant difference in how racial, ethnic and socioeconomic groups achieved when exposed to the four teaching styles used during the study; d) no single general ability factor could be found. The advantage of the four teaching methods approach is that teachers allow children to use their strengths and to experience a sense of accomplishment and success, while developing new skills. Positive effects of the course used during the study of Sternberg (1996); Sternberg & Clinkenbeard (1995); Sternberg et al (1996) in Sternberg (1997:21) included an improved interaction between learner and teacher.

2.6.2.4 Co-operative Approach

- **Slavin's Co-operative Approach**

A system developed by Slavin in Natriello (1990:86), is that of **co-operative learning,** which is essentially group learning where learners work in small mixed ability groups. Learners with similar abilities are drawn for specific instruction.

Two co-operative teaching approaches developed by Slavin and colleagues at John Hopkins University Centre, are Team Assisted Individualisation (TAI) and Co-operative Integrated Reading and Composition (CIRC).

TAI is a combination of individually programmed and co-operative learning instruction approaches. Learners work at their own pace on individualised self-instruction materials. Although they work on individual assignments, they work in a team where the number of assignments successfully completed within the team is rewarded, and where team members assist each other and motivate each other to complete assignments for the good of the whole team.

While learners assist one another, the teacher is free to draw learners for teaching. This method could have advantages for disadvantaged children in South Africa, where overcrowded classes make teaching difficult, and furthermore, because most children from disadvantaged cultures tend to be more comfortable with co-operative activities than activities which demand a great deal of competition, which seems to be the norm in the more privileged South African schools. It also provides for a more interactive approach, which disadvantaged learners find more comfortable.

Studies done by Torrance (1994:158) confirm that disadvantaged children learn better in small group situations. He adds that they more readily verbalise. Flemming & Forester (1997:178) also believe that learners would receive more attention from both peers and teachers in a small group situation.

- **Johnson and Johnson's Approach**

Johnson & Johnson in Fogarty & McTighe (1993:167) have listed several benefits of co-operative learning. These are: "greater retention of subject matter, improved attitudes toward learning, increased opportunities for 'higher order' processing of information, and enhanced interpersonal relations among group members". In other words, co-operative learning encourages a higher degree of motivation, more advanced problem solving and successful assimilation of knowledge.

- **Treisman's Approach**

Gordon in Rabianski-Carriuolo (1989:20) explained Treisman's approach of co-operative learning groups as having several advantages. Firstly, if several people are working on a problem, the chances are that one of them will explain the problem in a way that someone else who is perhaps having difficulty with it, will understand. Secondly, the more ways there are in the group to solve the problem, the more thinking styles the group will be exposed to. Thirdly, learners learn to respect thinking styles other than their own. Gordon in Rabianski-Carriuolo (1989:20) also states that "problem solving and the kind of learning that involves social sensitivities and the application and integration of knowledge from a number of sources, in particular, are advanced in group- or cooperative-learning situations".

- **Fogarty and McTighe's Approach**

Fogarty and McTighe (1993:162) believe that teachers need more professional development in how to teach learners to think. Teaching cognitive skills would include developing a level of basic knowledge, cooperative learning, which encourages interaction and visual

representation of information and transfer of knowledge to new situations. (Fogarty & McTighe 1993:162).

Disadvantaged learners would benefit from cooperative learning environments as they seem to cope better in a socially orientated environment and such an environment offers more frequent opportunity for discussion and debate, which encourages thoughtfulness about what is being learned.

2.6.2.3 Advantages of Radio and Television as a Medium

Perhaps the benefits for learners of being 'self-schooled' through the medium of radio or television should be investigated more fully. Most learners, even the most disadvantaged learners, in South Africa have access to a radio. Such a system may have several advantages: programmes could be developed that would encourage learners during their leisure time to develop cognitive thinking skills that could be applied in the classroom situation; learners may be motivated and become more positive about academic activities in an environment with which they identify; teachers over the radio can reach many more learners as well as their parents; parents may be motivated to improve their own skills and become much more involved with their children's education. Contact facilities, a kind of help line, could be provided for learners who need guidance from a tutor on a particular aspect of the subject material. In other words, parents and guardians will play a much more active role in the education of their children, a vital factor in the facilitation of improved academic performance and motivation among learners.

Another advantage may be meeting the needs of the desperate shortage of mathematics and science teachers by utilising the skills of these teachers via the radio and television to teach much larger numbers of students. Students would be exposed to a variety of approaches thereby encouraging the development of a variety of modes of thinking.

This teaching approach could not replace the classroom environment, because for EDL the face-to-face interaction with a teacher remains important. This system could be enhanced, by introducing mentor groups who could be learners with more advanced skills and knowledge. Advantages of mentor groups would be improved self-esteem, consolidation of what is being learned and increased self confidence.

2.6.2.4 Instruction for Disadvantaged Learners

Haywood (1982:287) lists several important aspects of instruction for disadvantaged children. These include how structured, organised, prepared and task orientated the lesson is, as well as how well-defined the tasks required of the students, are; how effectively the teacher gives the learners feedback on their performance; whether the teacher accurately gauges the skills levels of the students and prescribes appropriate tasks; opportunity for individualised instruction and how constantly the teacher monitors the students' progress.

- **Individualised Instruction**

  The disadvantage of this style of teaching in the classrooms of South Africa would be that individualised self-instruction material for such large numbers of learners would be too costly and time consuming. According to Sternberg (1997:21), while it is impossible to individualise instruction

and assessment in a large class, it is possible for a teacher to teach in a way that meets the needs of all learners.

- **General Education Development Programme**

A further instructional approach was suggested by Miner (1997:67). In his study of a model designed to assist disadvantaged learners in America to join mainstream culture, he found that a General Educational Development (GED) programme, combined with a Transition programme significantly improved outcomes measured. These outcomes included educational, social and employment/economic success, that is they succeeded in obtaining employment, improving their situation in their current jobs and even obtained additional education. The self-image of disadvantaged learners was also vastly improved.

The GED component was composed of normal classroom instruction in reading, mathematics, written language, science and social studies, while the Transition components dealt with social and cultural education, including interviewing, recording, computer instruction, job seeking skills and keeping a job (Miner 1997:72.)

According to Miner (1997:80), a programme designed solely with the aim of improving educational achievement is inadequate for the needs of disadvantaged learners, which include the need to acquire skills to achieve social and economic success as well.

Miner's (1997:80) as well as Watt's (1996:142) views that at pre-primary and primary school level, the development of a positive self-image in the learner population should be a major education priority should be taken seriously. The development of a positive self-image in the learner

population should be regarded as a long term investment in the human potential of South Africa. Watt (1996:142) points out that research has shown that preschool education has resulted in "benefits which persist into adolescence and adulthood; but the most important learning is in terms of **social skills, task commitment and feelings of self worth".**

The group that has the most to benefit from preschool education is the educationally disadvantaged group.

Freely accessible and compulsory preschool education for all children from a very early age, to compensate for the very poor home environments of the majority of South Africa's pre-schoolers, should be a priority. This would be a significant investment in human potential in South Africa.

2.6.2.5 Learning Environment

Research done by Robinson in Watt (1996:145) has indicated that small classes, i.e. classes with 20 learners or less, seem to benefit learners especially in reading and mathematics.

In South Africa, many classrooms, especially in disadvantaged areas are filled to capacity with young learners. Disadvantaged learners are therefore placed at a further disadvantage. Resources are limited. Teachers face teaching 50 or more children in a classroom. Most of these children have experienced some pathology. Small classes would make it easier to attend to the needs of the children in the classroom.

McBeath (1994:168) believes that there are three levels of education taking place in the classroom. At level one, the teacher dominates the lesson and there is an emphasis on rote memorisation. Children are not required to

think critically, make decisions or develop interpersonal skills. At level two, the learners are expected to be active. Free expression is encouraged and learners realise that there may be more than one answer to a problem. Co-operation rather than competitiveness develops among the students. At level three the "learner is given opportunities and guided to reach objectives for self-enhancement; is encouraged to accept more responsibility for interactive learning, to become more active as a problem solver, and more confident as a decision-maker".

According to McBeath (1994:168), these stages reflect the development of society from agricultural to industrial knowledge. In many South African classrooms, it seems that teaching has not progressed beyond level one, although society requires learners to be prepared to level three in order to function efficiently in the society.

2.6.2.6 Teacher Expectation of Learner Potential

Learners with a different cultural orientation to the teacher may respond in the classroom situation in a way not expected or approved of by the teacher. This may influence the teacher's expectation of the learner's ability. Teachers frequently stereotype learners in their classrooms based on learner behaviour and background. Greenleaf (1994:534) believes that teacher expectations and stereotyping of culturally diverse, often disadvantage learners, "create conditions for academic failure. This is because teachers aim too low to contribute to the development of their students, as students begin to think of themselves as unsuccessful, and as both withdraw from the enterprise of teaching and learning".

2.6.2.7 Classroom Control

Often classrooms are rigidly set out to make sure that there is a minimum of noise and that discipline runs smoothly. Goree (1996:37) questions the wisdom of this, as she feels that this may hamper creative talents in learners. Everyone needs time in a non-intimidating environment, to think creatively.

2.6.3 Approaches to Teaching Modes of Thinking

To order and develop our lives, we all need to indulge in inquiry. Gove (1981) in Martinello & Cook (1993:38) defines inquiry as "the search for truth, information, or knowledge". Education systems and educators have the responsibility of assisting learners to acquire truth, information and knowledge. The South African education environment often does not encourage the development of meta-cognition.

2.6.3.1 Meta-cognition

Researchers such as Gordon in (Rabianski-Carriuolo 1989:22) have suggested that it is important for each learner to know how he or she processes information so that he or she is able to select appropriate learning styles.

Gordon in (Rabianski-Carriuolo 1989:22) defines **meta-cognition** as the "knowledge of one's own mental processes". He also explains that if we know our thinking and learning styles, we can choose the strategies, skills and approaches necessary to solve a problem.

According to Sternberg (1984) in Richter (1992:9), there are seven meta-components necessary to complete a task successfully. These include: 1)

Identifying the problem; 2) Selection of a set of lower-order components to complete the task; 3) Selecting one or more mental representations for information; 4) Selecting a strategy to use the lower-order component; 5) Deciding on how resources should be allocated; 6) monitoring how the task is developing; 7) Orientating towards external feedback information .

De Villiers (1996:136) is concerned with the meta-cognitive skills of disadvantaged learners and is of the opinion that the disadvantaged learner's inability to use meta-cognitive skills, is a result of their schooling and social background.

The learner's lack of understanding of their meta-cognitive skills could in part therefore explain their erratic, unplanned approach to subject material.

2.6.3.2 Three Primary Categories of Modes of Thought

According to Martinello & Cook (1993:40), we utilise a variety of modes of thought which fall into three major primary categories: symbolic mode which uses words, numbers and other symbol systems; imagic mode which include visual, spatial, tonal and inaesthetic-sensate; and affective modes which involve feelings and emotions. Martinello & Cook (1993:40) believe that all these modes use reasoning and intuiting which involves "a conscious, step-by-step, logical, analytic approach", and that different fields of study may require different modes of thinking. Furthermore, some learners are more inclined towards some modes of thinking than to others. Martinello & Cook (1993:40) also state that the greater the variety of modes of thinking used by the individual, the greater the chance of the learner understanding and mastering the new knowledge. It is the responsibility of

educators thus to encourage learners to develop several modes of thinking to increase the chances of successful assimilation of learning material.

Unfortunately, simple recall of learning material is the status quo in many of South Africa's classrooms and teachers become flustered when they are unable to complete the prescribed syllabus, irrespective of how much has been assimilated by how many children in the class. Little attention is paid to encouraging a variety of modes of thinking among learners. Teachers tend to focus on making sure that learning can reproduce what they have been taught, rather than create something new from what they have been taught.

2.6.3.3 Educational Approaches and Critical and Creative Thinking

Paul (1993:22) defines **critical thinking** as the "intellectually disciplined process of actively and skillfully conceptualising, applying, analysing, synthesising, and/or evaluating information gathered from, or generated by, observation, experience, reflection, reasoning or communication, as a guide to belief and action. It is incorporated in a family of interwoven modes of thinking, among them: scientific thinking, mathematical thinking, etc.".

Pogrow (1996:34) believes that a Higher Order Thinking Skills (HOTS), programme, i.e. the top 3 levels of Bloom's Taxonomy, namely, analysis, synthesis and evaluation, would benefit disadvantaged learners in grades 4 – 7.

The programme includes the "use of computers, drama, Socratic dialogue and a detailed curriculum to stimulate thinking processes". The HOTS programme encourages and nurtures a highly conversational environment where, by means of prompting from the teacher through questions, learners

learn to explain and elaborate their answers. The teacher takes on the role of facilitator rather than instructor. This implies the increased interaction between learner and teacher, that disadvantaged learners benefit from. The thinking skills that HOTS encourages, are meta-cognition (the ability to systematically apply and explain how to solve problems) and generalisation, which is the ability to apply knowledge to new, unfamiliar situations.

Pogrow (1996:35) suggests that in order to help disadvantaged learners, it is better to set aside a set period of time per day to develop problem solving and thinking skills rather than re-teaching difficult content.

Hernstein, Nickerson, de Sanchez & Swets (1986:1279) developed a programme to teach cognitive skills without relating it to subject matter. They found after a year that the course significantly benefited economically and educationally deprived children. However, they voice their reservations about the long term benefits of the course and whether other variables such as the Hawthorne effect (being aware of being part of a study) could have influenced the results of the programme. Positive effects of the course included an improved interaction between learner and teacher.

It seems that programmes with frequent interaction between learner and teacher, will positively influence learners from educationally disadvantaged environments.

2.6.3.4 Thinking Skills and the Role of the Teacher

Feldhusen (1995:256) believes that learners can be taught to become aware of problems, to clarify them and to use meta-cognitive skills to solve them. They can be taught to be aware of their cognitive skills, how to seek alternatives, how to recognise new ideas or solutions and to test the validity

of alternative solutions. Pring (Hann: 1997) suggests that repetition in teaching should not be over-used as the danger exists that learners will be taught to “recognise the form of the question, to which a standard approach is prescribed rather than helping them achieve real understanding of concepts and standards”. Repetition does not allow for the development of deeper cognitive structures as learners often do not internalise the information being repeated.

Personality factors such as motivation, perseverance and independence are required in creative thinking. Pring (Hann 1997) states clearly that teachers should present the information in such a way that learners not only “know about the concepts and standards of an academic subject, they **care** about these standards as well”.

Since society today demands creativity and flexible thinking, it is imperative that educators should strive to develop those creative and practical skills and talents which lie dormant in learners who are regarded as having low ‘ability’.

Jones & Idol Ed. (1990:26) believe that educators who understand how their students think and learn, are better able to motivate them and to help them achieve successful learning.

As stated by Sternberg (1997:23,24) ‘in a pluralistic society, we cannot afford to have a monolithic conception of intelligence and schooling. When we expand the range of abilities we test for, we also expand the range of students we identify as smart.” In other words, educators should perhaps redefine what passes for intelligence.

Fogarty and McTighe (1993:163) feel that teachers should be taught how to teach thinking skills. As a point of departure, teachers should determine which thinking skills are inherent in their subject content, e.g. in science, thinking skills include classifying. Skills inherent in subject matter are, e.g.: literature which may be used to teach the skill of inferring; history may teach critical analysis or comparison; mathematics teaches the skill of hypothesizing and proving; computer studies teaches sequential thinking and art and design teaches visualising.

Introducing another aspect of the role played by the teacher in encouraging creative and critical thinking, Fritz (1995:54) states that teachers should encourage social style learners to acquire higher-order cognitive skills, which may have been neglected during their formative years. Snow in Fritz (1995:54) suggests that the point of departure be the learners' existing learning strengths within the context of their social interests, using a sequential learning process to bridge the gap between prior and current learning.

Educators would need to establish the knowledge learners bring to school and built new subject matter on what they already know in order to assist learners to attach meaning to what they are being taught.

The gap between the social learning style and the cognitive skills needed to solve advanced abstract problems, needs to be bridged if the social learner is to cope in the school environment which demands advanced cognitive skills, which essentially implies the gap between concrete experience and abstract knowledge.

It is necessary to create a climate of thoughtfulness in the classroom. This would involve avoiding expecting only one right answer. Learners need to be encouraged to be inquisitive, and to experiment. Pring in Hann (1997) states that learners should be taught to reflect on ideas and teachers should be willing to accept views which may be contrary to popular belief. Whitson's (1994:3) view is that creative thinking should be encouraged as a "creative person is more likely to discover a new, unique solution."

Goree (1996:37) is much in agreement with this opinion when she says that "much of our educational system is geared towards teaching people to find the right answer". She points out that life is not like that, but ambiguous and "if you think there is only one right answer, then you'll stop looking as soon as you find one. Creativity cannot flourish in such an environment".

Torrance (in Sadow 1994:244) advises teachers that good classroom activities to stimulate creative thinking should include: "1) Confrontation with ambiguities and uncertainties; 2) heightened anticipation and expectation; 3) the familiar made strange or the strange made familiar by analogy; 4) Looking at the same thing from several points of view; 5) provocative questions requiring the learner to examine information in new ways; 6) predictions from limited information required: 7) tasks structured only enough to give clues and direction; 8) encouragement to take the next step beyond what is known".

Cardellichio & Field (1997:34) believe that it is necessary to encourage neural branching so that children do not become rigid in their thinking. They believe that seven strategies will encourage neural branching.

These are: 1) **hypothetical thinking** which forces the learner to think of issues in ways other than the usual way, e.g. questions using 'what if….?"); 2) **Reversal** is a technique used to look beyond the parameters and see attributes that may go unnoticed, e.g. What caused this? How does this change if I go backwards?; 3) **Application of different symbol systems** involves using one symbol system in a situation where it is not ordinarily used, e.g. using words rather than numbers to explain a problem. Questions here could take the form of, e.g. Can I draw a picture of this?; 4) **Analogy** involves looking for similarities in two possibly unrelated things, e.g How is this like _____?; 5) **Analysis of point of view** tries to establish why someone believes what he believes. Questions to be asked during this type of learning, are, e.g. What would _____ say about this? Or What else could account for this?; 6) **Completion** allows learners the chance to think of how to complete an activity, e.g. the students must complete a short story. This type of learning compels the learner to think of reasons for their responses and they conclude that there is often more than one way to deal with a problem; 7) **Web analysis** provides learners with opportunities to discover the complexity of relationships. e.g. What would happen if the supply of petrol dried up?

2.6.3.5 Teaching Creative and Critical Thinking Skills

- **Creative and Critical Thinking Skills**

Fogarty and McTighe (1993:165) have tabled the creative and critical thinking skills that should be taught:

Creative Thinking Skills	Critical Thinking Skills
Brainstorming	Attributing
Visualising	Comparing/contrasting
Personifying	Classifying
Inventing	Sequencing
Associating relationships	Prioritising
Inferring	Drawing conclusions
Generalising	Determining cause/effect
Predicting	Analysing for bias
Hypothesising	Analysing for assumptions
Making analogies	Solving for analogies
Dealing with ambiguity and paradox	Evaluating

- **Creative Thinking Skills and the Disadvantaged Learner**

Creative thinking abilities need to be nurtured in disadvantaged children. According to Akande (1997:97), ways of doing this is brain writing, which involves dividing learners into groups. These groups must think of multiple solutions to a problem; brainstorming where as many creative ideas as the learners can think of, are jotted down; try to see things in as many new ways as possible; making forced associations between the properties of two objects.

Sternberg (1988) in Feldhusen (1995:258) adds that knowledge in creative thinking is essential as creative thinking involves the "manipulation of ideas from the knowledge base".

In the South African context with so many disadvantaged learners, it is necessary to establish what knowledge base learners bring to the school

environment, before any successful teaching of thinking skills can take place. By this is meant that often in an environment of disadvantage, learners have of necessity to be resourceful and creative with very little. The creative thinking skills that they may have acquired should be explored and used as a basis for further learning.

According to Feldhusen (1995:255) creative thinking has three important aspects. These aspects are meta-cognitive and involve the extension or transformation of knowledge processing; a knowledge base; and personality variables. The effectiveness of this transformation of knowledge processing is dependent on “conditions of development in childhood, in family, in school, in the surrounding culture, and in the time or era in which a youth is growing up”. Feldhusen (1995:225.)

- **Instructional Methods which encourage Creative Cognitive Skills**

Antonietti (1997:73) believes that “all children can become creative thinkers and problem solvers”. But he stresses that this is only possible when teachers use **instructional methods**, which encourage creative cognitive skills. Children should, according to him, be taught to recognise when creative thinking is necessary and when not, such as when there is no single correct answer. Instead of explaining how to carry out a mental operation, **provide them with examples** of how to apply it in different contexts. **Show** learners what mental operations they are using, e.g. by asking questions such as "What are you trying to do now and are you achieving what you set out to do?’ or ‘Do you need to change your strategy?’ Help learners to think reflectively about the

problem, e.g. ‘What kind of problem is this and how should I go about solving it?’ Learners need to realise that there is not always a quick and easy solution to a problem. Some problems are confusing and ambiguous and take time to solve. Feldhusen (1995:256) also believes that learners should be taught creative thinking and problem solving at home and in the early school years. Teachers, parents, tutors, mentors and peers should build on the knowledge base of the individual.

- **Obstacles to the Development of Creative Thinking**

In disadvantaged communities where the main priority is basic survival, parents are seldom likely to give a thought to the development of creative thinking with the result that the learner comes to school never having developed these skills. The onus is then on the teacher. In most cases, South African teachers do not give much attention to encouraging creative thinking skills either, owing to the pressures of work.

Whitson’s (1994:2) obstacles to developing creative potential include: “failing to use all our senses in observing; failing to define the problem more carefully; narrowing the scope of our inquiry; bending under the pressure of conformity; over-emphasizing our competition; placing excess faith in reason; lacking patience and willpower; relying on authority; fearing mistakes; placing too much value on other people’s opinions, having no confidence in own abilities”.

Apart from the emphasis on left-brain skills in the South African school environment, disadvantaged children also experience many of the factors mentioned by Witkin (1994:2), which impede the development of

intuitive and creative thinking. The result is often clearly shown in their handling of problems in their personal and school environments.

According to Taylor (1997:39), another reason for the reluctance of teachers to encourage creative thinking in the classroom, is that creative teaching takes some of the control in the classroom away from the teacher, or so some teachers believe. Taylor (1997:39) believes that these teachers confuse the control of learning with the control of behaviour.

Bentley & Watts (in Taylor 1997:39) suggest that educational drama is a good teaching and learning method that assists the teacher to stay in control of a lesson while allowing learners to take responsibility for their own learning.

- **Teaching Intuitive Thinking**

Koyama's (1997:21) research on the complementation of intuition and logical thinking in the process of understanding mathematics, showed that successful teaching and learning in, for example, mathematics follows the three learning stages of **intuition, reflective** and **analytical** stages. The **intuitive stage** involves providing opportunities for manipulating concrete objects and handling mathematical concepts and relations. The **reflective stage** involves reflecting on manipulated objects or handled mathematical concepts and then how these concepts represented the mathematical concepts through diagrams, figures and language. The **analytical stage** involves elaborating on the representations of the mathematical concepts, using mathematical terms, and applying this to other situations.

Johnson, Daumer & Rawlins (1993:266) and Whitson (1994:2) suggest that schools should make a concerted effort to develop intuitive thinking in their learners. A simple way to do this would be to get the children to write or do other activities with the non-dominant hand.

Teachers need to stress positive thinking (left brain) **and** positive feeling (right brain).

Goldberg (1983) in Johnson, Daumer & Rawlins (1993:267) says "All institutions need to rethink customary definitions of productive behaviour. The nose-to-the-grindstone mentality that equates sweat with dedication, and toil with productivity has to be reevaluated in the light of what we know about the value of **incubation** and the deleterious impact of stress. And our intuitive skills are critical to our survival".

Johnson, Daumer & Rawlins (1993:264) and Whitson (1994:2) suggest that right-brain intuitive skills can be taught just as we have emphasised the teaching of left-brain analytical skills.

Johnson, Daumer & Rawlins (1993:264) suggest a number of factors which could impede the development of **intuition.** These include: physical/emotional tension; fatigue; illness; time constraints; insufficient background knowledge; impulsivity; anxiety; fear; confusion; often accommodation of others and lack of confidence. Given the experiences the South African disadvantaged learner brings to school with him or her, the likelihood exists that their intuitive development has been hindered as many have been exposed to the factors which hamper the development of intuition as suggested by Johnson, Daumer & Rawlins (1993:264).

2.6.4 Suitability of Evaluation Material to establish Modes of Thinking and Cognitive Ability

The administration of psychometric testing is extensively practised in South African schools and by private psychologists, irrespective of the fact that it has been widely criticised by many researchers (see discussion below), as inappropriate in many instances.

The psychometric tests used include elements of culture and educational factors that are unfamiliar in many instances to the South African learner and will therefore strongly influence results.

Differences between cultures and sub-cultures should be taken into consideration when developing tests or adapting tests designed for another cultural group. (Cronbach and Drenth 1972:13.)

Despite the fact that English is an official language of South Africa, for many learners it is not their mother tongue. However, many learners are required to respond to psychometric tests in English.

According to Guildford (1968) and Torrance (1963) in Hickson & Skuy (1990:296), psychometric tests also fail to identify creative individuals. Passow et al in (Hickson & Skuy 1990:296) states “Selection and identification of talent among disadvantaged children has been seriously hampered by the nature of the selection criteria, which failed to give them a fair opportunity to perform in a gifted manner”. All these factors make psychometric tests unreliable as a measure of ability of the black learner in South Africa, the majority of whom also come from a disadvantaged background.

The results of psychometric tests are more often than not taken at face value by teachers, with the result that it puts the learner at a further disadvantage as

the teacher's expectations of the learner, are significantly influenced and learners are labeled according to an IQ score.

Vigotsky (1985) in Wallace & Adams (1987:9) also claims that psychometric tests are inappropriate as they do not take into account the differences between the pupil's level of **current performance** and the pupil's **potential performance** after **mediation** by an adult. Vigotsky in Wallace & Adams (1987:9) believes that "the degree of modifiability displayed after training is indicative of the child's potential for learning". The advantages of the "test-teach-test" procedure as assessment, is that it is able to measure the child's **capacity for learning**, as well as identifying any deficiencies in the child's cognitive development.

Rather than be concerned about the measurements of psychometric tests, Dunn & Dunn & Price (1989) in Cohen (1997:155), have developed the **Dunn & Dunn's Learning Style Inventory** to measure learning style which forms a profile of each student in four major areas: a) environment including sound, temperature, light and design; b) emotionality including motivation, responsibility, persistence and the need for either structure or flexibility; c) sociological needs including learning, with peers, with adults in several ways; and d) physical needs including perceptual preferences, auditory, visual, tactile and kinaesthetic, time of day one prefers to study, intake and mobility. According to Dunn, Beaudry & Klavas (1989) in Cohen (1997:155), the **Dunn & Dunn's Learning Style Inventory** measurement would prove useful to teachers as they could design instruction on the basis of the learning style profiles of their learners. The focus of their inventory is to identify learning strengths of learners which teachers could use to advantage rather than focus

on information about learner ability gained from psychometric tests, which inevitably form teacher expectations.

2.6.4.1 Focus of Tests

According to the work of the above-mentioned researchers as well as other researchers, what should be measured are **how** and **to what extent** learning takes place in a new situation, in other words the **manner of adaptation** to each new situation.

2.6.4.2 Measure of Adaptability

According to Cronbach & Drenth (1972:50), "**adaptability** has considerable advantages over intelligence or **mental ability** as a basis for cross cultural test construction and procedure". They also point out that success in Western culture is dependent on Western defined intelligence. Because the measure of adaptability is more closely aligned to culture, it shows how an individual is able to survive within the society and culture from which he/she comes.

2.6.4.3 Psychometric Tests and Disadvantaged Learners

Since there is a dearth of means to assess modes of thinking, schools still rely on the group tests of intelligence to establish a learner's potential. Teachers mostly in the more advantaged areas of South Africa still rely heavily on psychometric tests to assess aptitude and intellectual ability, separate from the child's socio-cultural milieu.

The relevance of psychometric tests in South African classrooms should be questioned, due to the fact that many learners come from diverse cultural backgrounds, which do not reflect the context of these tests. Schools are

still relying on psychometric tests as they had done pre-1994, despite the fact that the profile of the learner population has changed since 1994 when schools became multi-cultural.

Many learners are being tested in a language other than their mother tongue. Furthermore, the special abilities that disadvantaged learners bring with them are not identified by psychometric tests. Teachers are not trained in the interpretation of psychometric tests and often view them as an untrained person would. This places many learners with diverse potential abilities at a distinct disadvantage.

Disadvantaged learners almost always achieve lower results on tests even when tests claim to be culture-free and fair.

Witty (1958) in Aamidor & Spider (1995:14(2)) affirm that intelligence tests do not provide an accurate measure of the ability of children who come from impoverished backgrounds.

Furthermore, with disadvantaged testees, there needs to be a much closer interaction between testees and tester as these children are not intrinsically motivated to complete the test. Unfortunately, tests in the school setting are usually done in large groups with one tester and possibly two assistants, which puts the tester at a considerable distance from the learner and the learner at yet further disadvantage.

2.6.4.4 Tools to Assess Cognitive Style

Assessment tools in the South African context should focus on identifying cognitive and learning styles of learners rather than so-called intelligence quotients. In South Africa, we would need assessment tools that would determine the cognitive styles of learners so that teachers are aware of

which methods and materials would optimally benefit learners of diverse backgrounds and grant learners a greater opportunity to assimilate knowledge.

Such tools would need to bear in mind the important factor of metacognition, which is defined by Taylor (1987) in Richter (1992:9), as “an executive or control activity necessary for successful task execution or solution”.

2.6.4.5 Ability Tests

Sternberg (1997:20) states that ability tests used at present determine intelligence or achievement and memory and analytical abilities. They are able to predict school performance reasonably well as these are the abilities striven for in the classroom. Dreher (1997:26) points out that standardised tests, which are currently used, emphasise mainly two sets of skills (linguistic and logical-mathematical) while paying scant attention to other skills and modes of thinking.

We cannot say with any certainty that children who are average to below average in the present educational system in South Africa are so because they do not have the ability to achieve. As pointed out by Gardner (1993 & 1995) in Sternberg (1997:21), many influential people were very ordinary students.

Hunsaker (1991) in Aamidor & Spider (1995:41) found in his study that the instruments used in schools specifically to identify gifted and talented students, most measured general intellectual aptitude by means of academic achievement tests. He also concluded that using standardised tests fails to adequately identify gifted students from rural areas.

Any ability assessment tool should take into consideration knowledge that the learner has already mastered, but this is largely neglected in South African schools.

The unfortunate result of this is that the talents and experiences that many disadvantaged children bring to school are never recognised or developed.

In South Africa we continue to measure only a fraction of the possible skills and talents that could benefit the communities and societies of South Africa. The value and relevance to the South African learner of psychometric testing as it is currently used, needs to be re-evaluated.

There is therefore a call to change the aim and focus of standard testing procedures so that it can also benefit the educationally deprived learner.

2.6.4.6 Creativity Tests

It was found that when **identification procedures,** including the Torrance Test of Creativity (1980), creative writing samples, parent and community information questionnaires and innovative contests using Gardner's (1983) Multiple Intelligences were used, the percentage of disadvantaged gifted children was significantly increased.

2.7 CONCLUSION

In spite of the large volume of research which confirms that the development of a variety of cognitive and learning styles in disadvantaged learners and the creative presentation of appropriate learning material and programmes by educators would alleviate much of the despondency and failure in South African schools, little has changed in South African education over decades. The South African education system continues to place the emphasis on providing information for its own sake rather than for the enrichment of the lives of the learners we teach. Teachers continue

to place too little importance on the uniqueness of learners and to assume that all learners approach the learning environment from the same vantage point. South African learners continue to leave the education system totally unprepared for their roles in their communities but with exacerbated negative self-images and we as educationists continue to choose to ignore this fact.

CHAPTER THREE

3 THE PROFILE OF THE EDUCATIONALLY DISADVANTAGED LEARNER

3.1 INTRODUCTION

In this chapter, the profile of the educationally disadvantaged learner will be examined as an important factor influencing cognitive development, as it is generally accepted that the human being is to a large degree a product of his or her environment. Our circumstances and experiences influence whom we become. In other words, how we experience our home environment and relationships and interaction with others will influence how we approach problems in our environment (McCall 1984: 1317; Dunn and Dunn in Cohen 1997: 153, 155). The disadvantaged learner has a particular profile, which includes personality, emotional and mental aspects, self-concept and behaviour. Because of the diversity of the population and the fact that most educationally disadvantaged learners come from the African population, the danger lies in equating educational disadvantage with African people. Educational disadvantage permeates throughout South African society.

Throughout this chapter, Educationally Disadvantaged Learners will be referred to as EDLs.

3.2 THE EDUCATIONALLY DISADVANTAGED LEARNER

3.2.1 Identifying the Educationally Disadvantaged Learner

Several researchers such as those mentioned below, have attempted to define the educationally disadvantaged learner as anyone who may come from any geographical and socio-economic environment and who is prevented from realising his/her potential.

According to Passon (1970) in Natriello (1990:6), learners who because of negative social or cultural situations, such as “lower social class, race, ethnic

origin, poverty, sex, geographical location", enter school with "knowledge, skills and attitudes which impede learning and contribute to a cumulative academic deficit", can be regarded as disadvantaged.

Bates et al in Nurcombe (1976:64), describes educationally disadvantaged children as children lagging behind in language development, having poor self images, being experientially deprived, having poor school orientation and who come from a poor family structure. Haywood in Haywood (1982:275) describes lower Socio-Economic Status (SES) children as having increased "manifest anxiety; relatively lower levels of curiosity and exploratory behaviour, an orientation towards failure avoidance rather than toward success striving, task-extrinsic rather than task-intrinsic motivational orientation, negative self-concept with low value of themselves; little long-range planning for their lives and a strongly external locus of control".

Feuerstein (Hundeide 1991:20) defines educationally disadvantaged learners as culturally deprived in that they have been deprived of some basic human experiences, e.g. knowledge of the culture into which the child had been born, which are regarded as essential for normal human adaptability and development. Feuerstein (Hundeide 1991:20) adds that the basic experiences of cultural knowledge that are assumed to be universal should be transmitted by another representative of the culture, usually the parent or guardian.

The National Commission on Education (1996:3) describes educational disadvantage as the denial of equal access to educational opportunities, the tendency to leave education at the first opportunity and the hindrance to achievement by social and environmental factors.

Researchers (Dicker, Ferreira & Pretorius 1996:139, 140; van Niekerk & Meier 1995:77; Manfredi/Petitt 1994:72; Vance 1997:32) are of the opinion, therefore, that educational experience stems from ***formal schooling*** as well as ***family*** and ***community*** and that students who have not had adequate exposure to one or more of these structures, are educationally disadvantaged.

3.2.1.1 Characteristics of Educationally Disadvantaged Children

Hundeide (1991: 18) has outlined several characteristics of educationally disadvantaged children:

- Theirs is a world of immediacy. Planning for the future is not a priority. In fact, the child's physical environment does not really lend itself to planning for the future. Providing for basic necessities of life, such as food on a daily basis, is of paramount importance.
- They do not have the ability to think critically and they accept "whatever is presented".
- They do not have the skills to weigh up the odds and to "form a link between a cause and effect, between past present and future experiences".
- The inability to plan has as a consequence, impulsive erratic behaviour, demands for instant gratification and a lack of goal directedness.
- Their egocentric behaviour is often objectionable to others but they are unaware of it.
- They live within their immediate environment and do not attempt to acquire information further afield.
- Educationally disadvantaged children believe that they are incapable of achievement and therefore are not motivated to do so.

- External factors determine their behaviour. Intrinsic motivation is absent and they are resigned to failure.

3.2.1.2 Obstacles in the Progress of the EDL

Harmse (1996:2) lists learning handicaps which may hamper the progress of the environmentally deprived child as: 1) limited vocabulary, poor reading and spelling; 2) inadequate learning patterns; 3) tendency towards the concrete rather than abstract reality; 4) auditory and visual perceptual impairment; 5) needs external motivation; 6) does not perform well in tests which have time limitations; 7) slow execution of cognitive tasks; 8) may come across as anti-intellectual and pragmatic; 9) blames others for failures; 10) low self-image and lack of self-confidence; 11) short attention span; 12) often rejects authority; 13) is not concerned with long term goals, plans and consequences; 14) underachieves.

According to Haywood (1982:276) SES children lack the ability to differentiate parts and wholes, analyze components, gather information accurately, relate past experience to present problems, and project symbolic relationships. This is as a result of inadequate opportunities to learn. He believes that deficiencies manifest themselves as poor learning effectiveness

Caplan (1964) in Nurcombe (1976:53) cites three ways in which a child may be disadvantaged. These include: 1) physical deprivation to varying degrees, which includes poor nutrition and excessive exposure to disease and trauma; 2) psychosocial deprivation, which includes parental loss, rejection or unavailability; 3) socio-cultural, which occurs when the primary social group, i.e. the family structure, fails to teach the child the values and

skills necessary to function efficiently in his cultural group or the dominant cultural group.

Numerous investigators have shown that the home environment and the influence of parents also play a major role in whether the learner is going to succeed at school.

Dougherty (1996:48) supports the view that the parental relationship with the school influences academic achievement. Parents of a higher socio-economic group are more involved; more aware of their children's activities at school; are more comfortable in their interaction with teachers; understand better how the school works and are more able to influence decision making in the school than are parents from a lower socio-economic strata of society.

Parents who are proactive in their approach to their children's education, 'encourage their verbalization of ideas, imagination and playfulness, children learn actively and the aim of education is learning how to learn' (Schaeffer 1991: 241).

Kallaghan (1977:754) cites numerous studies, which confirm the claim that "measures of home are more closely related to measures of scholastic attainment – particularly in the basic school subjects than to measures of intelligence". In other words, their studies have shown that the home environment has a significantly greater influence on scholastic achievement than has intelligence.

Van Heerden (1997:78) in her study to determine the cause of poor academic performance of disadvantaged black students at Unisa, describes the factors influencing this poor performance. Many of these students grew

up in large extended households with semiliterate or illiterate parents who earned wages that were inadequate to provide for the needs of the household. Many of them grew up without “cultural objects such as reading matter, a radio, electricity, furniture, domestic utensils and toys” (van Heerden 1997:79).

Kalinowski & Sloane’s (1981:86) study also confirms the fact that the home significantly influences the child’s ability to achieve. They state that several variables in the home influence school achievement. These are: “the parental press for achievement; the quality of language used by the parents; the availability and quality of help provided by the home; the intellectual interests and activities of the family; the encouragement to explore and the structure and routine in home management”. It is significant that most of these variables are absent in the home environment of the disadvantaged child.

Educationally disadvantaged parents often regard education as the solution to all their problems. However, together with personal, familial and community problems, the education presented to their children is alien to their life world, and they barely if at all succeed at it.

3.3 THE LIFE-WORLD OF THE EDUCATIONALLY DISADVANTAGED LEARNER

The life world of the learner includes everything to which he/she attaches meaning in his/her physical environment as well as relationships with people, objects and self.

3.3.1 THE PHYSICAL ENVIRONMENT OF THE EDL

According to Binswanger in Van den Aardweg and Van den Aardweg (1988:85), the physical environment is the world of objects we orientate ourselves to and this is referred to as the Umwelt.

3.3.1.1 Poverty

A great number of South Africans are living below the poverty line. In South Africa a significant number of people may be included under the World Bank's (1984:19) definition in Gildenhuys and Le Roux (1993:33) of absolute poverty where the income is so low that a minimum standard of nutrition, education and basic human needs cannot be met.

According to Wilson & Ramphele (1989:17), a study done by them in 1980 indicated that 50% of the South African population lived below subsistence level.

Educationally disadvantaged children are often exposed to abject poverty and these children are to be found in the cities, e.g. Johannesburg, townships, e.g. Tembisa and rural areas, e.g. the vast Kwa-Zulu Natal region. These children experience extreme anxiety as they are faced with hunger, the harshness of the elements, going to school with only the most threadbare of clothing, and no shoes when it is bitterly cold. They are often threatened by poor health owing to ***malnutrition, unhygienic living conditions and neglect by parents*** who can't or won't care adequately for their children. They concentrate their energies on trying to warm themselves and trying to ignore the gnawing hunger, which is a constant companion.

3.3.1.2 Residential Area

The educationally disadvantaged child is often reared in a low socio-economic status residential area, i.e. an environment that is neglected because of a lack of economic empowerment. A significant number of children in South Africa could be regarded as coming from poverty-stricken communities. In these communities, the infrastructure is very poor, possibly absent. The dwellings are nothing more than shacks (McKendrick 1993:213), made with any material which can be found, for example, wood, cardboard, plastic etc. The lack of a permanent dwelling often means that the family moves around and these children never develop a sense of belonging and stability. Other more permanent dwellings in low SES neighbourhoods are neglected and often derelict. Shacks are often very close together and one or two roomed, making privacy extremely difficult. Streets are often just dust roads and not well planned or demarcated, (McKendrick 1993:217), with many potholes. During the rainy season it becomes extremely difficult to move around as the dirt roads become muddy and the makeshift dwellings let the rain in. Clothing and bedding become damp and breeding grounds for germs.

The lack of toys and other stimulating activities mean that the occupants of the dwelling spend this time confined to their small space without being constructively occupied.

3.3.1.3 Basic Amenities

Basic needs are not met. No running water and often no electricity makes everyday life very difficult. Water for drinking, washing and bathing needs to be fetched from communal points. According to McKendrick (1993:215;

Naval-Severino 1993:120), ablution facilities are more often than not inadequate and a potential health hazard. How can a child whose basic physical needs are not met, cope with an academic environment, which in addition does not fit into his frame of reference? How can a learner do homework in such an environment?

3.3.1.4 Nutrition

In the Ekhuruleni Metropolitan district, an area which houses many educationally disadvantaged learners, it is not uncommon to hear of learners going without a meal for two to three days at a time. Logically, malnutrition will have negative consequences for these children. Malnutrition may cause permanent physiological damage and damage to the brain and central nervous system. (Van den Aardweg & Van den Aardweg 1988:171)

3.3.1.5 Recreational Opportunities in Low Socio-Economic Communities

In these low SES communities, playgrounds and other recreational facilities are usually conspicuous in their absence or run-down and derelict where unsavoury characters or gangs congregate.

As pointed out by van Heerden (1997:79), educationally disadvantaged children are not exposed to reading material at home and seldom make use of library facilities that may exist in the community, as their parents do not encourage reading nor understand the importance of reading. Other recreation is not available or only found in bigger centres. There is no money for transport (McKendrick 1993:216). Children are left to while away

time, become bored and often resort to delinquent behaviour influenced by other deviants.

3.3.2 SOCIO-CULTURAL ENVIRONMENT

According to Halsey in Bagley & Verma (1983:67), “for many learners the major determinants of educational attainment are not schoolmasters, but social situations, not curriculum, but motivation, not formal access to the school, but support in the family and the community. Since for many disadvantaged children in South Africa the above-mentioned determinants are lacking, is it any wonder that so many of them do not make it to or successfully complete Grade 12?

3.3.2.1 Family Dynamics

Often the anxiety the EDL experiences extends to avoiding or trying to pacify aggressive parents or elders who may be physically or sexually abusive, or alcoholic.

At home the EDL is not exposed to books or conversation with adults. Any questions that they may have go unasked or unanswered. Often among educationally disadvantaged learners in South Africa, the transmission of cultural knowledge is grossly neglected as adults desperately attempt to provide even the basic needs for survival, having little time to consider any other aspect of child rearing. Many low socio-economic status (SES) parents are more concerned about sending their children to work in order to supplement their income.

The educationally disadvantaged learner often comes from a ***large family*** (van Heerden 1997:78), where the children are closely spaced or the

children are unwanted. Older children are left to care for younger siblings or elderly grandparents (Wallace & Adams 1987:8), and do household chores. Very little time is therefore left for play or reading or studying.

Disadvantaged learners often do not experience order and regularity in their family's life and are frequently exposed to their parents' marital strife. Pretorius (1990) in Harmer (1995:76) adds that there is poor family unity as the various family activities tend to be diverse and separate.

Furthermore, parents or guardians are often absent or uninvolved in the lives of educationally disadvantaged learners in South Africa as the family unit has in many cases disintegrated.

Parents who have migrated from the rural to the urban areas have often not mastered the culture of urban life, which leaves them feeling helpless and bewildered. They are often *unskilled* or at most *semi-skilled* with the result that it is almost impossible to find employment. They join the ranks of the unemployed and just to survive becomes an everyday battle. Planning for the future is a luxury they cannot afford as they attempt to put food in their children's mouths from day to day. As stated by Wilson & Ramphele (1989:267), the "primary occupation of poor people is actual daily survival. Forward planning is a luxury they can't afford". Educationally disadvantaged children learn of necessity to live in a concrete world of immediacy.

A more recent influence on family dynamics is the AIDS epidemic, which has forced many learners to face frequent deaths and serious illness in their families. Many learners are left orphans in the care of older siblings, strangers or grandparents.

The child who is a victim of parental ignorance and unemployment, overpopulation, lack of regular balanced meals, overcrowding and inadequate housing, faces health risks and is already at a disadvantage, academically.

3.3.2.2 Demoralising Environment

In the life of the EDL, a number of personal, familial and community problems show themselves. Natriello (1990:130) lists them as teenage pregnancy, alcohol and drug abuse, delinquent gang membership, single families, family violence which includes child abuse, and financial need.

- **Community**

  Within the community, the youth encounter a number of problems. Van Niekerk & Meier (1995:68) describe them as socially disorganised communities, delinquent gangs, high rates of crime, violence and freely available drugs.

- **Family**

  Within the family, the EDL is often exposed to family violence and disruption. The learner experiences that his/her basic needs are not being met. EDLs often do not know the experience of an adult reading stories, or the gentle interaction between child and parent. Positive role models do not exist in their world. Their language skills are hampered by the poor quality of communication that takes place in the home.

  As explained by Vorster & van der Spuy (1995:62), educationally disadvantaged learners aggressively act out what has become a reality for them, i.e. they have a very low tolerance and motivational level.

'In this demoralising environment, they are often exposed to murder, assault, rape, arson and beatings, which blunt their emotions' (van Niekerk 1995:73).

3.3.2.3 Poor Authority Figures and Parental Supervision

Absence of one or both parents is common for a variety of reasons including divorce, desertion, or parents working away.

Often the EDL's guardians are not stable, moving from one area to another. These children never have a chance at stability in their lives. The odds are stacked against them.

As explained by van Niekerk & Meier (1995:72), children are frequently left in the care of grandparents who quickly lose control over the child. Grandparents and their grandchildren often do not share the same cultural norms and values. Grandparents may have more traditional cultural norms, which they try to enforce on their grandchildren. This frequently results in a challenge of authority. Younger children are often supervised by slightly older siblings who themselves have not been exposed to a nurturing, stimulating environment. Sufficient research exists to indicate that the quality of interaction between caregiver and child affects the development of higher order thinking skills.

3.3.2.4 Communication

Communication, according to Van den Aardweg and Van den Aardweg (1988), is a sharing verbally and non-verbally of experiences, happenings, knowledge, opinions, ideas and it is affectively coloured.

Parents of educationally disadvantaged children do not discuss matters of any kind with them. No critical thinking is required from these children. In fact, it is suppressed and discouraged. Raven (1987:21) found in his evaluation of a pre-school home-visiting programme, that many parents, especially among low socio-economic status groups devalued curiosity, inquisitiveness, an interest in ideas and bookishness.

Adams & Adams (1991:43) confirms this by citing an example from Zulu culture, from which many South African disadvantaged children come. They explain that traditional Zulu culture demands deep respect for senior members of the community. Younger people are discouraged from questioning their elders.

According to Wallace & Adams (1987:7), in Kwa-Zulu Natal many learners are educationally disadvantaged and find themselves in unsatisfactory home and school environments. There is very little opportunity for them to develop critical thinking skills.

Low SES parents tend to see to the very basic needs of the child and neglect becoming personally involved with the child by, for example, providing guidance on moral, behavioural and cultural issues.

Praise is seldom forthcoming although negative criticism abounds. Language development lags as a result of a lack of informative conversation and brief, abrupt exchanges.

Parents communicate with their children mostly when they give commands, criticise or reprimand them. Punishment is usually harsh and physical. According to Van den Aardweg & Van den Aardweg (1988:171), lower class mothers are more likely to use food as a reward or withhold it as a

punishment. This way of communication often stems from the parents' feeling of inadequacy and lack of control over their children.

3.3.3 PSYCHOSOCIAL ENVIRONMENT

Havinghurst and Erikson (Van den Aardweg and Van den Aardweg 1988:11) believe that as an individual goes through each stage of life, he or she must master a number of developmental tasks, e.g. "skills and knowledge, functions and attitudes needed to succeed in life".

Erikson (Van den Aardweg and Van den Aardweg 1988:12) explains that our interaction between what we have inherited, on the one hand, and environmental influences on the other, may be positive or negative. Failure to master the tasks of each stage, hinders the development of the next stage.

Caplan (1964) in Nurcombe (1976:53), defines psychosocial deprivation as insufficiency of or disruption in early attachment due to parental loss, rejection or unavailability.

The educationally disadvantaged child's need for love, warmth and security is not met, making it difficult for the child to successfully master each developmental stage.

3.3.3.1 Psycho-social Factors Influencing Cognitive Development

Van den Aardweg & Van den Aardweg (1998:171) believe that physical development greatly affects the child's psychological development, which in turn influences his/her intellectual (cognitive) development, relationships with others and the self-concept.

Wiseman (1964:60) states that the important influences on children's school attainment are not economic so much as moral versus social disintegration

of the community, standards of maternal care and characteristics of school. What the deprived child lacks is not ***quantity*** of stimulation, but a ***particular quality***; certain patterns of input that are important in promoting the cognitive competencies required for primary school.

Eriksen's psycho-social theory stresses the interaction between the inner qualities of the person and the demands of his/her culture. He sees the individual as less bound by the past and capable of '"pontaneous recovery from impaired development during earlier stages' (Gerdes 1989:65).

According to research done by Feuerstein and Klein (1991:59), educationally disadvantaged children need "mediational learning experiences" to encourage cognitive development. It follows then that since these experiences are denied the educationally disadvantaged child, it will result in their failure to develop higher order thinking skills.

Sigel (1968:73) notes that the under-privileged child's play is highly motoric and both less reflective and less well ordered than that of the middle class child. He suggests that intervention programmess should attempt to help the child switch from an action-oriented, sensori-motor form of thought to a representational one. In the researcher's opinion, the present system does not take cognisance of this, expecting each learner already to have developed a representational form of thought.

3.3.3.2 Disempowerment

In South Africa the poor transmission of a value system is, more often than not, exacerbated by the fact that cultural values of some groups become subordinate to a more dominant cultural group, creating an "attitude of disempowerment and disrespect of indigenous values" (Hundeide 1991:26).

Relationships between parents and children are often distant and cold (Harmer 1995:76 & 77). The vicious cycle is perpetuated as disempowered parents transmit their attitude to their children. The consequence of the disempowerment has a chain reaction effect. Disempowerment leads to poor self-esteem and experience of failure. Another poorly educated, unemployed or lowly paid unskilled or semi-skilled worker enters society.

The cycle of poverty is perpetuated and with it the commitant features, as identified by Boocock (1980) in Natriello et al (1990:6), of the culture of poverty. These features include "fatalism, feelings of frustration and alienation from the larger society, a present, rather than future-time orientation, resulting in an inability to plan for the future and preference for physical over mental activities, and gratifications".

It seems that rather than try to alleviate the poverty, the problem should be tackled at the point of education, where perhaps a large part of the school day is dedicated to helping the child see his/her own worth, and adapting teaching methods and curricula, which will help the child to overcome the problems faced in the home environment.

3.3.3.3 Development of Self-esteem

In the absence of a warm, nurturing relationship with a caregiver, the self - esteem of the child is adversely affected. Coopersmith's (1967) in Rosa (1994:100), definition describes self-esteem as that evaluation which the individual makes about himself and which then determines how capable, successful, significant and worthy the individual believes himself to be. Bagley & Wong in Bagley and Verma (1983:63) define self-esteem as the way the individual evaluates personal characteristics, which they believe

they possess. The individual attaches personal characteristics to himself as a human being through interaction with his world and other people. Bagley & Wong in Bagley & Verma (1983:63), assert “that it is from a person’s actions and relative position within his frame of reference that he comes to believe that he is a success or failure”. The consequence of poor self-esteem is an anxiety, despondency and low motivation to be someone of worth. According to Nurcombe (1976:59), the consequences of low self-esteem are lack of confidence, withdrawal, the rejection of personal perceptions and high levels of psychosomatic distress, manifesting in tension symptoms and the tendency to ‘act out’ impulsively when under pressure. Educationally disadvantaged children often find themselves in a value vacuum, i.e. a lack of a value system.

A youth cannot evaluate his/her own worth, dignity, vigour and vitality if what (s)he is matching him/herself against, is a vacuum or a social order that yields too easily and is therefore less mature than the youth (Vrey 1987:191). A value vacuum results in the individual’s need for immediate gratification of self as well as a lack of long term goals and a total lack of consideration for the needs of others.

According to Helge (1988:17), at-risk learners must be helped to “develop self-esteem and lead useful lives – a directional versus correctional approach”.

The education system should prepare its clients, the learners, to develop a strong self-image and the ability to fend for self in an increasingly competitive technological world as well as in the environment in which they find themselves.

3.3.3.4 Interactive Relationships

According to Hundeide (1991:10) the child needs an intimate interactive relationship with caregivers so that the child learns to "participate in a shared system of skills, knowledge, needs and values which constitutes a culture".

The child should have access to a stable primary caregiver, who **initiates quality** interaction with the child. Pnina Klein in Hundeide (1991:66), states that there is evidence that the quality of interaction between caregiver and child is critical for the child's higher mental development. In the life of the educationally disadvantaged child, quality interaction with a caregiver is a rarity. The EDL is often left to deal with life on his/her own. Perceptions may be being distorted because of the absence of constant guidance from a caregiver.

3.3.3.5 Discipline

Mussen & Distler (1959) found that "students of lesser mental ability have parents who employ more anxiety producing, inconsistent, hostile behaviour patterns in their dealings with their children than do parents who have children of greater intellectual ability". (Heckhausen 1968:157.) Parents of children of lesser mental ability frequently use force to get their children to comply. Especially parents migrating from rural areas who experience great difficulty adjusting to the urban environment, experience being out of their depth and become insecure and unsure of themselves. Self-doubt may lead to inconsistent discipline. They cannot approach child-rearing responsibilities with any degree of self-confidence. Their method of child-rearing, according to Hundeide (1991:33), is power-oriented with threats

and commands, which perpetuates the same pattern of inferiority and disempowerment in their children. According to Wilson (1981:45), power is not a sufficient condition for discipline. A disciplined child, as defined by Madsen & Madsen (1976:6), is a child who has learned to behave socially in appropriate ways, and who evidences proper patterns of responses to his/her work.

As pointed out by Vance (1997:31), the lack of discipline in educationally disadvantaged children is clearly evident when they fail to conform to acceptable social behaviour within the school environment without being fully aware of offending others. Children develop the cognitive ability to abstract and conceptualise, they learn to put themselves in the other person's place. The ability to abstract assumes that the individual is not controlled by the concrete, present or immediate experience. The educationally disadvantaged child who has not developed the cognitive ability to abstract and conceptualise, is not exposed to consistent discipline, and will therefore continue to function in the present or immediate situation without considering the ramifications of his/her actions (Vance 1997:31).

3.4 THE SCHOOL ENVIRONMENT

Education should play a major role in removing the great distance between disadvantaged and advantaged learners, rather than entrenching it. By education is not necessarily meant the Western model as practised in South African schools at present, but a system of education that provides all learners irrespective of their background with skills to survive in the environment in which they find themselves and to rise above their circumstances.

The school environment is generally ordered and rules and regulations used within the present South African system are foreign to the EDL. An example would be time management (van Heerden 1997:81). As there is no structure in the home environment with no insistence on activities within a given time span from a Western cultural perspective, the concept of time keeping and punctuality does not feature in the child's frame of reference, which makes it difficult for the EDL to work within a time frame.

3.4.1 Teachers of EDLs in South Africa

A legacy of the Apartheid years is the fact that schools solely for black children still exist and can invariably be found in disadvantaged areas. Although learners who attend these schools are mostly taught by black teachers, the cultural orientation of teachers and learners does often not correspond. According to Greenleaf et al (1994:522) cultural differences can give rise to a breakdown in communication, misunderstandings and misperceptions. It can also have an effect on teacher expectation of children with a different cultural background to that of the teacher.

In South Africa the majority of disadvantaged children are from Black communities and many of their teachers are from similar environments, so that it is easy to equate disadvantage with the Black community and to forget that many disadvantaged children are also to be found in the so-called advantaged schools, as parents seek "better quality" education for their children in previously white advantaged schools.

Paine (1989) in Greenleaf et al (1994:523) believes that "when teachers enter the classroom they tend to draw on their own experiences in schooling, from which they derive normative interpretive frameworks, and to bring little personal

experience of diversity into their pedagogical decision-making". Gomez (1991) in Greenleaf et al (1994:523) has pointed out that young teachers often believed that "there is one preferred way of living for which all people should strive". Consequently, they do not realise that children come from different cultural, language and economic backgrounds with diverse and valuable experiences. Similar to the scenario painted by Greenleaf et al (1994:522) of a diverse school population taught by mostly middle-class white females, so is the picture in many South African schools. How many learners and their teachers share a common perception of the world?

Children and teachers will have their own views of what learning in school means, what it is for, and how it is to be conducted, but those views are unlikely to be the same. (Watt 1996:142.) It is therefore important for teachers to establish what disadvantaged learners entering school, know and can do, how they learn, their attitude to success and failure and what their culture of learning and achievement has been about in order not to misjudge the children they are teaching. McDermiarmid (1990) & Paine (1989) in Greenleaf et al (1994:523) point out that teachers tend to "differentiate instruction on the basis of what they believe their students can do" and may make decisions which reduce educational opportunities for disadvantaged learners in the classroom. If the teacher wrongly expects too little or too much, it may affect how the child achieves.

Teachers of first graders often have a difficult task since they have less information about the children's backgrounds and how they learn, as many children in South Africa have never set foot in a structured learning

environment until they reach compulsory school going age. This is perhaps another justification for compulsory pre-primary school education.

According to Fine (1987) in Natriello (1990:112), several studies indicate that many children drop out of school because they feel they have to struggle on alone, that their teachers pay scant attention to them and that no one cares about how they're coping. It is therefore imperative that teachers in South African schools are made aware of and prepared to deal with the vastly diverse learner populations in their classrooms with their distinctive needs.

Manfredi/Petitt (1994:72) reminds us that our task as educators is to develop positive self-esteem in the children we teach, constantly bearing in mind that "there are many right ways to live, many right ways to solve problems and many right ways to look at the world". As educators, we cannot afford to look at the world in only the way each of us sees it, and condemn the different ways and thoughts of others from other communities and societies. Narrow-mindedness of teachers has as a consequence the stifling of creative and critical thinking. Attention should therefore be paid to the "socio-cognitive activities underlying teachers' behaviours and the ways in which teachers' thinking about multi-cultural issues can and should grow and develop".

3.4.2 Inflexible Education System

The education system currently being practised in South Africa further widens the chasm between the advantaged learner who has ready access to technology at school and at home, and the disadvantaged learner who has had very limited access to any form of media communication and technology.

Although we claim that education must be relevant to the needs of the individual in South Africa, the EDL is forced into an inflexible education system

developed for all irrespective of background and needs van Heerden (1997:83). This situation continues in many of the schools in the Ekhuruleni Metropolitan area where many disadvantaged children live. According to Van den Aardweg & Van den Aardweg (1988:141), *life world* is “all to which the learner has attributed significance and which he or she therefore understands”. To continue to ignore this fact would make attempting to educate South African learners through the present system an exercise in futility for the majority.

When one considers the many remarkably gifted South Africans who have risen above their circumstances, it seems necessary to investigate how and what modes of thinking are developed in gifted educationally disadvantaged in contrast to non-gifted individuals.

The modes of thinking of educationally disadvantaged learners, as well as their teachers, should be examined closely when developing ways of imparting knowledge to learners, which should ultimately prepare them to cope with whatever life presents to them.

3.4.2.1 Equality in Education

We are presented with an education system that has simply been modified over a period of time from a system across the seas and which the educationally advantaged have been exposed to from birth. As stated by Greenleaf et al (1994:521), “if public education systems are ever to serve the needs of all, if they will ever be capable of honoring this diversity, of drawing upon the linguistic and cultural richness and resources of all their children, then, among other things, teacher education will need to change”.

The present education system in South Africa continues to allow the advantaged learner to achieve, while the educationally disadvantaged

continue to experience the system as alien to their life world, with the result that they continue to fail or be mediocre at it.

Dougherty (1996:52) suggests that one uniform standard cannot be set in education as different cultures vary in their expectations of education and what constitutes a good education, for example should education concentrate on basic skills or on higher order skills?

The view of Natriello (1990:157), is that if we continue to organise schools as they are at the moment, believing that we are giving South African children all equal education, we are assuming that all learners share uniform middle-class characteristics and life views, which is clearly not the case in South Africa as the majority of South African learners do not come from a middle-class environment.

3.4.2.2 Curriculum and Subject Matter and its Relevance to the EDL

Brady (1996:225) believes that the curriculum does not teach children what they need to know to "live sensibly and successfully". According to him, what is taught at school, is taught because the 'powers-that-be' were taught in the same way. Decades go by without anyone rethinking the curriculum. Traditionally, combinations of fields of study just do not happen. "Students learn a little of this subject and a little of that, but never how it all fits together. In the real world, everything is interrelated. In school, almost nothing relates to anything" (Brady 1996:250). Learners are bombarded with fragmented bits of information of which they can make little sense, rather than a clear, well-organised presentation of the whole. "Traditional

education is not only irrelevant to much of human experience, it is an active creator of problems." (Brady 1996:250.)

Cardellichio & Field (1997:34) also criticise teaching as it exists at present, saying that where the curriculum, methodology and school is so rigid, learners are not given the opportunity to **reflect on its meaning**. This results in **neural pruning** rather than **neural branching**. They explain neural pruning as developing selective mental patterns. Neural branching allows the learner to look at a new bit of information without preconceived, rigid perceptions.

Despite the South African Constitution's vision of equal education opportunities for all, the education system does not meet the diverse needs of South African learners.

According to Steyn (1990:71) it is ironic that humanity can place a man on the moon, yet educators and education cannot solve the problems surrounding poverty, pollution and the population explosion. Is the curriculum providing learners from an educationally disadvantaged background the opportunity through the education system to develop the ability to cope within a technologically orientated society? (Steyn 1990:71).

According to Natriello (1990:99), an often cited reason for the high dropout rate in American schools, is the failure to take into consideration the skills and interests of students when developing an academic programme. Natriello's claim is relevant in the South African context.

If one considers Vygotsky's theory that culture is the precursor to cognitive development, the skills that many South Africans have acquired from their cultural background should be incorporated into the learning environment as

has been described by Mean & Knapp (1991:287) in research into disadvantaged children in the United States of America. However, since South Africa is composed of diverse cultural backgrounds, and only one seems to dominate in the school environment, the skills of learners from other backgrounds, are often disregarded, a concern also held by Manfredi/Pettit (1994:72) in a discussion of children who were not from the dominant culture in the American context .

3.4.2.2 Relationship between Curriculum and Unemployment

Sadly, learners who do not cope with an unfamiliar education environment, do not look to the system as being at fault. Rather, they blame themselves, which more often than not, leads to poor self image, hopelessness, defeatism and dropping out of the education system. With this poor basis, their future as the workforce of South Africa is bleak. If they do succeed in acquiring a matriculation certificate, it is cold comfort as their academic performance is very poor and elicits a vote of no confidence from prospective employers (van Niekerk & Meier 1995:76). The result is rampant unemployment with the resultant feeling of hopelessness and helplessness, frustration and desperation.

Many learners at school are aware of the high unemployment rate, especially among disadvantaged learners. They question whether attending school will improve their job prospects. The result is a lack of motivation to attend school and a significant number of learners drop out of school. The vicious circle of hopelessness, poverty, violence and crime continues to be perpetuated. In van Niekerk & Meier (1995:69), Folscher refers to these youth as 'the lost generation'.

Coffield (1995) in Watt (1996:141), spoke of trends in Scotland in the following way: “Our community has become dangerously divided into a majority of contented ‘haves’ and embittered groups of ‘have nots’ or, more accurately, those who are realising that they may never join in the widespread prosperity that the rest of us enjoy”. It is much the same in South Africa, but perhaps on a much larger scale as the majority of South Africa’s people can be categorised as the so-called ‘have-nots’. The question therefore remains, has education done anything to alleviate the above situation for South African learners?

3.4.2.3 Remediation

Mention has been frequently made of research, which indicates that remediating the learning problems of disadvantaged children should not necessarily take the form of extra work of the kind being dealt with in the classroom. Neither is instructional and curricular differentiation of much value. Many South African learners are subjected to ‘more of the same’, which does not significantly improve their academic results as the reasons for their academic struggles are not addressed. We continue to treat the symptom rather than the cause.

3.4.3 Command of Language

As has been stated previously, South Africa has a rich diversity of cultures and languages. As pointed out by van Heerden (1997:80), many South African students do not have English as their mother tongue, and many students experienced difficulties with the language of instruction. It is mostly the mother tongue speaker who will interpret and use the language with any great

efficiency. Subtleties and symbolic aspects which may be vital to the understanding of a concept are largely lost on non-mother tongue speakers.

3.4.3.1 Acquisition of Language

According to Johnson, Daumer & Rawlins (1993:261), the acquisition of language occurs in conjunction with brain hemisphere specialisation. Before the age of five, children show very little hemisphere specialisation. Language skills, i.e. the ability to speak, read and write, recall and spell, are found in the left hemisphere of the brain, which is the logical, analytical area. Furthermore the left hemisphere of the brain allows only the most literal interpretation of information. The right hemisphere of the brain allows interpretation through images and functions intuitively. The right hemisphere can “also process many kinds of information simultaneously, can see problems holistically, and can make great leaps of insight”. The right hemisphere of the brain is responsible for changing the literal meaning of something into the metaphorical or symbolic meaning.

Language represents thought, how the individual represents and organises ideas, and conceptual thinking.

Johnson, Daumer & Rawlins (1993:258) see communication as both a cognitive and intuitive process. This implies that it is an integration of a left-brain and a right-brain activity.

3.4.3.2 Language at School

Many languages are spoken in South Africa, eleven of which are regarded as official languages. Many children come to school for the first time not

having heard the major language used as a medium of instruction (in the majority of schools, English and Afrikaans.

Learners reared with English and Afrikaans as their home language have gained a rich repertoire of meanings and symbolism associated with the language, which is often called upon in subject content. The learner who hasn't mastered the language of instruction already has a significant backlog of knowledge. Paul (1993:31) states that learning the meaning of a word is not sufficient as we need to create new concepts from modified old understandings.

According to Van Heerden (1997:80), many South African children experience difficulties with the learning environment because they are required to use English or Afrikaans as a medium of thinking and learning.

As language is more than just knowledge of vocabulary, syntax, and so forth, i.e. it also "implies a familiarity with the socio-cultural frame of reference linked to the particular language", children who do not have these two languages as a mother tongue lack the socio-cultural frame of reference and find understanding the learning material a problem. Another problem is that cultural differences influence how various structures, e.g. humour, idioms, figurative language, are interpreted, resulting in frequent misinterpretation of subject material.

3.4.3.3 Language Skills of Disadvantaged Children

Many disadvantaged learners have not had the opportunity to develop intuitive thinking, which makes their use of the language of instruction, inadequate.

Fleming & Forester (1997:177) have identified learning difficulties in students who are not first language speakers. These include poor vocabulary development, poor auditory discrimination, poor phonology skills and limited skills in abstracting and using verbal reasoning. They cite a case of a young rote reader who did not process and integrate meanings as she read. She attempted to answer text-explicit questions but was unable to answer more conceptual questions.

They noted other learners who had poor phonology skills. Concentration is centred round decoding the letters of words and there is therefore very little energy and time to consider the meaning of what is read. The consequence is that the child is not able to access information. According to Natriello (1990:25), learners whose mother tongue is not English are at a disadvantage in mathematics and reading. Henning (1994:90) explains the reading and learning problems of disadvantaged English Second Language (ESL) learners as Cognitive Distancing.

3.4.3.4 Cognitive Distancing

The inability to link existing knowledge with new knowledge from a text is probably not only due to the inability to match the two sets of knowledge because of conceptual incompatibility (cognitive distancing), but also because the language of the text cannot be linked to the reader's existing linguistic structures. These learners therefore face two major problems: a lack of matching knowledge and an inadequate command of the language.

Their prior knowledge is deficient. Disadvantaged learners often only have access to education and information once they get to school, unlike their more privileged peers who have access on a continuous basis at home as

well. Internalisation of language is hindered in disadvantaged learners by their circumstances.

Disadvantaged children are also usually only exposed to language in its written form once they enter school, while their more advantaged peers have already had exposure usually from the cradle, as mentioned before. Without a base from which to work, these children face the daunting task of just trying to catch and keep up.

How much does the disadvantaged learner attribute significance to and understanding of a system to which he or she has never or scantily been exposed? Disadvantaged children therefore enter school at a serious disadvantage.

Watt (1996:143) explains that very young disadvantaged learners come to school without the faintest idea of what is expected of them. They may not even understand what tasks mean or what their purpose is. Continuous interaction with a teacher is crucial for disadvantaged learners to come to realise and understand what school learning is all about. This is impossible when a teacher is faced with very large numbers of learners in a classroom.

As pointed out by Van Heerden (1997:79), many disadvantaged learners experience school as an alien place. “The school curriculum also includes matters, for example ideas about the sea, airports, foreign countries, certain foodstuffs and electricity, which are unknown to many children, and in spite of pictures and photographs, the new information could not be successfully accommodated into their existing frame of reference.” Furthermore Van Heerden (1997:79) points out that in South Africa the languages of instruction, English and Afrikaans, are also often foreign to disadvantaged

children. An example prevalent in the Ekhuruleni Metropolitan District is young learners transferring from a township school to a school in a more affluent suburb just 20 kilometres away, who have only a smattering of English at a level often found in learners who come from foreign non-English speaking countries.

To what extent then, does the educationally disadvantaged child have real access to educational opportunities and how much does he or she benefit from the present system of education in South Africa?

3.4.3.5 Motivation to Read

In the home environment, EDL learners do not have ready access to reading material in the languages used as medium of instruction at school, nor the inclination to read, to improve their understanding of these languages. As indicated by Jordaan et al (1987) in Van Heerden (1997:80), these two aspects of language, i.e. what and how much a person reads, are important for the development of comprehension.

Hirsch (1997:84) has put forward a number of aspects necessary for successful reading and learning to take place:

- Without **background knowledge**, understanding cannot take place. Furthermore communication can only take place when this knowledge is shared. Interactive communication is therefore vital;
- Because background knowledge is in a perpetual state of change, it needs to be **constantly updated;**
- In order for society to be democratic, schools should provide background knowledge;

- A lack of a broad knowledge makes it more difficult for the learner to learn new unexpected things.

Many disadvantaged children in South Africa do not have the kind of background knowledge as described by Hirsch (1997:84), required by the learning environment in which they are placed at school. However, it is assumed that all learners in the classroom will operate from the same background. Little attention is paid by the teacher in the classroom to what each learners knows. Perhaps the mediated learning approach suggested by Vygotsky (see chapter 2), should be the first priority in classrooms, where the learners' current performance should be determined before new, information is presented to them.

Goldberg (1997:83) found in a study he conducted on how students read and write, that disadvantaged children could decode as well as more advantaged children. However, the EDL didn't understand as many texts. In other words, the information is not internalised and is therefore not meaningful to the learner.

Rabianski-Carriuolo (1989:19) believes that children who are given the opportunity to read at a younger age (between 4 and 7) have an advantage over children who are exposed to reading only at a later stage. The same goes for language. The later the child is exposed to a language, the less likely he or she is going to be able to use it effectively. Disadvantaged learners just do not have access to reading material or to someone who will spend time reading to them. Their first acquaintance with reading is at school where the teacher assumes that this is not a new experience for the

learner. Again the learner is approached within the teaching context, from the teacher's own frame of reference.

3.4.4 Adaptation to a Literate, Technological Society

Children who are not given basic skills and warm human contact cannot cope in a literate, technological society. The life world from which they come, is so vastly different from the education system in an increasingly technological, computerised society, that their chances of successfully taking their place in this society become more and more remote. While educationally disadvantaged learners remains in the social and educational milieus in which they finds themselves, technological development moves forward in leaps and bounds and they find themselves left further and further behind.

3.4.5 Inadequate Educational Facilities in Disadvantaged Communities

Apart from a desperate home situation, disadvantaged children in South Africa often find the school environment a replica of what they experience at home. Botha and Cilliers (1993:55) list obstacles faced by disadvantaged learners as the following: many learning environments in South Africa are poor and inadequate; many teachers remain under-qualified and teaching practices are of a low standard; learners from grade five onwards face learning in a language other than their mother tongue (in many cases, it appears to them to be a foreign rather than a second language); learners are from impoverished homes; they face poor nutrition, lack of security, stimulation, love and support. These children come to school with hopelessly inadequate English, mathematics and thinking skills.

3.4.5.1 Physical Conditions

The school is often run-down, devoid of material resources and often without adult guidance. The classrooms continue to be overcrowded, devoid of modern teaching aids, the walls are bare and often unpainted, the furniture is stark, electricity and textbooks are unavailable and the buildings and surroundings are in a state of disrepair and neglect.

The physical circumstances within schools where many disadvantaged learners find themselves, therefore make teaching and learning intolerable. A survey of many American schools done by Holmes (1970) in Bagley & Verma (1983:167) paints a picture similar to that we have in South Africa. In South Africa, schools are overcrowded and in many instances classrooms are filled to capacity with many more than 50 children, where there are too few desks, where children sit two to a chair, where no visual aids are to be seen, and where windows, doors and other furniture are broken and dilapidated and where the school grounds consist of dust and sand, weeds and litter.

3.4.5.2 Lack of Teaching and Learning Resources

Samuel in McGregor & McGregor (1992:109) points out that the crisis in South African education can be seen in the shortage of schools, books and other resources, overcrowded classrooms, under-qualified teachers and low levels of literacy and numeracy. In the Sunday Independent of 16 April 2000, Mokoe reports on the desperately inadequate facilities faced by teachers and learners. A principal points out that the size of a tree and how much shade it provides, determines how many children will be registered at the school. Children sit on the ground with their books on their laps, as

using chairs would mean fewer children would be able to attend the 'class'. He says that "under the trees, teaching can never be effective. We're affected by rains, wind, cold and often very hot weather. When it rains, children are sent home." This situation has a profoundly negative effect on the morale and attitude of learners and teachers.

3.4.6 School Culture and Climate of Effective Schools

Gaziel (1997:311) believes that the culture of an organisation can influence its productivity. He indicates that research shows that school culture has a significant impact on academic achievement especially of Asian and Black students and also of disadvantaged students.

He identified several factors that could determine school effectiveness. These include teamwork among the teaching staff; explicit expectations and clearly stated goals; emphasis on academic achievement; continuous improvement of teachers' work in the classroom; active student participation in the running of the school; pupils' and parents' needs being met; teachers and principals being valued. His research found that school norms differed between effective and average schools. Effective schools put greater store on academic achievement, continuous school improvement and orderliness, in that order.

Dougherty (1996:43) suggests that to be effective, schools should create a climate of expectation among the learners. The leaders of the school must be seen and understood to have high expectations of all the learners. Teachers must be held accountable for the learners' success, must participate in the decision-making about the curriculum, teaching methods and teacher development. An orderly school environment must prevail.

3.4.6.1 Effective Schools in Disadvantaged Communities

Chen, Shiloah & Vanesky (1984) and Dagan (1993) in Gaziel (1997:316) found in their research that disadvantaged schools which strove to be effective despite their lack of resources, adopted the norms of effective schools, and as a result also achieved orderliness, while average disadvantaged school teachers believed that students' achievements could not be improved before an orderly atmosphere prevailed in the school, with the result that learners showed poorer academic achievement. Gaziel (1997:316) therefore claims that "to be effective in a disadvantaged environment, where education is less highly valued, a school must have a school culture that, first, values academic achievement; second, values continuous school improvement and teamwork; and, only then, values the creation of an orderly environment".

In the case of rural schools, Aamidor & Spicker (1995:45) believe that "rural educators must begin to build upon their unique rural cultures and lifestyles rather than continue to adopt an urban model that may have little relevance to a rural environment".

3.4.7 The Role of Education in Countering Socio-cultural Deprivation

As stated by Lewis (1968) in Hundeide (1991:11), poverty is a socio-cultural situation, associated with a state of mind.

The question is why some from an impoverished background rise above their circumstances while many do not?

Trying to teach children that which is foreign to their personal environment and sending them home to the almost insurmountable obstacles which they face on a daily basis, without giving them the ability to be innovative and creative and

without encouraging motivation and a positive self-image in such an environment, is an exercise in futility. Trying to overcome all the socio-economic problems that these children have to face is well nigh impossible. Learners must be taught to cope with the personal, emotional and psychological aspects of their impoverished environments and to overcome it in the long run before the more formal aspects of education can be addressed.

The potential that learners have developed through their circumstances needs to be moulded and modified to meet the challenges set by world demands. As pointed out by Valentine (1971), in Natriello et al (1990:7), far from being culturally different or deficient, EDLs "possess a rich repertoire of varied life styles".

It is the responsibility of education to identify learner potential and to develop a system that is relevant and meaningful to the South African learner.

Hundeide (1991:115) states that "the aim of education intervention beyond infancy must be to improve children's future lives within their existing social reality and along the lines approved by their community at large; not intervention for its own sake in order to develop some skills that may be out of tune with their life and needs".

3.4.7.1 Post-school Career Choices

Often those learners who against all odds manage to complete a matriculation certificate, go on to study tertiary courses, which they can cope with, but which do not provide easy access to the world-of-work. In other words, the careers they choose on the basis of courses that do not require a great deal of higher order thinking skills, are not in demand in the labour market, placing them at a further disadvantage. Furthermore many

graduates who are from a disadvantaged background have difficulty finding employment, as they never progress beyond the interview stage. Once again the lack of life skills plays a major part.

Illiteracy and a lack of relevant educational and life skills remains the most significant reason for unemployment, many South Africans having left school either during the primary school years or at any rate some years before Grade 12.

As stated by Comer (1980) in Natriello (1990:69), many disadvantaged learners experience the school environment as “incompatible with other spheres of their lives”.

The relevance of an education system that concentrates solely on the learning of knowledge, while neglecting those skills which assist the learner to cope with his or her environment and to apply the knowledge, fails to prepare learners for their roles in the social structure.

3.5 CONCLUSION

From the aforementioned discussion it is clear that disadvantaged learners face a great number of obstacles in their attempt to cope with education such as it is in South Africa at present. They come to school without the necessary cognitive and social skills to cope with the demands made by the school. The life world of these children is far removed from the education environment they must cope with from the first day at school. Their frame of reference is incompatible with the system of education presented to them. While they may have acquired skills specific to their environment, these are disregarded as irrelevant in the school context. The educationally disadvantaged learner is expected to fit into the system immediately and effortlessly. For education to be meaningful in the lives of the disadvantaged

learners, the emphasis on education should be such that it meets the needs of the learner in order to provide skills to cope with the disadvantaged environment from which they come. Of what use is ‘education’ that leaves the learner defeated, discouraged and helpless to face the almost insurmountable obstacles he/she faces in his life world or which does not teach him/her how to critically assess and creatively solve those problems.

CHAPTER 4

4 DESIGN OF EMPIRICAL INVESTIGATION

4.1 INTRODUCTION

The theoretical investigation included a survey of existing research on the most prominent theories on thinking and learning styles generally found amongst disadvantaged learners and the possible effect of teaching styles on the disadvantaged learner's ability to master subject matter.

A theoretical study to identify a general profile of the educationally disadvantaged learner was also included.

The literature study revealed that:

- Disadvantaged learners the world over, tend towards particular modes of thinking and learning.
- Teaching methods and expectations significantly influence how effectively learners assimilate information.
- The family, school and community significantly influence whether a learner will be regarded as educationally disadvantaged and develop the characteristics that will influence academic achievement.

4.2 THE RATIONALE FOR AN EMPIRICAL INVESTIGATION

An empirical investigation was conducted in primary and high schools east of Johannesburg to determine the modes of thinking and learning as well as the teaching methods among South African disadvantaged learners and their teachers in that area.

4.2.1 Thinking and Learning Styles

This study attempted to establish whether South African disadvantaged learners in a particular area east of Johannesburg, showed a tendency towards particular modes of thinking and learning and to attempt to identify their preferred modes of thinking and learning.

4.2.2 Teaching Styles

This aspect of the study was included in order to determine whether teaching methods used by teachers of disadvantaged learners in the geographical area mentioned above, complemented the modes of thinking and learning used by disadvantaged learners.

4.3 RESEARCH DESIGN

4.3.1 Sample/Subjects

This study of the above-mentioned aspects was conducted from a nomothetic perspective, that is, the study involved a group of disadvantaged primary and secondary school learners and their teachers.

A sample of approximately 310 disadvantaged primary and secondary school learners from schools in the Tembisa/Kempton Park district of the Ekhuruleni Metropolitan area of Gauteng, South Africa, was selected. Disadvantaged learners were selected in order to determine whether such learners favoured particular modes of thinking and learning. A sample group of teachers from these schools was also included in the study as there was a need to determine the most common teaching methods and then to establish whether those teaching methods assisted disadvantaged learners to process information effectively according to the modes of thinking and learning most used by them.

4.3.2 Method of Research

4.3.2.1 Learner Questionnaires

Questionnaires were used to obtain information from learners regarding their preferred modes of thinking and learning.

Data collected from these questionnaires were interpreted qualitatively by means of content analysis. (Ezzy 2002:83 – 84.) Refer to **annexures A, B and C** for questionnaires.

Disadvantaged learners from grades 5 - 7 at two primary schools and grades 8 - 12 at two high schools as representative of the learner profile generally found in the area were selected to complete a questionnaire anonymously, to determine their thinking and learning preferences. Learners who attended the selected schools, were generally from homes were there was no regular income and where most parents were illiterate and unable to adequately provide for their children.

During discussions with teachers who were consulted on the learner questionnaire, it was decided that learners from grades lower than grade 5 were to be excluded since the questionnaire was regarded as too difficult for them to complete, based on their command of English.

It was made clear to learners that there were no right or wrong answers in order to reduce the stress, which generally accompanies an unknown situation and the possibility of learners manipulating their answers according to what they might consider were acceptable answers.

The questionnaire used to collect information, consisted of Part one and Part two. Alternatives with each statement were provided and the number of

the alternative chosen by the learner, were to be written in a block provided with each statement.

The researcher was to be present while learners completed the questionnaire in the classroom setting so that they were free to ask questions if they did not understand. This was done because most learners use English as their second or third language, and the questionnaire was to be presented in English.

Another advantage of this was that all questionnaires could be retrieved, resulting in optimal collection of data.

Components in the questionnaire, to establish modes of thinking and learning, included Thinking Styles, Sensory Processing, Reflexive and Impulsive thinking, School Adjustment and attitude to school, as well as Self Image.

4.3.2.2 Learner Questionnaire - an explanation of each question - Part one

Part one of the questionnaire was intended to obtain background information of learners and to establish whether the learners selected as part of the study, could be regarded as disadvantaged as this study was concerned with the modes of thinking and learning of disadvantaged learners.

Part one included questions on the following:

* **Sex**

This question was included to indicate the number of boys and girls completing the questionnaire. Further investigation using the information from this question could be done to determine whether boys and girls showed different preferences regarding modes of thinking.

* **Age and Grade**

Grades 5 to 12 learners were selected to complete the questionnaire.

* **Number of Years in Grade**

This question was intended as an indication of whether learners were mastering the required skills, in other words, if a learner indicated that he or she had been in their present grade for more than one year, it may indicate that he or she was not coping academically.

* **Home Language and Language Spoken in the Classroom**

Research suggests that learners who are taught and who think in a language other than the language they speak at home, often experience difficulties with academic activities (See chapter 3). The question was included to establish to what extent South African disadvantaged learners were presented with academic activities in a language other than the language they spoke at home.

Information obtained from these questions could be used to determine whether learners were faced with coping with different languages at home and in the classroom as this could be a reason for failure to achieve.

* **Learners' Average %**

Information obtained from this question was to be used to determine whether learners experience difficulty with academic achievement.

* **Father's and Mother's Occupation**

Parental occupation and academic success is often linked to academic success among their offspring (See chapter 3).

This question was included to determine the extent of disadvantage and support the learner may experience in the home environment.

* **Subject Preference**

Subject preference could give an indication of whether the learner may be Field Dependent or Independent as Field Independent learners tend to prefer subjects that are nonverbally orientated.

* **Spare Time Activities**

This question was included as learners' non-academic activities often indicate their sensory modality preference.

* **Disadvantage**

Questions 12 to 17 were included to indicate whether the learner's basic physical needs were being met, as well as attempting to determine the extent of mental stimulation learners receive in the home environment.

* **Assistance with Homework**

As school is the extension of the home environment of the learner, the extent of support with homework could be an indication of the importance attached to academic work and influences academic achievement. This question was included to ascertain the extent of academic support learners received outside of the school.

* **Number of Times Learner has Changed School**

Frequent disruption in the learner's school career affects achievement and school adjustment. Learners from lower socio-economic groups often move around with parents who are searching for employment. This question was an attempt to gauge whether the learners in the sample experience the same problem.

* **Means of Getting to School**

This question was included to gauge whether learners are left to fend for themselves. Disadvantaged learners often have to walk far distances to get to school and are frequently exhausted by the time they reach the school premises. Parents do not have control over whether the children have arrived at school and learners have ample opportunity for playing truant or being abused on their way to school, as is the case of several young primary school girls who have been raped on their way to school in townships in the Ekhuruleni Metropolitan District.

* **Attitude to School**

This question was intended to reveal learners' attitudes to the school environment, as motivation has a significant influence on academic achievement.

4.3.2.3 Part Two

Part two consists of groups of statements from which learners had to make a choice according to their preference. Each statement had a corresponding number, which was written in a block provided next to the question. (For the complete questionnaire, refer to **appendix one.**)

* **Items Measuring Sensory Perception**

Items 22 to 30 were included to determine the modes of sensory perception more commonly used by learners when processing information in the classroom, namely, visual, auditory or kinaesthetic perception. This does not exclude other modes of perceiving such as intrapersonal, interpersonal etcetera. Learners who select mostly alternative one in a question would indicate a preference for the auditory sensory modality. Those who select mostly alternative two would show a preference for the visual modality. Learners who select mostly alternative three would show a preference for the kinaesthetic modality.

* **Items Measuring Cognitive and Learning Styles**

Items 31, 33, 35, 37, 42 and 43 had been included to give an indication of Field Dependence versus Independent Thinking and Holistic versus Analytic Thinking.

Items 32, 34, 36, 38, 39, 40, 41 and 44 were intended to give an indication of Sequential/Conceptual thinking. These modes of thinking were included as the most widely researched modes of thinking used by disadvantaged learners. Learners who would select and fill the number one in the block would show a preference for Field Independence, while those who select two would show a preference for Field Dependence.

* **Items Measuring Affective Traits**

Items 45 to 52 were included to measure the traits of Reflexive versus Impulsive personality traits. Disadvantaged learners often exhibit impulsive personality traits. Learners who would select mostly

alternative one in the blocks would show impulsive personality traits, whereas learners who would select mostly alternative two would show reflexive personality traits. Learners who show reflexive personality traits tend to achieve better results academically.

* **Items Measuring Self Image**

Items 53 and 54 were included to determine self image, i.e. how positively or negatively the subjects saw themselves, since self image influences academic achievement. Learners who fill in mostly alternative one in the block would show a possible negative self image, while learners who would select alternative two would show a more positive self image.

Items 55 to 58 measuring self confidence, were included to gauge self image as self image will influence the level of self confidence (van den Aardweg and van den Aardweg 1988:206).

* **Items Measuring School Adjustment**

Items 59 to 62 measuring attitude to the school environment were included as they could show adjustment to school and the importance of school in the life of the learner. Learners who have not successfully integrated into the life of the school, do not achieve. Learners who respond to the questions by selecting mostly alternative one generally show a lack of adjustment to the school environment, while learners who select mostly alternative two show that they have become integrated into the school community.

4.3.2.4 Teacher Questionnaire

Questionnaires were also to be distributed to the teachers in schools attended by disadvantaged learners to attempt to establish teaching methods most frequently used in the classroom and teacher awareness of the influence of teaching methods on suitable modes of thinking and learning among disadvantaged learners. The questionnaire to the teachers consisted of Part one and Part two.

Part one of the questionnaire attempted to obtain background information about the educator. The items included teacher qualification (item 2); compatibility between teacher's choice of language during the presentation of the lesson, the preferred language of the learner in the classroom and the language medium expected by the school.

Several questions attempted to measure more than one aspect.

Items 6, 7, 8 and 9 were included to determine the most and least frequently used teaching aids in the classroom and the reasons for the choice. From the responses to items 6 ,7, 8 and 9 could also be deduced to what extent learners are exposed to a variety of sensory stimuli during classroom activities.

Questions included in **Part two** attempted to establish the most frequently used teaching methods as well as deducing to what extent learners were given the opportunities to develop several modes of thinking in the classroom in the sample schools in the Ekhuruleni Metropolitan area of Gauteng, South Africa.

Items 12, 13, 17, 21, 22, 23, 25, 28 and 37 were included to determine the frequency of teacher/learner interaction. Frequent interaction could suggest

that learners were being encouraged to engage meaningfully with the learning material and to think critically about it.

Items 14, 26, 30, 31, 32 and 39 attempted to establish the rigidity of the lesson environment as this could affect the learning success. The rigidity of the learning environment could negatively impact on learner attitude to academic achievement.

Items 15, 17, 18, 19, 20, 21, 24, 25, 27, 29 and 34 attempted to establish opportunities given by the teacher for learners to think critically and creatively about learning material and to use their initiative.

Items 16, 26, 27, 31, 33 and 38 attempted to establish whether educators allowed for the different modes of sensory perception, e.g. visual, auditory and kinaesthetic amongst the learners in the classroom.

Items 31 to 39 were included to determine whether the educator considers the choice of teaching methods an important factor in learner achievement.

Items 40 to 49 were included to establish the educator's opinion of other factors which might influence learner achievement. These included whether the teacher believed that the following had any significant bearing on academic achievement: individual attention; teacher expectation based on psychometric evaluation; poor language skills; technology-poor environment; lack of identification with curriculum content; incompatibility between home language of learner and medium of instruction; classroom setting, e.g. arrangement of desk, numbers of learners in a classroom, audio-visual aids on notice boards; and self image.

4.3.2.5 Observation of Learner Activity during Lessons

Classroom activity would be observed to establish learner interaction with audio-visual aids; interaction between teacher and learners; quality of questions and other stimuli given by the teacher for critical, creative and reflexive thinking among learners; Evidence among learners of the ability to use creative and critical thinking; learner motivation; level of concentration; self-discipline and self-confidence.

4.3.2.6 Interviews with Learners

Twenty learners were randomly selected from the sample of learners who completed the questionnaire, to discuss their responses to questions after the responses to the questionnaire had been qualitatively analysed.

4.4 CONCLUSION

This chapter attempted to set out in detail the sample and method used to obtain data in order to investigate modes of thinking and learning of disadvantaged learners and whether the teaching style of their teachers caters to the chosen modes of thinking and learning.

In the following chapter (chapter 5), the results of the empirical investigation will be explained.

CHAPTER 5

5 INTERPRETATION OF THE RESULTS OF THE EMPIRICAL INVESTIGATION

5.1 INTRODUCTION

The data collected from the questionnaires as described in the previous chapter, will be interpreted in this chapter. It will be attempted to determine whether the data gathered from the sample selected from disadvantaged learners and their teachers in the Tembisa/Kempton Park district of the Ekhuruleni Metropolitan area east of Johannesburg, South Africa, reflect the theories suggested in existing literature on modes of thinking and learning of disadvantaged learners (See chapter 2).

Frequencies were tabulated for each of the questions in the questionnaire.

5.2 LEARNER QUESTIONNAIRE

5.2.1 SECTION 1 - BACKGROUND INFORMATION

5.2.1.1 Sex - Question 1

Table 1 - Sex

Sex	Frequency
Boys	**137**
Girls	**173**
Total	**310**

The questionnaire to learners was completed by 137 boys and 173 girls. The learner population, in general, consists of more girls than boys. Further research could attempt to establish whether there are similarities or differences in cognitive and sensory processes between girls and boys.

5.2.1.2 Age of Learners - Question 2

Table 2 - Age of Learners

Age	Frequency
9 - 12	**57**
13 - 19	**239**
Over 19	**14**
Total	**310**

Approximately 77% of the learners who answered the questionnaire were between 13 - 19 and 22% of the learners were over the age of 19. It seems that several learners past school going age are still present in classrooms in disadvantaged areas. This also implies that a number of learners are struggling through academic work. It is possible that under-19 learners may be in grades not suited to their age, for example, a 12 year old who can be found in grade 4.

5.2.1.3 Grades of Learners - Question 3

Table 3 - Grade of Learners

Grades of Learners	Frequency
Grades 1 - 3	**9**
Grades 4 - 6	**26**
Grades 7 - 9	**192**
Grades 10 - 12	**81**
Total	**308**

62% of the learners who answered the questionnaire were in grades 7 - 9; 26 learners who responded were in grades 4 - 6; 26% of learners were in grades 10 - 12 and 9 responded incorrectly as no learners from grades 1 - 3 were approached to complete the questionnaire.

Although 57 learners indicated they were between the ages of 9 and 12, only 26 stated they were in grades 4 - 6, suggesting that 31 were in grades 7 and

up, as no grades 1 - 3 were included in the study and responses to the category of grades 1 to 3 were incorrectly completed. That suggests 31 learners could be too young for the standard in which they find themselves, which could negatively impact on their ability to cope with the academic demands of the grade.

5.2.1.4 Number of Years in Grade - Question 4

Table 4 - Number of Years in Grade

Number of years in grade	Frequency
1st year	265
2nd year	27
3rd year	6
4th year	8
Total	306

As can be seen from Table 4, 86% of the learners find themselves in their present grade, for the first time. This does, however, not suggest that learners have consistently coped academically from grade to grade.

Many learners are promoted to the next grade as they are too old to remain in the grade where they have not been successful. Up until recently it was not uncommon to find a 16 year old in grade 7.

Furthermore, with reference to table 2 where 4.5% of learners in the sample are over the age of 19 years, a number of learners indicated that they were in the grade for a third or fourth time, which reveals that they have consistently not coped with academic work, which could negatively affect their self-image and motivation to achieve. Repetition of work from year to year in the same grade has made very little impact showing that learners repeating their grades, have continued to fail to internalize the work.

Repeating grades could also imply that learners have not been taught deeper cognitive processes.

5.2.1.5 Home Language of Learners - Question 5

Table 5 - Home Language of Learners

Home Language	Frequency
English	**3**
Zulu	**139**
Xhosa	**27**
Afrikaans	**1**
N/S Sotho	**71**
Tswana	**15**
Other	**54**
Total	**310**

Almost half of the learners speak Zulu at home; 23% speak N/S Sotho. Despite the indication that only 3 learners used English at home, 79% (see table 6) of learners in the sample, conducted academic activities in English at school.

The 17 responses to 'other' usually indicates that more than one language from the list of options in the questionnaire, were used at school. It is evident from tables 5 and 6, that of the majority of learners who do not use English at home, a significant percentage of learners received tuition in English, suggesting a possible reason for poor academic performance.

5.2.1.6 Language Spoken in the Classroom - Question 6

Table 6 - Language Spoken in the Classroom

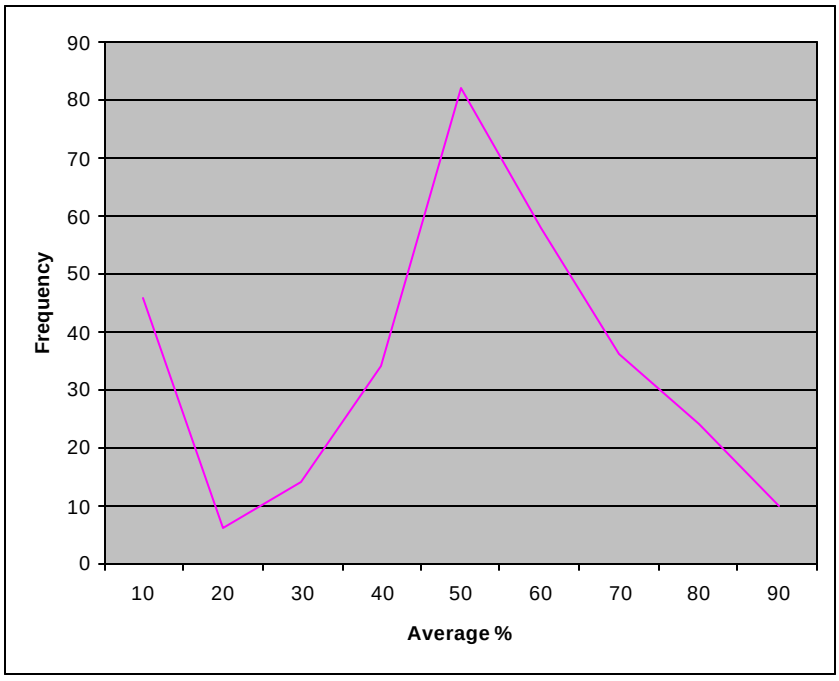
Language in classroom	Frequency
English	**244**
Zulu	**39**
Xhosa	**2**
Afrikaans	**0**
N/S Sotho	**8**
Tswana	**1**
Other	**14**
Total	**308**

Most learners, i.e. 79.2%, spoke English in the classroom yet only 3 learners (see table 5) indicated that they spoke English at home. This suggests that the majority of the learners in the sample were having to cope with adjusting to a language with which they were not entirely comfortable while at the same time, trying to process new information in the classroom.

5.2.1.7 Average % - Question 7

Table 7 - Average %

Average %	Frequency
0 - 10%	46
11 - 20%	6
21 - 30%	14
31 - 40%	34
41 - 50%	82
51 - 60%	58
61 - 70%	36
71 - 80%	24
81 - 100%	10
Total	310



Graph indicating the distribution of marks

As the grade 5's do not receive % or symbols, they did not respond to this question, hence the frequency of 46 indicated in table 7, which will be disregarded in the examination of responses in this table. 53.5% of learners in the sample achieved below the 50% mark. With reference to table 4, where 13% of learners revealed that they were repeating their present grade and table 2, which shows 4.5% of learners over the age of 19, there are indications that a fair number of learners are struggling to achieve academically. It could also be suggested that the medium of instruction could be hampering processing of information since while only three learners used English at home, 79% of them spoke English in the classroom. Hence they were conducting studies in a second or third language, which they may not have mastered sufficiently, resulting in frequent misconception and misinterpretation of information.

5.2.1.8 Father's Occupation - Question 8

Table 8 - Father's Occupation

Father's Occupation	Frequency
Artisan	**24**
Clerical	**5**
Business Management	**18**
Professional	**11**
Technical	**24**
Self-employed	**47**
Unemployed	**54**
Father-absent home	**68**
Gardener/handyman	**6**
Other	**40**
Total	**297**

Approximately 41% of the learner respondent' fathers were either absent from the home (68), or unemployed (54). Despite the fact that many fathers

and mothers (see table 9) were unable to generate an income, learners claimed they were adequately provided for (see tables 12 and 13). Once again the question is whether learners responded to the question according to what they perceived the ideal situation to be. This could suggest that they confuse reality with what they regard as ideal perhaps suggesting a feeling of helplessness to overcome their circumstances as well as a need to escape reality. It was established in a subsequent interview, that a number of learners are being cared for by, or are receiving assistance from, relatives, including grandparents, friends and members of the community.

Although the majority of learners who responded to the questionnaire were between 13 - 19, a number of them indicated that they did not know what their fathers' occupations were. This could suggest poor communication frequently found in the EDL's home, that fathers were absent from home either frequently or permanently, that fathers were totally uninvolved in the lives of their children, or that fathers were involved in so-called 'piece-work'.

5.2.1.9 Mother's Occupation - Question 9

Table 9 - Mother's Occupation

Mother's Occupation	Frequency
Artisan	**18**
Clerical	**19**
Business Management	**14**
Professional	**16**
Self-employed	**39**
Homemaker	**14**
Unemployed	**101**
Domestic worker	**43**
Mother-absent home	**18**
Other	**17**
Total	**299**

Of the sample of learners who responded to the questionnaire, 47% had mothers who were either unemployed or domestic workers.

This would suggest that these learners lived in households that could be regarded as living below 'the bread line'. Yet many learners had indicated that they lived in homes with several luxury items (see table 12).

A number of learners did not know what their mother's occupation was. It could be expected of a 13 - 19 year age group to be aware of their mothers' occupations. Once again, this may indicate poor communication between parent and child or it is because learners do not have contact with absent mothers.

A significant number of homes either had self-employed fathers or mothers, unemployed parents or parents absent from homes. During subsequent interviews learners revealed that self-employed generally meant hawkers or street vendors. Learners also indicated that family income was erratic in amount and regularity, which would create an ongoing sense of insecurity.

5.2.1.10 Subject Preference - Question 10

Table 10 - Subject Preference

Subject Preference	Frequency
Group A	**160**
Group B	**141**
Total	**301**

53% of learners preferred subjects listed in Group A, which included Mathematics, Science, Computer Science, Biology and Economic Sciences.

47% of learners preferred subjects listed in Group B, which included Business Studies, Typing, Art, History, Geography, Languages, Bible Studies and Home Economics. Therefore just over half of the learners said they

preferred mathematics and science subjects. Learners were subsequently asked whether they enjoyed these subjects and whether they were successful at them.

The unanimous response was that they struggled with science subjects, but that they preferred these subjects as there were more employment opportunities involving mathematics and science and the subjects were more practical. Discussion with teachers indicated that learners struggled with the English terminology. There are no facilities at many schools to do practical work, with the result that learners who used visual sensory processing do not have the opportunity to see equipment and experiments, and kinaesthetically orientated learners do not have the opportunity to handle equipment, thus hampering their ability to process information in their preferred mode of thinking. Responses to questions 22 – 30 reveal that the majority of learners use either visual or kinaesthetic sensory processing, while teachers provide for mostly auditory sensory processing, which would be another reason why so many learners fail to internalise mathematical and scientific concepts.

A science teacher commented that she only really understood science herself when she attended university and the teaching staff used a hands-on approach with **individual attention** to students who were battling to master the subject. At university the teacher **saw** and **handled** science equipment for the first time. It is surprising therefore that the teacher did not realise from her own experience that presenting subject material in an abstract mode would result in the failure by the learners to assimilate the material. If the school lacked the equipment, the teacher would have had to rely on her

own resourcefulness and creative teaching. However, during classroom observation, teachers revealed a persistent lack of resourcefulness.

Learners it seems, 'preferred' subjects for the wrong reasons. They chose subjects not according to ability or interest, but because of how useful they perceived the subjects to be.

5.2.1.11 How Learners Spend their Spare Time - Question 11

Table 11 - Spare Time Activities

Spare Time Activities	Frequency
Reading	**83**
Play Music	**15**
Listening to Music	**50**
Compose Music	**12**
Play/Watch Sport	**34**
Play PC Games	**12**
Watch TV	**33**
Play in Garden	**1**
Visit/Talk to Friends	**22**
Go to Movies/Plays	**7**
Draw/Paint	**12**
Repair Things	**9**
Make/Build things	**2**
Other	**11**
Total	**303**

From table 11, it appears that 49 % of learners preferred leisure activities, which used visual sensory processing, while 31% of learners preferred activities, which required kinaesthetic processing. Learners claimed in a subsequent interview that they read newspapers and books because they were looking for information.

The inclusion of this question could provide insight into the sensory modality preference as it indicated the mode of thinking learners preferred when not under

pressure. A group of 20 learners taken from the sample of learners who completed the questionnaire, were asked whether they held part time jobs. Without exception, all said they did not. Asked why this was so, a number of learners said they had never thought to apply for one. Others indicated that it was their perception that part time jobs were only reserved for white learners so they did not bother to apply. There is persistent evidence of a learned helplessness among disadvantaged black learners, who believe their circumstances are beyond their control and that they are helpless to turn unfavourable circumstances around. These learners would thus not acquire any kind of valuable work experience before entering the job market after Grade 12.

The preference for visually orientated activities among learners confirm that educators need to vary the method of presentation in the classroom to include opportunities for learners to develop several modes of thinking, including visual and kinaesthetic sensory processing thereby increasing the chances for successful assimilation of learning material.

5.2.1.12 **Items Measuring Disadvantage - Question 12 - 16**

Table 12 - Items Measuring Disadvantage

Own bedroom:	**Frequency**
Yes	**159**
No	**149**
Television at home:	
Yes	**271**
No	**30**
Radio at home:	
Yes	**270**
No	**40**
Electricity at home:	
Yes	**267**
No	**19**
Running water:	
Yes	**267**
No	**40**

From the responses in table 12, it seems that most learners do have access to basic amenities such as running water and electricity at home. Learners were questioned about their responses in a subsequent interview as these responses were surprising since many parents were either unemployed or were absent from the home and would therefore find it difficult to provide for their children.

Learners indicated that own bedroom frequently meant own bed, in the kitchen or other living area as many people occupied the house. The implication of this would be frequent disruptions and distractions during study and homework activities, thus hampering the effective processing of information.

Several learners suggested that parents regularly participated in a gambling scheme run amongst members of the community or did odd jobs to provide the financial means to support their families. It was noted, especially in primary schools in the Ekhuruleni Metropolitan area, during classroom observations that in the stark, cold classrooms, several learners were attired in a thin cotton shirt and short trousers during the severe Highveld winter in June.

From the table above, it can be seen that the majority of learners who are regarded as coming from a disadvantaged background, claim to have access to basic necessities.

5.2.1.13 Meals Eaten Per Day - Question 17

Table 13 - Meals Per Day

Meals	Frequency
One	36
Two	67
Three	182
Other	21
Total	306

The information in table 13 above indicates that 59% of learners in the sample were able to have 3 meals per day. 34%, a significantly high number

of learners did not have regular meals and did not have adequate nutrition. Poor concentration is a result of poor nutrition, which can hamper academic performance.

There seems, however, to be an incongruity between responses to questions dealing with basic physical needs which indicate that the basic needs of learners are being met, and questions dealing with family income and parent involvement, which suggest an inability by the parents to provide for their children's basic needs.

Furthermore, it seems that many learners are living in a world of escapism rather than dealing with the real challenges of their environment. Many have responded according to what they project to be the ideal way of living, rather than the reality as it exists.

5.2.1.14 Assistance with Homework - Question 18

Table 14 - Assistance with homework

Assistance with Homework	Frequency
Dad	**26**
Mom	**67**
Brother	**40**
Sister	**42**
Uncle/aunt	**17**
Friend	**27**
Grandfather/mother	**3**
No one	**70**
Other	**14**
Total	**306**

45% of learners either did their homework unassisted or assisted by their mothers. 27% of learners were also assisted by their brothers or sisters, which seems to suggest that the family members most involved in assisting with homework, if any, would be mothers, brothers and sisters.

A significantly small number of fathers (8%), were involved in their children's education. The fact that fathers appear to be uninvolved, may be as a result of the many father-absent homes or fathers who are uninvolved in their children's lives due to apathy or their long work hours. Absent fathers, either physically or psychologically, do not fulfill the role of head of the home. The sense of security that would normally be provided by a father is absent. A sense of insecurity could significantly impact on academic performance.

5.2.1.15 Changing of Schools - Question 19

Table 15 - Changing of Schools

Changing of Schools	Frequency
Once	**119**
Twice	**86**
More than twice	**46**
At same school	**55**
Total	**306**

39% of learners claimed that they had only changed schools once during their school career, including the change between primary and high school, while 61% of learners had changed schools more than once.

Disadvantaged learners often experience disruption in their schooling as parents move from place to place in search of employment. The responses of more than half of the learners in the sample reveal that learners have experienced disruption in their schooling to some extent.

5.2.1.16 Mode of Transport to School - Question 20

Table 16 - Mode of Transport

Mode of Transport	Frequency
Car	**31**
Bus/taxi	**68**
Train	**9**
Own car	**2**
Walk	**197**
Total	**307**

More than half the learners (64%) in the sample walk to school. Together with learners who stated they travelled by bus and train, 89% of learners are left to fend for themselves on their way to school and could be exposed to many outside influences between home and school.

Including poor communication between parent and child, the inability to provide adequate care for children, and the learner's exposure to outside influences, parents of the sample may have relatively little control over their them and may be unaware of their activities when children are not at home. Learners, especially very young children, are also more at risk of abuse and violence within a depressed community, which could be a further source of anxiety and insecurity for young learners.

5.2.1.17 Attitude to School - Question 21

Table 17 - Attitude to School

Attitude to School	Frequency
Like school	**283**
Dislike school	**26**
Total	**309**

63% of the 309 learners who responded to this question indicated a positive attitude to school.

The majority of learners indicated that they liked school irrespective of the struggles they faced in the school environment. At a subsequent interview, learners were asked to elaborate on their responses. Their reasons for liking school included that they felt safe at school, they liked learning, it was important if they wanted a job and there was no future without it. They were motivated more by the significance they attached to education, than their enjoyment of it. They believe that education, that is, having a matriculation

certificate, in itself will solve their problems, rather than how they put their education to use. In other words, they believe that education will guarantee employment automatically, without any further input from them. The implication of this could be that they are unable to rise above the failure to find employment when it occurs and a defeatist attitude is further entrenched.

5.2.2 SECTION TWO – SENSORY MODALITY PROCESSING – Questions 22 - 30

5.2.2.1 Understanding New Work Best - Question 22

Table 18 - Understanding New Work

Understanding new Work	Frequency
Listen to the teacher	**138**
Pictures, charts etc	**84**
Practise	**86**
Total	**308**

Over half of learners indicated that they found it easier to understand new work through listening when the teacher explained.

27% of learners preferred to practise the new work themselves. As is characteristic of a Field Dependent thinker, the majority of children expressed a need for teacher guidance rather than working independently.

There may be several reasons why learners needed close interaction with their teachers. Poor self-confidence and an inability to use their own initiative or to make inferences could play a role in learners' reluctance to approach new work independently, preferring to wait passively for the teacher, further suggesting a learned helplessness prevalent among

disadvantaged learners as well as an inability to use critical, creative and intuitive thinking skills.

5.2.2.2 Listening (Auditory), Reading (Visual) or Playing (Kinaesthetic) Question 23

Table 19 - Listening, Reading and Playing

Listening, Reading, Playing	Frequency
Listen to the radio	**62**
Read a book	**144**
Play sport	**103**
Total	**308**

The responses to this question, revealed that 47% of learners preferred to read a book and 33% preferred to play sport. A small percentage (20%) preferred auditory activities. The majority of learners therefore preferred using visual and kinaesthetic sensory processing during leisure activities. This is consistent with the results of table 11, which shows that visual and kinaesthetic processing is preferred.

5.2.2.3 Spoken Instructions (Verbal, Auditory), Written Instructions (Verbal, Visual), Learn Through Doing (Kinaesthetic) - Question 24

Table 20 - Spoken, Written or Carrying Out of Instructions

Instructions	Frequency
Spoken instructions	**100**
Written instructions	**156**
Carrying out instructions	**51**
Total	**307**

The responses to this question revealed that just over half learners preferred to see instructions written down. 33% of learners preferred to use auditory sensory processing, i.e. hear the teacher give instructions while a small percentage preferred to follow instructions by copying someone closely, confirming the results of question 23 which suggests the need for constant teacher guidance and the frequent need to refer to written instructions for the sake of reassurance.

Furthermore, at present far more talking (auditory) takes place in the classroom than any other type of activity. This would suggest that when new material is introduced, only a small percentage of the learners in the sample are processing the information in the sensory mode of their choice. The implications of this for their academic success is that teachers in disadvantaged schools need to revise teaching approaches to include more opportunities for visual and kinaesthetic sensory processing.

5.2.2.4 **While Listening to the Teacher - Question 25**

Table 21 - Activity While Listening to the Teacher

Activity	Frequency
Sit still	**212**
Doodle	**30**
Tap with pencil/fingers	**65**
Total	**307**

Of the 307 learners who responded to this question, 69% preferred to sit still while the teacher talked perhaps since they felt that that was what teachers expected of them or to avoid having to actively confront new material; just under 10% would prefer to doodle while listening to the teacher, and 20% would prefer to tap with a pencil or finger on the table while listening to the teacher although they indicated in a subsequent interview that teachers

would not approve of their doing anything other than listening during classroom activity. How accurately learners grasp new information or how effectively they internalize information cannot be gauged when learners sit passively while the teacher talks, i.e. learners do not actively and meaningfully participate in the lesson. Teachers can also not establish the level of cognitive distancing among learners when learners do not actively participate in the lesson.

Despite just over 50% of teacher responses indicating that teachers allowed learners to talk (see table 70), while doing individual tasks, this was not always the case noted during observation in classrooms. On the other hand, in other classrooms noise levels were intolerably high despite a lack of permission to speak freely and regular threats by the teacher.

Field Dependent learners have difficulty distinguishing between relevant and irrelevant stimuli so that if noise levels are very high and assuming that the learners in the sample tend towards field dependency, they may have difficulty processing new information.

In some classrooms learners were strictly controlled with no communication between learners during activities, while in other classrooms teachers did not have much control over learners in their care, especially learners sitting at the back of classrooms as teachers were unable to reach them and, for the most part, stayed at the front of the classroom shouting above the din. Teachers attempted to exercise strict discipline in order to control the large groups in their classrooms. However, discipline was not applied consistently. On the other hand, teacher responses to questions 13, 14, 15, 21, 24 and 26 show that they did not consider themselves too controlling, suggesting once

again, the possible misconceptions which exist in many cases, between teachers and learners.

5.2.2.5 Remembering New Work - Question 26

Table 22 - Remembering New Work

Remembering	Frequency
Repeat over and over	**90**
Draw pictures/diagrams	**146**
Touch things	**69**
Total	**305**

305 Learners responded to this question. 48% of learners, that is, almost half the learners in the sample, remembered work best when they saw it written down or drawn on paper. This could suggest a need by the learner to constantly refer to instructions, in other words to a visual representation of the instructions as a way of reassurance. Learners do not seem to trust their own interpretation of verbal instructions and explanations. This may be owing to the fact that they do not have a good command of the language of instruction, and also possibly because of a lack of self-confidence or sense of insecurity.

Once again, it is evident that teachers need to think carefully about varying teaching methods so that learners have the opportunity to develop and exercise a variety of modes of thinking and learning and to encourage a positive self-image.

5.2.2.6 Best Ideas - Question 27

Table 23 - Best Ideas

Best Ideas	Frequency
Listening to others	**123**
Watching others	**60**
Physical activity	**120**
Total	**303**

Of the 303 learners who responded to this question, 41% believed that they were inspired by listening to others; while 40% were inspired by doing some physical activity, for example, walking.

Learners indicated their best ideas came through listening and doing. This could perhaps be an indication of Field Dependency as Field Dependent learners are heavily reliant on others to guide them and present them with ideas, showing little initiative on their own. They also live in an activity driven world, where walking is the most frequent means of transport and where manual work is the order of the day.

5.2.2.7 **Understanding the Teacher - Question 28**

Table 24 - Understanding the Teacher

Understanding the Teacher	**Frequency**
Don't need to look at teacher	**48**
Need to look at teacher	**247**
Preferred moving around classroom	**13**
Total	**308**

Although most learners claimed that their best ideas did not come from watching others (see question 27), in question 28, 80% of the 308 respondents felt it helped to look at the teacher while hearing about new work, further indicating a preference for Field Dependence as learners using this mode of thinking generally need to see the faces of those with whom they are interacting and prefer social interaction to working alone. Closely observing the teacher is perhaps a means of overcoming their feeling of insecurity and poor self-confidence and a constant need for re-assurance, generally experienced by a Field Dependent learner.

5.2.2.8 Auditory, Visual and Tactile Prompting - Question 29

Table 25 - Auditory, Visual and Tactile Prompting

Prompting	Frequency
Auditory	**98**
Visual	**88**
Tactile	**118**
Total	**304**

304 Learners responded to this question, which required them to show how they remembered new information.

39% of learners actively used their fingers to count and their lips to read, suggesting a strong kinaesthetic approach to **information processing**. In an academic environment as with the choice of leisure activities, there is a strong tendency towards kinaesthetic sensory processing, suggesting a more concrete rather than abstract approach to new information, which is in marked contrast to the verbally orientated, auditory approach taken by the majority of teachers

5.2.2.9 Leisure Activities and Sensory Processing - Question 30

Table 26 - Leisure Activities and Sensory Processing

Leisure Activities	Frequency
Listening to the radio	**116**
Reading	**109**
Working with hands	**85**
Total	**310**

310 Learners responded to this question. 73% preferred to listen to the radio or to other people and to read. As has been indicated previously, learners regard reading as a key to success in their lives, hence the preference for reading. Many of the responses showed that learners enjoyed listening to the radio or to other people, suggesting the Field Dependent learner's need

for interaction with another human voice. The social orientation of the field dependent learner is once again indicated in the responses to this question.

5.2.2.10 General Analysis

- Responses to questions 22 - 30 suggested that learners showed a greater **preference** for **Visual sensory processing**, followed by **Auditory processing** and **Kinaesthetic processing**.

  In an interview, subsequent to the completion of the questionnaire, learners expressed their perceptions about what is expected of them in the classroom where they are hesitant to use kinaesthetic sensory processing because they felt that teachers would not approve. Therefore they did not consider moving around in the classroom or doing physical activity related to lesson material as an option. Kinaesthetic activities were not associated with the classroom environment.

  It seems that learners were not able to separate themselves from what they were allowed to do and what they would prefer to do, as their response when asked if they would like to be able to move around or work in a more practical way, they agreed, if given the choice, that many of them would prefer it to sitting passively listening to the teacher. Moving around the classroom would imply greater social interaction.

  Teacher responses indicated that 13 of 20 teachers did not approve of learners moving about freely (see table 70).

- During observation of classroom activity, it was noted that **classrooms** were **crowded** with two learners to a chair at times.

Desks were mostly placed in groups, and without exception, no teacher in these overcrowded classrooms could reach learners sitting in the back of the classrooms as there was no room to move. Classes held between 40 and 50 learners. Therefore very little individual interaction between teacher and learner took place. Since learners in the sample showed a tendency towards a field dependent mode of thinking, the infrequent interaction between teacher and learner could hamper effective processing of information. High noise levels would further hamper those learners who find it difficult to distinguish between a confusing array of sounds. Furthermore in the corridors of some high schools there was a constant **high noise level** and in one high school learners were constantly milling around during teaching time suggesting an absence of a structured environment preferred by field dependent learners.

- In discussion with learners in the sample, many expressed a **preference for visual aids,** which they felt the teacher and they should have access to, to aid their understanding of new material. From the responses to the sensory processing modalities questions learners confirmed a preference for **visual-auditory and to a lesser extent kinaesthetic modes of sensory processing in the classroom** and for **visual and kinaesthetic modes out of the classroom**.
- Yet during observations **in the classrooms, no audio-visual aids were used. No** visual aids adorned any but one of the classrooms. In all classrooms, the **chalkboard or worksheets** were used. 15 of

20 teachers indicated in their response to question 38 of the teacher questionnaire, that they did not believe that visual aids improved the learners' ability to understand new material. Learners are perhaps also more secure with **less movement in the classroom** because, as Field Dependent learners, they prefer greater structure to the learning environment and because they do not think their teachers would approve of a more relaxed, freer moving environment. A freer moving environment would also result in more distractions, which hampers the Field Dependent learner's assimilation of information.

5.2.3 COGNITIVE AND LEARNING STYLE

5.2.3.1 Individual versus Group Activity - Question 31

Table 27 - Individual versus Group Activity

Individual vs group	Frequency
Working alone	**158**
Group activity	**150**
Total	**308**

Just over half of the learners indicated that they preferred to work alone while the other half expressed a desire to work in a group situation. It could be suggested that during group discussions there would be a fair amount of noise and that many of the learners would be distracted and unable to concentrate. Furthermore, group work is less structured than working individually and Field Dependent learners prefer a more structured environment.

On the other hand learners may prefer to work in a group because of a need for social interaction or to lean on others for assistance.

5.2.3.2 Ability to Pay Attention to Detail - Question 32

Table 28 - Paying Attention to Detail

Attention to Detail	Frequency
Do not get lost	**183**
Get lost easily	**125**
Total	**308**

59% of learners indicated that they found their way around new places easily; while 41% said they got lost easily in a new place. While being able to orientate oneself in space is a characteristic of a Field Independent mode of thinking, an explanation for why more than half of the learners in the sample have indicated they did not get lost in a new place, may be as a result of many learners having to walk everywhere or take public transport, which forces them to be observant to their surroundings. In other words, out of necessity they become 'emotionally engaged' with the new environment as described by Amabile (1983) in Sadow (1994:244). Learners can 'see' and 'experience' the new environment, which is in keeping with the preference for visual and kinaesthetic sensory processing.

However, learners do not exhibit the same emotional engagement with learning material in the classroom and thus do not internalise it, often guessing their way through academic activities in a haphazard manner or resorting to rote learning as a result of their inability to process information efficiently. This once again indicates that disadvantaged learners, if emotionally engaged in a learning activity, could effectively assimilate information. Emotional engagement with the new material could be facilitated with the more frequent use of visual aids and allowing learners to experience first hand where possible, what they are learning about.

5.2.3.3 Being Alone or Socializing - Question 33

Table 29 - Being Alone or Socializing

Alone or Socialising	Frequency
Being alone	**94**
Socialising	**216**
Total	**310**

70% of the 310 respondents preferred talking and discussing things, indicating a preference for a social rather than an individual approach, which is typical of the Field Dependent learner who is drawn to people and social interaction. A sense of security is created by being able to reach out to others for reassurance.

5.2.3.4 Seeing the Parts for the Whole/Whole before the Parts

Question 34

Table 30 - Preference for Detail

Preference for Detail	Frequency
Pays attention to detail	**181**
Detail not as important as the whole	**127**
Total	**308**

308 Learners responded to this question. 59% revealed that they paid a lot of attention to detail, which is more in line with to the profile of the Field Independent learner. Learner responses to this question may suggest learners' perception of appropriate behaviour as they have been drilled to pay attention to detail in their activities.

5.2.3.5 Seeking Assistance - Question 35

Table 31 - Seeking Assistance

Seeking Assistance	Frequency
Work through problems alone	**82**
Seek assistance from others	**225**
Total	**307**

Of the 307 respondents to this question, 73% of learners preferred to discuss new problems with other people and only a small minority preferred to work through problems independently rather than ask for help. The responses to this question once again confirm the preference for the social approach of Field Dependent thinkers rather than the individual approach characteristic of Field Independent thinkers, and the need to obtain assistance from others often indicative of a lack of self-confidence among disadvantaged learners. However, the responses to this question contrast earlier responses (see table 26) where more than half of the learners prefer to work alone. It appears therefore that although learners may prefer to produce their own work rather than a group effort, they have a need to seek continued guidance and assistance while doing so.

5.2.3.6 Preference for Structure - Question 36

Table 32 - Preference for Structure

Preference for Structure	Frequency
Looking for patterns and connections	**259**
No need for structure	**47**
Total	**306**

85% of the 306 respondents prefer to find patterns and connections in things around them which is generally indicative of the Field Independent mode of thinking, while a minority of learners did not express a need for structure. If learners took the question to mean having a need for structure, this would be in line with the Field Dependent thinker who has a need to work within clearly defined parameters and who is not able to work from own initiative. A structured environment provides a greater sense of security.

5.2.3.7 Ability to Avoid Distraction - Question 37

Table 33 - Ability to Avoid Distraction

Ability to focus	Frequency
Able to concentrate	**159**
Unable to concentrate	**149**
Total	**308**

308 Learners responded to this question. 52% of learners felt that they were able to concentrate for a significant amount of time without becoming distracted. 48% of learners indicated that they found it difficult to concentrate on one thing for a long time. Therefore, about half of the learners in the sample felt they could distinguish between relevant and irrelevant information and could remain focused. Further investigation is needed to determine whether the ability to concentrate for long periods of time is influenced by how learners are processing information, that is, whether their ability to concentrate is influenced by whether information is presented visually, kinaesthetically or auditory processing and whether those learners who say they are able to concentrate despite disruptions, are processing information cognitively in their preferred mode of thinking and using the sensory perception of their choice when they are able to avoid being distracted.

5.2.3.8 Organised or Unplanned - Question 38

Table 34 - Organised or Unplanned

Organised/Unplanned	Frequency
Organised	**256**
Unplanned	**51**
Total	**307**

83% of 307 learners revealed once again that they preferred to be organised, which again suggests a Field Dependent approach, as a characteristic of Field Dependent thinking is the need to work within clearly stipulated parameters. Hence the responses to the above questions have consistently indicated that learners had a need to work within clearly defined parameters, revealing a need for constant reassurance perhaps stemming from a lack of self-confidence, a poor self image and a need for a sense of security.

5.2.3.9 Presentation of Instructions - Question 39

Table 35 - Presentation of Instruction

Presentation of Instruction	Frequency
Step by step instructions	**217**
Allow to do in own way	**91**
Total	**308**

83% of learners stated that they preferred to be given step-by-step instructions. The responses to this question confirm the responses to the previous questions, which suggest that learners in the sample prefer a more structured learning environment, which is a characteristic of the Field Dependent learner. Field Dependent learners need ‘sequenced assistance’ (Witkin & Goodenough in Fritz 1995:53).

5.2.3.10 Need for a System - Question 40

Table 36 - Need for a System

Need for a System	Frequency
Complete one task at a time	**266**
Two or more tasks concurrently	**42**
Total	**308**

86% of learners of the 308 who responded to this question indicated that they preferred to complete one task before starting another. Once again this response may indicate sequential cognitive processing as learners are not able simultaneously to distinguish between various tasks and can concentrate on only one activity at a time. This may also suggest difficulty in distinguishing the relevant from the irrelevant at a specific time. Difficulty working on two activities may also be as a result of a fear of a less tightly controlled academic environment.

5.2.3.11 Analytical vs Social Activities - Question 41

Table 37 - Analytical vs Social Activities

Analytical vs Social	Frequency
Analytical	**97**
Social	**210**
Total	**307**

68% of the 307 respondents to this question preferred a social approach to an analytical one.

The responses to question 41 are consistent with responses to previous questions indicating a strong preference for social interaction and a Field

Dependent approach. The effectiveness of group and class participation needs to be explored in greater detail in the context of the South African classroom with its 40 to 50 learners. Teachers need to show a greater concern with innovative teaching in the classroom environment in order to encourage diversity in modes of thinking.

5.2.3.12 Dealing with Distractions - Question 42

Table 38 - Dealing with Distractions

Dealing with distractions	Frequency
Can concentrate	**54**
Can't concentrate	**254**
Total	**308**

308 learners responded to this question. 82% of learners needed a quiet room to concentrate properly. Field Dependent learners have difficulty distinguishing between relevant and irrelevant noises and the responses of the learners in the sample may reflect this difficulty, indicating Field Dependent tendencies.

The responses to question 37 are not consistent with the responses to question 42 as in question 37 more than half the learners claimed that they were able to concentrate for a long time without being distracted, while in question 42 they imply that they would be easily distracted in a noisy environment. However, responses to question 42 qualify responses to question 37 in that it suggests that learners may be able to concentrate for long periods only if they are in a quiet room where it would not be necessary for them to try to extract relevant from irrelevant stimuli and they could focus more easily on the task at hand.

5.2.3.13 **Finding More Information - Question 43**

Table 39 - Finding More Information

Finding More Information	Frequency
By reading	**145**
By talking to others	**162**
Total	**307**

Just under half the sample of learners prefer to read to find more information, while 53% prefer to discuss new ideas with classmates, indicating the social orientation to learning typical of a Field Dependent thinker and a preference for visual over auditory sensory processing.

During subsequent interviews, learners felt that reading was the way to glean new information, but that it was important to have the opportunity to discuss it with others.

5.2.3.14 **Approach to Tasks - Question 44**

Table 40 - Approach to Tasks

Approach to Tasks	Frequency
Tried and tested methods	**75**
New ways of doing things	**233**
Total	**308**

308 Learners responded to this question. 76% of learners prefer to try new ways of doing things. This may suggest a longing to explore and experiment or it may confirm Bennet's (1999:188) theory that Field Dependent learners tend to rebel against rules they find it difficult to adjust to. Although learners revealed that they would prefer to try new ways of doing things, there was a reluctance to do so for fear of punishment.

5.2.4.15 General Analysis

Responses to questions 31 – 44 suggested that learners preferred to use the **social** approach of the **Field Dependent** thinker during academic activities. Learners indicated a need for constant interaction with peers and teachers within a **structured environment.** This would also suggest that tasks be given in an ordered, sequential way, rather than more than one task being given at any time. As learners have indicated that they needed a structured environment, are visually and kinaesthetically orientated and show a preference for field dependent thinking, the question is whether the group situation in classrooms is the most effective for educationally disadvantaged learners? A group setup in classroom would imply, a noisy, less structured environment. Unless the teacher is available to all the learners in the classroom all the time, and unless learners have access to visual and kinaesthetic sensory processing opportunities during a lesson, the risk is that learners will be distracted and not constructively engaged in the learning process.

5.2.5 REFLEXIVE VS IMPULSIVE BEHAVIOUR

5.2.5.15 Accepting Rewards - Question 45

Table 41 - Accepting Rewards

Accepting Rewards	Frequency
Smaller rewards immediately	**168**
Bigger rewards later	**138**
Total	**306**

Of the 306 learners who responded to this question, 55% preferred to receive a smaller reward immediately, while 45% of learners preferred to wait for a bigger reward even though it may come much later.

More than half of the learners therefore revealed a need for immediate gratification. The preference for a smaller reward immediately, for more than half the group, confirms Hundeide's (1999:118) theory that disadvantaged learners live in a world of immediacy. Many learners in the sample revealed a lack of critical thinking before decision-making and an inability to weigh up long term consequences.

5.2.5.16 Accuracy of Response - Question 46

Table 42 - Accuracy of Response

Accuracy of Response	Frequency
Impulsive and incorrect answer	**45**
Reflective and correct answer	**264**
Total	**309**

85% of the 309 respondents to this question claim that they often answer correctly because they think about the answer first. It could be suggested that learners hesitated to answer because of a lack of self-confidence.

During classroom observation most learners did not respond to questions put to them by the teacher. The same learners tended to respond each time. Generally the responses were accurate. However, responses were usually recall of information rather than responses requiring critical thought. During classroom observation, questions formulated by teachers generally did not require application, synthesis, analysis or evaluation, i.e. higher order thinking skills. Questions usually took the form of the so-called 'wh-questions' that required nothing more than recall of information.

5.2.5.17 Patience and Persistence - Question 47

Table 43 - Patience and Persistence

Patience and Persistence	Frequency
Abandon difficult problems	**89**
Persist to solve problems	**214**
Total	**304**

304 Learners responded to this question. 70% of the learners in the sample would try to solve the problem even if it took a long time. However, it does not suggest that persistence will result in accuracy. The possibility that learners responded according to what they regarded as appropriate behaviour, cannot be ruled out, i.e. they would continue till the task is completed, as this is what they feel the teacher would expect. Unconditional acceptance of instruction does not leave much room for critical thought.

5.2.5.18 Checking Work - Question 48

Table 44 - Checking Work

Checking Work	Frequency
Learners who don't	**47**
Learners who do	**262**
Total	**309**

85% of learners said they checked their work once they had completed it. Their responses could suggest a thoroughness in their approach to their work and attention to detail, or a result of the fear of incurring the teacher's anger if unsatisfactory work were to be submitted.

5.2.5.19 Ability to Concentrate - Question 49

Table 45 - Ability to Concentrate

Ability to Concentrate	Frequency
Can't concentrate for long	155
Can concentrate for long	154
Total	309

About half (155) of the learners responding to this question, have difficulty concentrating for a long time, while 154 learners said they could concentrate for a long time without being distracted.

Responses to this question confirm the responses to question 37 where many learners felt they could concentrate for significant lengths of time without being distracted.

However, the responses to question 42 indicated that respondents felt they needed a quiet study area as they would easily be distracted. Their ability to concentrate for any length of time is subject to there being no distractions. In large classes it is unlikely that there would be no distractions. In the South African classroom where up to 50 learners spend the day in close proximity, a high noise level is inevitable.

During classroom observation it was noted in one primary school that learners were excessively restless with a poor attention span. Learners were easily distracted and the teacher found it difficult to control the learners. Learners had frequently to be called to order.

The above scenario will result in a number of learners remaining ‘outside’ of the learning experience as was noted during classroom observation where several learners were not focused on the learning activity, but were busy with

other activities at the back of the classroom without the teacher being aware of it.

5.2.5.20 Thinking before Speaking - Question 50

Table 46 - Thinking before Speaking

Thinking and Speaking	Frequency
Speaking without thinking	**57**
Thinking before speaking	**249**
Total	**306**

81% of learners felt they carefully considered what they wanted to say before saying it. The hesitation before speaking could be as a result of being careful about what to say based on cultural values of respect, or because learners were not confident enough to voice their opinions spontaneously.

5.2.5.21 Time Taken to Complete a Task - Question 51

Table 47 - Time Taken to Complete a Task

Time Taken to Complete a Task	Frequency
First to complete a task	**87**
Takes time to complete a task	**221**
Total	**308**

308 Learners responded to this question. 72% of learners stated that they took time to complete tasks. There could be several reasons for learners claiming to take time over tasks. These could include a need to take care over the work in order to achieve good marks, or a fear of incurring the teacher's anger, hesitation for fear of making mistakes, and difficulty understanding the task or trying to make sure the correct answer is given.

All the above reasons are suggested by responses to other questions and subsequent interviews with learners. Learners believe that good marks will make it easier for them to find a job after Grade 12, they voiced a fear of incurring the teacher's anger and mentioned experiencing difficulty with some subjects, namely, mathematics, science and English.

5.2.5.22 Completion of Tasks - Question 52

Table 48 - Completion of Tasks

Completion of Tasks	Frequency
Completed work handed in	**194**
Work not completed on time	**115**
Total	**309**

Of the 309 learners who responded to this question, 63% said they always handed in completed work on time, while 37% said they often forgot to complete their work. A significant number of learners showed a lack of discipline towards their academic activities as more than a third of the sample of learners admitted that they frequently failed to complete and submit required tasks. Their inability to meet commitments could be a reflection of their inability to deal with the challenges they face in their lives as a result of learned helplessness or poor adjustments to the demands of the academic environment.

5.2.5.23 General Observations

Responses to questions 46 - 48, 50 - 51, may indicate cautiousness born of insecurity, which is also suggested in question 45. The autocratic approach used by teachers could also contribute to the over-cautiousness shown by

learners. Self-confidence and the ability to show initiative cannot in any measure be developed among these EDLs when they are so strictly controlled.

Furthermore, based on learner responses, teacher responses and classroom observation, it appears that discipline and control of learners is not consistent which must therefore give rise to further insecurity in learners for whom structure and clearly defined parameters seem important.

5.2.6 SELF IMAGE

5.2.6.15 How the Learner Thinks Others See Him/her - Question 53

Table 49 - How the Learner thinks others see him/her

How others see the learner	Frequency
In a positive light	226
In a negative light	82
Total	308

73% of the 308 respondents thought that other people saw them in a positive light, suggesting a positive attitude towards self image, yet responses to questions 46 – 48 and 50 – 51 suggest a cautiousness born of insecurity which belies the suggestion of a self-confident group of learners. On the other hand as suggested by Madsen & Madsen (1976:6), disadvantaged learners are often oblivious to how others perceive their behaviour.

5.2.6.16 Learners' Opinion of How Others See Them - Question 54

Table 50 - Learners' Opinion of How Others See Them

Learner Opinion of Opinion of Others	Frequency
Do not care	186
Care	122
Total	308

308 Learners responded to this question. 60% of learners did not care significantly what others thought of them. As previously stated disadvantaged learners are often not aware of offensive behaviour or behaving inappropriately.

However, a significant number of learners in the sample were concerned about others' opinions of them, which may influence their responses to how they deal with problems in their environments. Learners lacking self-confidence and having a poor self-image may show a reluctance to venture and take risks for fear of disapproval.

5.2.6.17 Assertive versus Timid - Question 55

Table 51 - Assertive versus Timid

Assertive vs Timid	Frequency
Afraid to say 'no'	64
Not afraid to say 'no'	244
Total	308

Of the 308 learners who responded to this question, 79% said they were not afraid to say 'no' when they didn't want to do something, which once again confirms the assertiveness and self-confidence reflected in the responses to questions 53 and 54 or perhaps aggressiveness as well as defiance.

5.2.6.18 Seeking Assistance from the Teacher - Question 56

Table 52 - Seeking Assistance from the Teacher

Seeking Assistance from the Teacher	Frequency
Too afraid	135
Not afraid	172
Total	307

307 Learners responded to this question. 44% of learners indicated that they were too afraid to seek the teacher's assistance, while 56% of learners would not hesitate to seek the teacher's assistance. This need, in more than half of the sample to seek the assistance of the teacher, is characteristic of the EDL's need for constant guidance. Hesitance to seek the teacher's assistance may reflect a lack of self-confidence and a fear of appearing inadequate. The fact that 44% of learners were hesitant to seek teacher assistance indicates that a large number of the learner population may be at risk of forming misconceptions about new learning material and since classes are large and teachers unable to give much individual attention, the chances are high that teachers may not realise the extent of the failure by learners to effectively assimilate new materal.

5.2.6.19 Volume of Voice - Question 57

Table 53 - Volume of Voice

Volume of Voice	Frequency
Spoke too softly	154
Projected voice confidently	153
Total	307

About half of the 307 respondents revealed that they were often asked to speak more loudly in order to be heard, while 153 thought they spoke loudly enough, suggesting that at least half of the learners in the sample did not exhibit the assertiveness and self-confidence needed to make themselves heard. A large number of the learners in the sample lacked the confidence, which could significantly affect their motivation to achieve. Rather than

assertiveness, a number of students presented an aggressive, brash demeanour.

5.2.6.20 Suppressed Anger - Question 58

Table 54 - Suppressed Anger

Suppressed Anger	Frequency
Anger suppressed	**132**
Anger not suppressed	**153**
Total	**285**

Just over half of the learners who responded to this question did not suppress anger, revealing a possible lack of restraint among those learners. Often learners from a dysfunctional family are exposed to aggression and so use that as a way of solving conflict situations. The responses to this question confirm those of question 45, which reflect a need for instant gratification and a failure to assess critically and at a deeper cognitive level.

5.2.6.21 General Comment

A large number of learners reflect a sense of insecurity and poor self-image. Since teachers have to contend with such large numbers in classes together with large volumes of work, the question is to what extent learners who are unsure of themselves, are being assisted to become confident, skilled members of the community.

5.2.7 SCHOOL ADJUSTMENT

5.2.7.15 The Importance of following Rules/Instructions - Question 59

Table 55 - The importance of following Rules/Instructions

The importance of Following Rules	Frequency
Important	**285**
Not important	**23**
Total	**308**

93% of the 308 respondents thought that following rules/instructions was important. Once again the responses to this and the next question, indicate the EDL's need for structure. EDL learners felt more secure when they could function within clearly defined parameters, revealing a strong need for constant guidance and a sense of security, which does by implication not give them the opportunity to develop critical thinking, since activity is based on unquestioned obedience to instruction.

5.2.7.16 The Importance of School Rules - Question 60

Table 56 - The Importance of School Rules

Importance of School Rules	Frequency
Rules are important	**266**
Rules are not important	**42**
Total	**308**

308 Learners responded to this question. 86% of learners felt it was important to obey school rules. This response may be as a result of what the learners perceive to be acceptable behaviour rather than how they felt personally. However, these responses indicate that the majority of the learners in the sample show a need for structure.

Goodenough (Richter 1992:37) believes that EDLs are generally only motivated to work under negative reinforcement. Teachers may possibly use

the approach of strict control to force learners to work or learners will only work as a result of conditioning to unquestioning obedience.

However, to what extent does strict control allow learners the opportunity to think critically about their lives and to find solutions to their problems?

The firm control exercised by teachers is often as a result of the EDL's short attention span and poor inner control. These learners become accustomed to strict adherence to rules enforced by teachers and this may be why learners may have indicated that following rules is important. Learners are not encouraged to consider the merits of rules. Rather unquestioning obedience is generally expected.

5.2.7.17 Punctuality - Question 61

Table 57 - Punctuality

Punctuality	Frequency
Punctual	**252**
Often late	**56**
Total	**308**

82% of learners felt that they were usually at school on time.

This suggests that the majority of learners who get to school on their own (See table 15), are able to do so on time, indicating a sense of responsibility or fear of punitive measures by teachers. At a subsequent interview with the learners of the sample, a small number of learners voiced their dissatisfaction with the fact that they were being forced by parents to attend school.

Despite claims made by learners that they managed to get to school on time, large numbers of learners were observed waiting outside the gates of schools, which were closed at the time schools start in the mornings.

Learners were allowed through one at a time after a reasonable explanation was given by each learner as to their failure to arrive on time and punishment meted out.

5.2.7.18 Completion of Assigned Work - Question 62

Table 58 - Completion of Assigned Work

Completion of Tasks	Frequency
Work never left unfinished	**205**
Has to be reminded to complete work	**102**
Total	**307**

67% of the learners who responded to this question said they never left their work unfinished. A third of the learners, however, admitted that they had to be reminded to complete their work, which once again suggests failure by a significant number of learners in a group to be fully engaged with the academic environment and their inability to adjust to the demands made by the academic environment. A third of the learners therefore showed a need to be constantly supervised and guided and the inability to work independently.

5.2.7.19 Comments

The responses to questions 59 – 62 indicate that learners feel that following rules are important. However, during observations at the schools as well as interviews with a section of the sample population, it was noted that although the learners felt that rules were an important part of the school day, they were often not able to maintain them as was obvious from the many learners who arrived at school, late and who were not always able to hand work in on

time. Learners in the sample also expressed fear of punitive measures when rules were not adhered to, indicating extrinsic rather than intrinsic motivation for adhering to rules.

5.2.7.20 General Observations

- Responses to questions 35 and 41 confirm responses in questions 31 and 33, which reveal a **preference** for a **social learning style** as described by Fitz (1995:52) where frequent interaction with others is sought during academic activities.
- Responses to question 28 furthermore confirm the more **field dependent style** of thinking shown by disadvantaged learners in that the vast majority of learners in the sample indicated that they preferred close interaction with the teacher when confronted with new learning material.

  However as all classrooms had **desks in group formation**, a number of learners had their backs to their teachers, which could hinder the field dependent learner's need to interact with the teacher on a one-on-one basis.
- Questions 36, 38, 39, 40 and 44 show a **need for structure**, confirming a tendency towards Field Dependency as a mode of thinking as described by Witkin and Goodenough in Fitz (1995:53) and Bennet (1999:188) who state that Field Dependent learners need specific instruction and sequenced assistance.
- In the classrooms, it was observed that although learners sat in a group arrangement, worksheets were given requiring individual responses. Learners frequently copied answers from one another

without further thought to what was being learned. Questions put by teachers to learners **did not encourage or require analytical** or **critical thinking**. Questions mainly required a **recall** of information, such as 'what was……?' or 'Who is….?'.

- Responses to **questions 59 - 62** would seem to indicate that a number of learners struggle with adjusting to school although they attempt to conform for fear of reprisal.

  However, learners agreed on the necessity of adhering to rules, perhaps showing a need for security and guidance, which could be found in a structured and disciplined environment.

- The above results indicate a strong tendency towards **Field Dependence approach** to thinking and learning among the learners in the sample.

5.3 TEACHER QUESTIONNAIRE

Questionnaires were distributed to approximately 50 teachers. 20 questionnaires were returned.

5.3.4 SECTION A - BIOGRAPHICAL INFORMATION

5.3.4.15 Sex - Question 1

Table 59 - Sex

Sex	Frequency
Male	**8**
Female	**12**
Total	**20**

8 Male and 12 female teachers completed and returned the questionnaire.

5.3.4.16 Highest Qualification - Question 2

Table 60 - Highest Qualification

According to table 56, teachers of EDL are adequately academically qualified to teach.

Highest Qualification	Frequency
Std 8 + Teachers Cert	0
3 Year Diploma	7
4 Year Diploma	3
Degree + diploma	8
Honours degree	1
Masters degree	1
Doctorate	0
Other	0
Total	20

However, as indicated in questions, which follow, they do not fully understand the needs of the EDL, approaching their tasks from their own perspective and the point of view of getting through a demanding syllabus. Teachers seem to lack an understanding of how to draw on the existing skills and knowledge of learners or how to establish the preferred modes of thinking of learners when selecting teaching methods.

5.3.4.17 Language of Instruction - Question 3

Table 61 - Language of Instruction

Language of Instruction	Frequency
Zulu	2
Xhosa	3
English	14
Sotho (N/S)	1
Afrikaans	0
Tswana	0
Other	0
Total	20

70% of the teachers used English as language medium of instruction.

Teachers preferred to use the medium of instruction prescribed for the school (generally English), in their classrooms. Teachers believed that learners preferred either Zulu or English as medium of instruction.

In a grade 5 class, the teacher needed to translate the learner questionnaire into the learners' mother-tongues before learners understood the questions.

According to teacher responses to question 46, teachers believed that the language of instruction inhibited understanding of curriculum content among learners.

Yet teachers continue to use it as the main medium of instruction, seemingly ignoring it as an obstacle to the successful assimilation of information.

5.3.4.18 Teachers' preferred language in the Classroom – Question 4

Table 62 - Teachers' Preferred Language in the Classroom

Teacher's Preferred Language	Frequency
Zulu	**3**
Xhosa	**3**
English	**13**
Sotho (N/S)	**1**
Afrikaans	**0**
Tswana	**0**
Other	**0**
Total	**20**

For 65% of teachers in the sample, the preferred language in the classroom is English despite acknowledging that the language of instruction may hamper mastery of information.

5.3.4.19 Teachers' Perceptions about Preferred Learner Language - Question 5

Table 63 - Teachers' Perceptions about Preferred Learner Language

Teachers perceptions	Frequency
Zulu	**7**
Xhosa	**0**
English	**9**
Sotho (N/S)	**1**
Afrikaans	**0**
Tswana	**0**
Other	**1**
Total	**18**

From Table 61, it is obvious that at least half of the teachers in the sample believed that learners preferred English as medium of instruction; 7 thought Zulu was the preferred medium of instruction. One wonders whether teachers have explored the reason they believe learners may prefer English as a medium of instruction despite obvious learner difficulty with thinking and learning in a language not their mother tongue, or whether teachers have tried to consider the possibility that thinking and learning in a language other than the mother tongue may hamper learners. Learners had suggested in a subsequent interview that although they were more comfortable using their mother-tongue, they felt English provided more opportunities for advancement and they were therefore prepared to accept tuition in English.

5.3.4.20 Most Frequently Used Teaching Method - Question 6

Table 64 - Most Frequently Used Teaching Method

Most Frequently Used Teaching Method	Frequency
Lecturing	**4**
Group work	**11**
Games	**2**
Quizzes	**1**
Debates	**0**
Student Projects	**2**
Research done by students	**0**
Other	**0**
Total	**20**

As can be seen from table 62, more than half of the sample of teachers preferred group work as a teaching method. During classroom observation, it was noted that all classrooms were arranged in group format, yet very little meaningful group work took place. There was no evidence of a productive group effort amongst learners except for one lesson where learners were asked to enact a possible scene based

on religious education. Learners were required to develop the scene and present it to the rest of the class. Despite the fact that the class contained approximately 45 learners, the teacher overcome this practicality by allowing groups to work outside of the classroom on a stretch of grass.

In most classrooms, placing desks in group format gave less committed and motivated learners the opportunity to lean on their fellow learners during classroom activities. It seems from table 62 that teachers least preferred games, quizzes, debates and projects, which are teaching methods that would encourage critical and creative thinking. Creative and critical thinking opportunities in South African classrooms, are an infrequent occurrence.

5.3.4.21 Least Used Teaching Method - Question 7

Table 65 - Least Used Teaching Method

Least Used Teaching Method	Frequency
Lecturing	8
Group work	1
Games	2
Quizzes	0
Debates/Discussions	0
Student Projects	4
Research done by students	0
Other	5
Total	20

Despite responses to question 7 indicating that lecturing was the least favoured method of teaching, the most common method observed in the classroom, was lecturing. Worksheets were the most frequently used teaching aid.

In one lesson in one primary school classroom, learners were given the opportunity to interpret learning material through role play. It seems that frazzled teachers in large classes rely on 'tried and tested' methods to keep learners quiet and passive, but unfortunately, at the expense of critical and creative thinking.

Do we want disciplined, obedient learners who do what they are told without a second thought, or are we prepared to allow education to become messy in the advancement of enquiring minds?

5.3.4.22 Most Preferred Teaching Aid - Question 8

Table 66 - Most Preferred Teaching Aid

Most Preferred Teaching Aid	Frequency
Textbooks	**7**
Newspapers/Magazines	**4**
Overhead projector	**1**
Slide projector	**0**
Television/video	**1**
CD player/tape recorder	**0**
Radio	**0**
Chalkboard	**7**
Library	**0**
Other	**0**
Total	**20**

From table 64, it is obvious that teachers preferred to use textbooks and the chalkboard as teaching aids. The preference for the 'chalk and talk' approach to teaching leaves very little room for critical and creative thinking. Only those learners who prefer the auditory mode of processing information, together with some visual presentation in the form of notes on the chalkboard, are being catered for in the classroom. Learners who process information visually or kinaesthetically are not encouraged to use their preferred sensory processing mode, nor are learners with an auditory preference encouraged to develop other modes of sensory processing.

It was observed in a high school classroom with Grade 11 learners that learners sat in group formation of approximately 4 learners, each group having to share 1-2 textbooks as there were not enough to go around. Literature could only be studied in the classroom, as learners could not take

books home for study. Teaching aids were not adequately provided and teachers showed no resourcefulness in overcoming this obstacle. The focus of the lesson was the comprehension of the literary text. Despite the great potential of a literature lesson to develop critical thinking skills, cognitive skills did not advance beyond understanding the content.

5.3.4.23 Reason for Preference - Question 9

Table 67 - Reason for Preference

Reason for Preference	Frequency
Most effective	**7**
Most enjoyable	**2**
Most available	**8**
Easiest to work with	**2**
Other	**0**
Total	**19**

The fact that teachers of EDLs believe that textbooks and the chalkboard are the most effective, shows their lack of understanding of the modes of thinking and learning, EDLs use to approach new information because this implies that teachers are the major participants in the lesson, that the possibility of learners miscomprehending information is increased and that learners are passive, uncritical recipients of information. Teachers would also not be able effectively to gauge the extent of cognitive distancing. Although worksheets were popular, they were not used to maximum effect. Generally these worksheets required recall of information and no problem solving was necessary. No critical or creative thought was demanded. It seems that teachers are generally more concerned about dessiminating information for its own sake, than as a means to the end of developing advanced thinking skills.

5.3.4.24 Least Preferred Teaching Aid - Question 10

Table 68 - Least Preferred Teaching Aid

Least Preferred Teaching Aid	Frequency
Textbooks	**3**
Newspapers/Magazines	**1**
Overhead projector	**4**
Slide projector	**7**
Television/video	**3**
CD player/tape recorder	**2**
Radio	**1**
Chalkboard	**2**
Library	**3**
Other	**0**
Total	**26**

The teaching aids least preferred by teachers of EDLs are the overhead and slide projectors. The reason given in table 69 is that they are not readily available. The irony is that both of these items bring home to the child the visual aspect of the subject matter, which is what disadvantaged learners seem to prefer.

However, it needs to be pointed out that not all schools have electricity to operate electronic equipment.

On the other hand, schools that have access to the equipment, often leave them in storerooms for safe-keeping and teachers just could not be bothered to sign them out. Furthermore, teachers often do not have the knowledge to operate them nor the incentive to learn to use them, relying rather on the chalkboard, which requires less effort and planning in their demanding schedules.

5.3.4.25 Reason for Not Preferring the Teaching Aid - Question 11

Table 69 - Reason for Not Preferring a Teaching Aid

Reason	Frequency
Difficult to control	2
Too noisy	0
Learners reluctant to participate	1
Not available	15
Too expensive	1
Other	0
Total	20

The question is whether teachers of EDLs are able to think creatively and innovatively to overcome these obstacles. During classroom observation, teachers generally did not reveal an ability to use innovative teaching methods or to overcome obstacles to their teaching activities.

5.3.4.26 CLASSROOM ACTIVITIES AND LEARNER INVOLVEMENT -

Questions 12 - 30

(Teachers' responses on a scale of one to ten to indicate to what degree there is agreement or disagreement with the statement)

Table 70 - Classroom Activities and learner Involvement

Key: 1 = Do not agree at all
10 = Strongly agree

During lessons, the learners are allowed to on a scale of:	1	2	3	4	5	6	7	8	9	10
Q 12 Answer questions		1			1		1	3		14
Q13 Ask questions		1	1	2		1		2	1	12
Q14 Do individual activities in silence	2		4		5		1	2	2	4
Q15 Participate in class debate	2	1		1		1	2	3	2	8
Q16 Freely move from group to group	7	3			3	3		2	1	1
Q17 Question lesson content	1	1		3			3	5		7
Q18 Work in a way not requested by teacher	5	4		2	3	1	1	2	1	1

Q19 Digress from the task	**7**	**4**	**1**	**1**	**1**	**1**	**2**	**2**	**1**	**0**
Q20 Make suggestions about tasks	**3**	**1**	**1**	**1**	**3**		**4**	**2**	**1**	**4**
Q21 Get into free discussion	**1**		**2**	**1**		**4**	**1**	**3**	**2**	**6**
Q22 Work in groups decided by the teacher	**3**			**1**	**3**		**1**	**2**	**6**	**4**
Q23 Interrupt the teacher to have something explained	**3**	**2**		**2**	**1**		**1**	**2**	**1**	**8**
Q24 Get into a heated debate	**3**	**1**		**1**	**2**	**2**	**1**	**2**	**3**	**5**
Q25 Disagree with teacher about lesson content	**3**	**3**	**3**		**1**	**2**	**1**	**2**		**5**
Q26 Move about during group work	**7**	**1**					**1**	**4**	**1**	**6**
Q27 Decide on the method of working	**5**	**3**	**1**	**2**		**1**		**3**	**2**	**3**
Q28 Criticise teacher interpretation of lesson content	**7**		**1**	**1**	**2**	**2**	**1**		**1**	**5**
Q29 Select learning material they regard as relevant	**5**		**1**	**1**	**1**	**1**		**3**	**1**	**7**
Q30 Talk while working individually	**6**	**1**	**1**	**2**	**3**			**2**	**1**	**4**

5.3.5 What the Learners Are Allowed to Do During Classroom Activities:

5.3.5.15 Answer Questions - Question 12

18 of 20 Respondents to this question indicated on a scale of 6- 10 that they, to some extent, agreed that learners should be allowed to answer questions; 1 teacher totally disagreed. 14 teachers were in absolute agreement with the statement suggesting that they were aware of the need for interaction between teacher and learner during the lesson.

During classroom observation, learners were frequently given the opportunity to respond to questions. However, these questions almost always required only recall of information. Valuable opportunities for critical evaluation of learning material were frequently missed.

5.3.5.16 Ask Questions - Question 13

16 Teachers felt to a great or lesser degree, that learners should be able to ask questions; 4 teachers disagreed.

During classroom observation, during a lesson, a learner asked a question related to but not directly about the topic and although this would have been an opportunity to allow learners to think about and debate issues around the topic, it was discouraged and an opportunity for critical thought was lost.

5.3.5.17 Do Individual Activities in Silence - Question 14

11 Teachers believed that learners did not necessarily have to work in silence, while 9 teachers felt learners should work in silence. Many teachers seemed to have difficulty controlling the noise level in their classes and this would have implications for the EDL who finds it difficult to distinguish relevant from irrelevant information, which is further exacerbated by processing information in a language that is not their mother tongue (van Heerden 1997:80).

5.3.5.18 Participate in Class Debate - Question 15

16 Teachers indicated that they mostly agreed with class debate, while 4 did not. However, teachers avoided using debate as a teaching method. Reasons, that could be attributed to this may be the large, noisy classes, which would be difficult to control, as well as the possibility of learners becoming aggressive or showing little constraint and the inability to function effectively as part of a group.

Bennet (1999:188) points out that EDLs often become aggressive during group activities.

5.3.5.19 Move Freely from Group to Group - Question 16

7 Teachers were prepared to allow learners to move around freely, while 13 of teachers disagreed with this statement. 10 Teachers were in total or almost total disagreement with this statement.

Teacher reluctance could be as a result of practical considerations of already overcrowded classrooms. During classroom observation, only one teacher seemed able to overcome the problem of a confined space versus group activities, thereby successfully allowing for a kinaesthetic and visual sensory processing opportunity.

5.3.5.20 Question Lesson Content - Question 17

15 teachers feel that learners should be allowed to question lesson content. However, the question arises whether learners would ever of their own accord question lesson content, since learners had misgivings about whether they would dare question teachers and generally accepted the information presented to them unquestioningly. Teachers did not seem to encourage learners to think about

new materials as there was no evidence of teachers initiating debate or thought provoking questions.

5.3.5.21 Work in a Way Not Requested by the Teacher - Question 18

Although responses to this statement were found to be across the scale of 1 – 10, 6 Teachers felt that they would to a large extent, allow learners to work in a way not requested by them, while 14 of teachers disagreed. 9 Teachers were in total or almost total disagreement with this statement. Teachers consistently expressed a desire to remain in control and not to

allow learners to make decisions. Learners therefore seldom have the opportunity to use their initiative. This could have implications for the development of self-confidence, as well as creative and critical thought.

5.3.5.22 Digress from the Task - Question 19

14 of teachers disagreed with this statement believing rather that learners should not be allowed to digress from a task at hand. More than half of the teachers were in total or almost total disagreement with this statement. The reluctance of teachers to allow exploration of learning material, may hamper critical and creative thought among learners.

6 Teachers felt that learners should be allowed to digress from the task to an activity associated with it, in other words, approaching a topic from several perspectives or engaging thoughtfully with the subject material. However, none of respondents were in total agreement with the statement, thus expressing some reservation. Once again, teachers showed a need to remain in full control, not allowing learners to deviate from the task at hand as instructed by the teacher. Learners are therefore not given the opportunity to explore and examine information in relation to other information in order to gain a global perspective, in other words to make inferences.

5.3.5.23 Make Suggestions about the Task - Question 20

14 of the 20 respondents feel that learners should be allowed to make suggestions about which tasks to do, while 6 teachers disagreed with this statement. However, only 4 teachers were in total agreement with this statement. Other responses indicated some reservation. There is thus

some contradiction to previous responses where teachers did not allow for any learner input into the learning environment. It is unlikely that learners would make suggestions given that they tend to conform to the teacher's instructions and felt they needed to obey the teacher and there is very little evidence from classroom observation, that teachers encouraged thoughtfulness.

5.3.5.24 Spontaneous discussion about lesson content - Question 21

20 Teachers responded to this question. 16 teachers agreed to a greater or lesser degree, that learners should be allowed to get into spontaneous discussion about what they are learning. 4 teachers disagreed with this statement although only 1 teacher indicated total agreement. Opportunities for spontaneous discussion were, however, not evident during classroom observation. The reason for this could be the difficulty of controlling large numbers of EDLs in overcrowded classrooms. Teachers generally avoided learner participation to any great extent during lessons resulting in many missed opportunities for meaningful learning.

5.3.5.25 Working in Groups Decided by the Teacher - Question 22

13 out of 20 teachers agreed with this statement, while 7 disagreed. As stated before, desks were placed in group formation, but very little group work was in evidence. Teacher agreement suggested the need for the teacher to be in control and to make decisions about how the classroom is managed.

Group work also creates its own problems, which teachers may not be conscious of unless the teacher effectively facilitates and guides learners

during group sessions. Generally, motivated learners would 'carry' those not actively engaged with the learning material, thus creating a situation where a great number of learners never assimilate and internalise the learning material, with little chance of developing critical thinking skills. Worksheets done individually while learners sit in group format, also give rise to the above problem.

5.3.5.26 Learners May Interrupt the Teacher - Question 23

12 Teachers agreed that learners should be allowed to interrupt the teacher, while 8 teachers did not agree. 8 Teachers were in total agreement, thus suggesting that they would readily allow learners to halt the lesson when they needed to ask a question. During classroom observation, teachers only responded to learners who put up their hand for permission to speak to the teacher. It seems that just as the disadvantaged learners had a need for structure, so their teachers also supported a highly structured environment.

5.3.5.27 Learners May Get into Heated Debate - Question 24

Although 13 Teachers said that they would allow learners to get into a heated debate about learning matter, only 5 were in total agreement with the statement, suggesting that for some teachers there would be reservations. 7 Teachers, 3 of whom were in total disagreement, felt that they would not allow it. Teacher disagreement would suggest the need for those teachers to have strict discipline in the classroom, which may cause learners to miss opportunities for critical thought about opposing ideas. No opportunity for debate was evident during classroom observation. Learners

therefore did not get the opportunity to process the learning material from a variety of perspectives or deal with opposing views in a meaningful way.

5.3.5.28 Disagree with the Teacher about Lesson Content – Question 25

10 Teachers stated they would allow the learners to disagree with lesson content. While 5 teachers were in total agreement, 6 teachers strongly disagreed. According to the perceptions of learners about teachers being autocratic, it is unlikely that learners would disagree with the teacher about lesson content thus opportunities for critical thinking which arises from discussion, and debate would be lost. From the conflicting responses of learners and teachers regarding flexibility within the learning situation, there seems to be no effective communication between teachers and learners regarding appropriate behaviour. Learners see teachers as autocratic although teachers believe they are accessible and lenient.

5.3.5.29 Move around the Classroom During Group Work - Question 26

12 teachers in the sample would allow learners to move around freely while engaging in group work, whereas 8 teachers, 7 of them in total disagreement, disagreed with this statement. The reasons discussed in questions 15 and 16 could apply here. 13 teachers to varying degrees, said they would allow learners to move around the classroom. However, all learners during classroom observation were confined to their desks. Practical considerations would make moving freely around the classroom

very difficult unless teachers used creative problem solving to improve the situation.

5.3.5.30 Method of Working - Question 27

9 Teachers were prepared to allow learners to decide on the method of working, while 11 teachers, 8 in total or almost total disagreement, would not allow learners to decide the method of working. More than half of the teachers did not encourage learners to participate in decision-making. Again a large number of learners are passive members of the learning environment, seldom having the opportunity to be meaningfully engaged in the decision-making process regarding learning material or the classroom experience.

5.3.5.31 Criticising Teacher Interpretation of Lesson Content - Question 28

11 Teachers disagreed with this statement. 7 Teachers disagreed totally. 9 Teachers indicated they would to a greater or lesser degree, allow learners to criticise their interpretation of the lesson content. Once again, the perception of the teacher as autocratic prohibits the possibility of learners criticising teacher interpretation of the lesson content. Furthermore, the fact that many learners are not actively engaged in the material would preclude their thinking critically and forming an opinion about the learning material and they would therefore not be in a position to challenge the teacher's interpretation.

5.3.5.32 Allow Learners to Select Learning Material They Regard as Relevant - Question 29

12 Teachers agreed that learners should have a say in the learning material they regard as relevant, while 8 teachers disagreed with this statement. This would necessitate learners being confident enough in their own opinions and having the self-confidence to put forward their ideas, which is unlikely, given learner perception of forbidding educators.

5.3.5.33 Talking in the Classroom While Working Individually - Question 30

7 teachers agreed and 13 teachers largely disagreed that learners should be allowed to talk while working individually. 6 Teachers disagreed totally. More teachers felt that learners should be quiet while working individually. This shows a concern for order and structure in the classroom, among teachers.

5.3.5.34 General Comments Questions 12 – 30

Despite responses by teachers in the questionnaire indicating that they support a greater degree of active participation by the learner in the learning environment, it was noted during classroom observation that teachers still appear to play the central role in classroom activities. Responses by teachers also indicated a need for structure and order in the classroom and this would have a direct effect on the lack of encouragement of critical and creative thought in the classroom. Learners are still largely passive recipients of information, with infrequent opportunities to engage

meaningfully with new material. A number of teacher responses indicate they would allow greater freedom of movement and thought in the classroom, yet classroom observation and responses by learners in the learner questionnaire contradict teacher responses in the teacher questionnaire.

Teachers tend towards strict discipline and a no-nonsense approach, which requires conformity. Teachers seem more concerned with learner conformity than active

engagement with learning material in a meaningful way.

The types of questions teachers permit require a superficial understanding of new information. No in-depth discussion or debate is encouraged. Furthermore, the conditions for the failure to develop creative potential as defined by Whitson (1994:2) is evident in South African classrooms (see chapter 2).

5.3.6 TEACHING METHODS – questions 31 - 39

Table 71 - Teaching Methods

Teaching Methods on a scale of 1 – 10:	1	2	3	4	5	6	7	8	9	10
Q 31 Repetitive activities are important	1		1	2	3	1	3	1	1	6
Q32 Group work is important		1		2	1	1	2	3	1	9
Q33 Reading and listening in every lesson is important	1		1	1		1		3	3	9
Q 34 All teaching methods should encourage problem solving, original and imaginative work					4	1		3	3	9
Q 35 More than one teaching method can be used in a lesson		1		1	1			1	4	12
Q 36 Teaching methods do not influence the way learners assimilate information	6	2		2	2	2	3		2	1
Q 37 Frequent teacher interaction with individual learners is important			1		2				2	15
Q 38 Audio-visual aids do not improve learner ability to understand new material	10	1	2	2				1	1	5
Q 39 It is important to keep to a strict routine during lessons	5	1	2	1	4			1	1	5

5.3.6.15 The Inclusion of Repetitive Activities - Question 31

12 Teachers, for the most part, regarded repetitive activities as an important teaching method. 7 Teachers to a lesser or greater degree disagreed with this statement. While repetitive activities are an important part of learning, they do not provide opportunities for creative or critical thought and would become a problem if teachers concentrated too frequently on this method, which seemed to be the case especially at primary school level. Learners should surely be encouraged from a very early age to develop critical thinking abilities.

5.3.6.16 The Inclusion of Group Work - Question 32

16 of the respondents believed that group work was an important teaching method, while 4 felt that group work was not that important. As has been discussed before, during observation within classrooms it was noted that although learners were arranged in group formation, very little effective group work took place. While learners sat in group formation, each learner completed a worksheet, frequently copying answers from others in close proximity in the group. Generally the worksheets required a recall of information.

5.3.6.17 The Inclusion of Reading and Listening - Question 33

16 Teachers expressed their support for the inclusion of reading and listening in all teaching activities, while 3 did not support this statement. While reading should make up a significant part of teaching, attention to reading skills is hampered by inadequate resources provided by the authorities, and teachers do not show resourcefulness in overcoming this

obstacle. Inadequate resources include insufficient quantities of learning and teaching materials as well as learning materials, which do not provide for all sensory modes, including visual, auditory and kinaesthetic.

5.3.6.18 The Inclusion of Problem Solving, Original or Imaginative Work - Question 34

16 respondents supported the statement that problem solving, original or imaginative work should be encouraged. For 4 Respondents, opportunities for problem solving, original or imaginative work, were not vitally important. During observation of a Grade 11 literature lesson, questions took the form of determining the understanding of content. No critical or creative thought about the content was encouraged.

The Grade 7 learners of one primary school were given opportunities for creative thinking during a lesson. On the whole teachers did encourage learners to participate in lessons, by soliciting answers to questions. However, questions did not encourage creative or critical thinking. Critical thinking was evident when a learner in a primary class raised an issue related to but not directly being dealt with. The observation raised by the learner, was not explored as the teacher was reluctant to deviate from the set lesson

5.3.6.19 A Combination of Teaching Methods - Question 35

17 Teachers agreed to a greater or lesser degree, that a combination of teaching methods could be used in any one lesson, while 3 teachers did not support the statement.

Generally, in the classrooms observed, a combination of teaching methods meant a combination of lecturing and ‘group work’ which generally meant learners sitting in group formation, completing work sheets individually. Teachers did not actively facilitate during group activities and learners are left to get on with the task.

5.3.6.20 The Influence of Teaching Methods - Question 36

12 Teachers were less inclined to feel that teaching methods do to some extent, influence the way learners assimilate information. 8 Teachers believe to varying degrees that teaching methods do not influence the way learners assimilate information. 3 teachers disagreed totally or almost totally with the idea that teaching methods influence assimilation of information. This could imply that the teachers who disagree disregard the possibility that not all the learners will internalize new information through the methods being used by these teachers. Teachers did not therefore understand that learners used various cognitive processes and the fact that more than half of the teachers felt that teaching methods did not have a significant effect on successful assimilation of information, suggests that they believed that all learners could process information in the same way, thus implying that teachers did not give much thought to the thinking and learning modes of their learners.

5.3.6.21 Frequent Interaction with Learners - Question 37

17 Teachers believed that frequent interaction with individual learners was important, whereas 3 teacher felt it was less important.

While frequent interaction is vital to the EDL, it is not practical in many South African classrooms because of overcrowding and the way desks are arranged in classrooms, making it difficult for teachers to move freely around classrooms. Interaction with learners generally took the form of question and answers during the course of a lesson.

From teacher responses to teaching methods and opportunities for creative and critical thought, it is clear that many learners are not being exposed to opportunities for optimal assimilation of new information.

5.3.6.22 The Influence of Audio-visual Aids - Question 38

15 of the 20 Respondents were less inclined to believe or totally disagreed that audio-visual aids significantly improved the learner's ability to understand new material. Yet it is evident from the learner responses that the majority of them preferred visual sensory processing. Audio-visual aids were conspicuous in their absence in all but one of the classroom visited for observation. Teachers cannot assume that learners have a mental picture of what the teacher is talking about or that they perceive concepts in the same way as the teacher. The use of audio-visual aids will largely stimulate interest, reduce misunderstanding of new concepts and enhance the meaningfulness of what learners are being taught.

5.3.6.23 Strict Routine During Lessons - Question 39

13 Teachers believed that it is not important to keep a strict routine during lessons. 7 teachers believed that they needed to keep tight control, despite indicating in other questions that they would allow learners to move around the classroom freely and to actively participate in decision making.

5.3.6.24 General Comment

It seems that teachers do not fully understand the significance of using a variety of teaching methods to cater for and develop modes of thinking among learners who do not all process information in the same way. Teachers also do not show innovation in the presentation of learning material, that is, finding ways to assist learners to 'experience' it through linking it up with their every day lives and therefore do not encourage active engagement with the material. Both educators and learners remain at the superficial level of cognitive thinking with the focus on 'knowing' rather than assimilating information.

5.3.7 OBSTACLES TO LEARNER ACHIEVEMENT – Questions 40 –49

Table 72 - Obstacles to Learner Achievement

Key: 1 = Do not agree at all
10 =Totally agree

	Number of teachers									
Q 40 Teaching Methods on a scale of 1 – 10	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
Q 41 Individual attention to learners with difficulties	**1**	**1**	**3**	**1**	**5**	**2**	**1**			**6**
Q 42 Disadvantaged learners are poor achievers	**7**	**1**	**1**		**4**		**1**	**3**	**2**	**1**
Q 43 Psychometric tests are an important tool to assess ability	**4**	**2**	**3**	**1**	**3**	**1**		**3**		**3**
Q 44 Poor language skills hamper ability to achieve	**3**		**2**	**3**	**1**	**2**	**1**	**2**	**2**	**4**
Q 45 Disadvantaged learners do not have access to a technology-rich environment	**1**	**1**		**2**				**4**	**2**	**10**
Q 46 Most learners do not attach meaning to curriculum content		**1**		**3**	**4**	**3**		**2**	**3**	**4**
Q 47 The language of instruction is an inhibiting factor	**3**	**1**	**3**	**1**	**2**	**1**	**3**	**3**	**1**	**2**
Q 48 The classroom setting encourages achievement		**1**	**2**	**1**	**1**	**3**		**4**	**3**	**5**
Q 49 Learners do not identify with the subject matter, which negatively affects their motivation	**2**	**2**	**3**	**3**	**2**	**2**	**2**	**2**	**1**	**1**
Q 50 Learners generally have a poor self image, which negatively affects their ability to achieve	**2**		**3**	**3**		**2**	**3**	**3**		**4**

5.3.7.15 Individual Attention to Learning Difficulties - Question 40

Teachers felt that it was important to give attention to learners with learning difficulties. 9 Teachers stated that they were able to give individual attention to learners with learning difficulties. 11 Teachers felt that it was difficult giving individual attention to learning difficulties. The implication would be that disadvantaged learners who are field dependent, would be placed at a disadvantage since they need more individual interaction with teachers.

There was no evidence of individual attention given to learners during classroom observation since classes are overcrowded and teachers spent much of the lesson addressing learners in general. Overcrowding limits movement around the classroom and hinders teachers from having access to all learners, especially if desks are arranged in group formation.

5.3.7.16 Disadvantaged Learners Do Not Achieve - Question 41

13 Teachers believed to a greater or lesser degree that disadvantaged learners generally do not do worse than other learners, thus contradicting the generally held view that teachers of EDLs frequently have lower expectations of their ability to achieve, which influences the demands teachers may make on learners. However, during observation teachers did not appear to expect much more than regurgitation of information from learners. Teachers may simplify work and therefore not demand higher order thinking skills of learners. In the classrooms observed, questions generally expected recall and mere comprehension.

5.3.7.17 Reliance on Psychometric Tests - Question 42

13 Teachers did not support the idea that it is necessary to rely on psychometric tests to assess learners' intellectual ability. Their responses may be because psychometric assessment tools are not as widely used in disadvantaged schools and teachers are generally not familiar with it.

Psychometric tests frequently colour teachers' judgements of learners and affect the expectations of learners' academic performance.

Learners are often subjected to psychometric tests in an individual setting in a language in which they are not entirely fluent, which could influence the results of the test.

5.3.7.18 Poor Language Skills and Poor Achievement - Question 43

11 Teachers believe that poor language skills hampered the ability of disadvantaged learners to achieve. 9 Teachers did not feel that poor language skills was a reason for lack of achievement. Despite the fact that more than half of the teachers believed that poor language skills hampered academic progress, 13 had stated that they preferred English as a medium of instruction despite the fact that only 3 learners in the sample indicated that they use English at home (See table 69).

5.3.7.19 No Access to a Technology-Rich Environment – Question - 44

16 of the 20 teacher respondents supported the idea that disadvantaged learners do not have access to a technology-rich environment. Care in the choice of teaching aids and presentation of lessons could bring technology closer to learners. However, teacher resourcefulness in this regard was absent during classroom observation.

5.3.7.20Attachment of Meaning to Curriculum Content - Question 45

12 Teachers believed to a greater or lesser extent that learners did not attach meaning to the curriculum content. This begs the question as to why teachers in the sample did not attempt to make learning material more concrete and why teachers did not use teaching method,s which would complement learner modes of thinking. Little analysis of learning material takes place in the EDL classroom. Learners are at a further disadvantage when foreign concepts are presented in English.

5.3.7.21 Language of Instruction - Question 46

Equal numbers of teachers in the sample did and did not feel that the language of instruction would inhibit the assimilation of information.

Many of the teachers in the sample preferred English, which was not the language used at home by the EDLs in the sample.

5.3.7.22 Classroom Setting - Question 47

15 Teachers in the sample felt their **classroom setting** encouraged achievement among learners and did not prove to be a significant obstacle to academic performance. 16 Teachers believed that their classroom setting encouraged achievement despite the fact that overcrowding and stark environments were noted in most classrooms where no pictures adorned the walls and insufficient seating was found to be the case in some primary schools. Classrooms were drafty, which made learning difficult for some EDLs who were not adequately clothed in winter.

5.3.7.23 Identification with Subject Matter - Question 48

More respondents to a greater or lesser degree, felt that learners generally do not identify with the subject matter and that it negatively affected their motivation. That teachers believe learners do not identify with subject matter could affect teacher expectation of learner progress. Yet teachers continued to present new information through the auditory sensory mode with no use of audio visual aids to facilitate understanding.

Teachers would have to help learners to understand how the learning material relates to their lives and other information they are expected to learn, and this can be done if teachers present information with a variety of approaches, to allow for cognitive processing in different ways.

In the schools in the sample, learning material is generally presented in a fragmented way without an attempt to illustrate the significance of subjects in the life world of the learner or how subjects relate to each other

5.3.7.24 Poor Self-image - Question 49

12 Teachers were of the opinion that learners generally had a poor self-image and that it negatively affected their academic performance.

Although teachers generally accept the influence of a positive self-image on academic performance, in classroom observation learners were sometimes subjected to threats and criticism, which could impact negatively on self-image.

5.3.7.25 Summary of Interpretation of Results

It appears from the responses to the learner and teacher questionnaires that teachers and learners do not share the same perceptions of the learning

experience, for example, while teachers support the idea that learners need to be active participants in the learning activity, (see questions 12 – 30 of teacher questionnaire), learners felt that teachers would not approve of a more relaxed, unique approach and learner responses invariably tended towards what they perceived as appropriate responses rather than that which reflected their own opinions.

Learners perceive teachers as autocratic and controlling and therefore generally took a passive approach to academic activities relying heavily on teacher guidance. According to Witkin (1994:2) in this type of environment, creative thinking would be hampered.

Teachers believe that learners should be allowed some participation in decision making although this was not evident during classroom observation.

Learners revealed a preference for visual and kinaesthetic processing of information in their responses to questions on sensory processing and modes of thought. Yet in the EDL classroom, learners were seldom exposed to visual and kinaesthetic modes of sensory processing. Teachers believed in the importance of a variety of teaching methods and aids, but resorted to lecturing and worksheets in the majority of classrooms. It is quite clear therefore, that only a small percentage of learners are processing information in their preferred mode of thinking. Only those learners who generally process information through auditory processing and who tend towards Witkin's Field Independent characteristics or what Gregorc called the Abstract Sequential (see chapter 2), are processing information as they prefer to do. The fact that teachers tend to use the 'chalk-and-talk'

approach during teaching activities, means that learners are not provided with opportunities to develop new modes of thinking, thus limiting their ability to process information in a variety of ways. Opportunities to develop other modes of thinking would increase the likelihood of assimilating and actively engaging with new information and thus increase motivation levels.

5.4 CONCLUSION

This chapter was concerned with the processing and interpretation of data collected from the questionnaires distributed among disadvantaged grade 5s to 12s and their teachers. The final chapter (chapter 6) includes findings of the literature study and the empirical study, as well as aspects that need to be addressed and recommendations that arise from this study.

CHAPTER 6

6 SYNOPSIS OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

6.1 INTRODUCTION

The aim of this study was to:

1. Determine the modes of thinking and learning used by educationally disadvantaged learners in schools selected in Tembisa/Kempton Park in Gauteng.
2. Determine whether the teaching methods used by teachers in disadvantaged areas in Tembisa/Kempton Park, Gauteng, met the needs of the educationally disadvantaged learner.
3. Determine whether creative and critical thinking is encouraged among disadvantaged learners used in the sample of schools in the above mentioned area.

This chapter will include a summary of the findings from the literature review; findings from the empirical investigation and recommendations for further study.

6.2 SYNOPSIS OF FINDINGS

6.2.1 Findings from the Literature Investigation

6.2.1.1 Profile of the Disadvantaged Learner

Disadvantaged learners appear to come to school lacking in the kind of knowledge that would serve as a basis upon which to build in the school environment (Passon 1970 in Natriello 990:6).

As mentioned by Pretorius (1990) in Harmer (1995:76) and Wilson & Ramphele (1989:267), educationally disadvantaged learners often come from dysfunctional families where they experience a harsh, insecure and

unloving home. There appears to be very little communication between parent and child, leaving the child to form his or her own possibly distorted perceptions about the world.

The cultural orientation of the disadvantaged learner is frequently not compatible with that promoted by the education institution, causing the disadvantaged learner to experience alienation in the school environment.

6.2.1.2 Cognitive and Learning Styles

A great deal of research has been conducted regarding modes of thinking and

learning used by learners at school. These include the well-researched Field Dependent/Independent Mode of thinking, Dreher's Learning Styles theory, Messick's Cognitive Thinking Styles theory, and many others. (Refer to Chapter Two.)

A learner's preferred cognitive style develops as a result of his/her environment and life experiences and, in turn, the cognitive style will influence the learning style, which each learner will apply to learning material.

The cognitive and learning styles are therefore a result of the relationship between the learner's personality, culture, socialisation and environment.

Disadvantaged learners prefer a more co-operative, social style of processing information. The South African education system, on the other hand, as it is presented to the learner at present, demands a more competitive, independent approach.

Teachers tend to assume that all learners will process information in the same way and therefore neglect to bring a variety of teaching methods into

the learning environment. Teachers do not take cognizance of cognitive distancing among the EDL as it is generally assumed that all learners come to school with more or less the same knowledge base.

And finally, teachers often have poor expectations of learners from disadvantaged backgrounds and adjust their teaching accordingly, which does not give the disadvantaged learner, therefore, the opportunity to develop the thinking and learning skills necessary for academic advancement.

6.2.1.3 Findings from the Empirical Investigation

A sample of 310 learners selected from schools in disadvantaged areas of the Ekhuruleni Metropolitan District in South Africa, for the empirical investigation, showed a tendency towards a Field Dependent, socially orientated cognitive processing mode, Visual and Kinaesthetic Sensory Processing and had an Atomistic, i.e. haphazard approach to learning.

As explained by Bloom (1984) and Gagne (1985) in Fritz (1995:53), Field Dependent thinkers have difficulty synthesizing and applying information and making inferences.

Learners' responses to the questionnaire indicate an inability to distinguish between their own thoughts and what they have been taught, is appropriate behaviour, suggesting that learners do not internalize and critically process information, but because they have a strong need for guidance, accept without question, what they are told. This approach is not conducive to critical, creative and intuitive thinking.

These findings correspond to findings stated in existing literature on modes of thinking among disadvantaged learners worldwide.

Dunn & Dunn (1997:69) stated that EDL learners use the visual and kinesthetic sensory processing modes more frequently than the auditory modes of processing information. Their findings have been confirmed in this study where it was found that South African learners who participated in the study, favoured visual and kinaesthetic modes of sensory perception when they were not under pressure. However, they favoured visual and auditory modes in the classroom environment.

Teachers who participated in the study, did in the majority of cases, not encourage critical thinking, nor catered for the visual and kinaesthetic sensory processing that EDLs used.

The teachers in the schools selected for the study seemed to cater for the auditory processing mode, e.g. lecturing during teaching activities, largely ignoring other modes of thinking and learning.

Furthermore, the fragmented nature of the South African education system does not promote an holistic approach. Learners are not given the opportunity to understand how, what they learn at school relates to their experiences in the world they live in and further a field. EDLs are not taught to understand new information as an extension of what they have learned before, nor are they given the opportunity to discover how the subjects they learn, relate to one another. Very little attention is given to the extent of cognitive distancing among the disadvantaged learners.

EDL learners are not able to progress, according to Saracho (1997:23), without close guidance. Close guidance in overcrowded classrooms, is not possible, with the result that many disadvantaged learners in South African classrooms are not receiving the frequent interaction between teacher and

learner that educationally disadvantaged learners need to thrive in an academic environment and which Vygotsky states is necessary for the development of higher order thinking skills (see chapter 2).

6.3 RECOMMENDATIONS

The empirical study has revealed that teachers do not understand the significance of varying teaching methods during lessons, to develop a range of modes of thinking in disadvantaged learners.

Teachers need to be informed about how to consider meeting the needs of the disadvantaged learners in their classrooms, by:

- considering ways to bring about more frequent interaction between teacher and learner
- varying the teaching approaches during lessons to encourage a variety of modes of thinking and learning among learners
- providing opportunities for critical and creative thinking during classroom activities
- attempting to understand the background of each learner in their classes in order to understand their cultural orientation and perspectives
- gaining a comprehensive understanding of the difficulties experienced by educationally disadvantaged learners and how best to meet their needs.

Further investigation needs to be conducted to determine:

- The **thinking skills of teachers** who come from disadvantaged areas, in order to establish their level of critical and creative thinking ability.

- The modes of thinking of disadvantaged **rural** learners of South Africa and teaching methods that would develop their modes of thinking and learning.
- The disadvantaged learner's existing repertoire of knowledge and understanding of the world should be studied in greater detail in order to discover how to minimise **cognitive distancing.**
- To what extent South African learners **identify with learning material.**
- The long term effects of **compulsory pre-school attendance** for disadvantaged learners under the age of 5.
- Whether any significant preferences in thinking and learning patterns can be found in learners of **different age groups.**
- How effectively learners process information in a **language** that is not their mother tongue.

6.4 LIMITATIONS OF THIS STUDY

The questionnaire used to gather information resulted in a number of minor problems:

1. Teachers were often suspicious of the objective of the questionnaire presented to them and to the learners.
2. Several schools were reluctant or refused to allow the questionnaire to be distributed.
3. Although teachers were willing to receive the questionnaire, more than half failed to return them.
4. Primary school learners were often unsure of themselves and constantly asked for assistance despite the fact that it was quite obvious that they understood the instructions (they answered their own queries). Their behaviour confirmed a need for constant reassurance.

5. Despite being requested to complete every question, some learners chose to ignore certain questions.
6. A small number of questionnaires had to be rejected as instructions had not been followed.
7. Learners often responded to questions according to what they thought was appropriate rather than what they felt in reality. They seemed unable to distinguish between appropriate responses and their own critical thought about the issues mentioned in the questions.

Another method of gathering information was classroom observation and problems encountered here, were:

1. Teachers were reluctant to allow access to the classroom during teaching time as they felt that it reminded them of inspections done by the Education Department.
2. Teachers were suspicious of the motives of the project despite reassurances.
3. Many learners were withdrawn in the presence of the researcher in the classroom

6.5 CONCLUSIONS

The teachers in the schools in Tembisa/Kempton Park used in the sample, showed a tendency to cater mostly for the Auditory, Field Independent thinker in the classroom, placing learners who use other modes of thinking and learning at a distinct disadvantage.

Disadvantaged learners in the schools mentioned above, preferred a more socially orientated, co-operative approach to thinking and learning, which is not compatible with the more competitive, individual approach expected in the South African school environment.

6.6 FINAL REMARKS

Disadvantaged learners taken from a sample of schools in Tembisa/Kempton Park, seemed to be predisposed towards a more visual and kinaesthetic sensory processing and Field Dependent cognitive approach. They generally struggled with and were less inclined towards the Abstract Sequential mode of thinking. Little attention was paid to cognitive distancing among educators, resulting in a rather shaky foundation on which to attempt to base new information. Teachers would need to establish the extent of cognitive distancing and then concentrate on closing the gap between the knowledge the learner comes to school with, and that which the learner is expected to know before new information is introduced. A lack of critical, creative and intuitive thinking ability among the disadvantaged learners in the sample was evident.

Not enough emphasis is placed on the development of higher order thinking skills among disadvantaged learners as the focus of education seems to centre around the dissemination of information for its own sake rather than as a means to the end of teaching learners critical and creative thinking and problem solving skills. Educators in the sample of schools involved in this study need to direct attention to teaching learners to reflect on and apply knowledge to creatively solve everyday problems. Rather than be concerned with information for its own sake, educators need to prepare learners to cope with the reality of their lives.

Appendix 1 - Learner Questionnaire

Dear Learner

I am presently engaged in a study to find out how learners understand their schoolwork and how they learn.

You could provide valuable information concerning why some learners battle to understand their schoolwork while others do not, by completing this questionnaire.

It should take only a few minutes of your time and your co-operation would be greatly appreciated.
Thank you.

It would be appreciated if you could consider the following before you start:

1. There are ***definitely* NO** right or wrong answers.

2. Please respond to **ALL** statements by entering the relevant code number, which is next to the statement you have selected, in the block provided.

3. The information obtained from this questionnaire **will remain confidential** as you remain anonymous.

4. Please ask if you do not understand a question.

THINKING AND LEARNING STYLES QUESTIONNAIRE

Part one

Answer the following questions regarding yourself by filling in the number next to the statement, which you have selected, in the block provided. It would be appreciated if teachers could assist younger learners to complete the questionnaire.

1	Boy Girl		1 2	C1
2	Age	Under 9 9 - 12 13 - 19 Over 19	1 2 3 4	C2
3	Grade	Grades 1 - 3 Grades 4 - 6 Grades 7 - 9 Grades10 - 12	1 2 3 4	C3
4	Number of years in Grade	1 2 3 4	1 2 3 4	C4
5	Home Language	English Zulu Xhosa Afrikaans N/S Sotho Tswana Other (specify:_____)	1 2 3 4 5 6 7	C5
6	Language spoken in the classroom	English Zulu Xhosa Afrikaans N/S Sotho Tswana Other (specify:_____)	1 2 3 4 5 6 7	C6
7	Average % which you mostly achieve for tests and exams			C7 C8
8	Father's Occupation	Artisan (skilled worker) Clerical/Secretarial Business Management Professional Technical Self-employed Unemployed Father-absent home Gardener/handyman Other (specify:_____)	01 02 03 04 05 06 07 08 09 10	C9 C10

	Mother's Occupation	Artisan (skilled worker) Clerical/Secretarial Business Management Professional Self Employed Homemaker/housewife Unemployed Domestic worker Mother-absent home Other (specify_____)	01 02 03 04 05 06 07 08 09 10	 ☐☐ C11 C12
10	Which group of subjects do you most prefer? Write 1 in the block if you prefer group A and 2 if you prefer group B	**Group A:** Mathematics Science Computer Science Biology Economic sciences **Group B:** Business Studies Typing Art History Geography Languages Bible Studies Home Economics	1 2 	 ☐ C13
11	What I most like to do during my spare time	Reading Playing musical instrument Listening to music Composing music Playing/watching sport Playing computer games Watching television Playing outside in the garden Visiting/talking to my friends Going to the movies/plays Draw/paint pictures Repair broken things Making/building new things Other (specify_____)	01 02 03 04 05 06 07 08 09 10 11 12 13 14	 ☐☐ C14C15

12	Do you have your own bedroom?	Yes No	1 2	C16
13	Do you have a television at home?	Yes No	1 2	C17
14	Do you have a radio at home?	Yes No	1 2	C18
15	Do you have electricity at home?	Yes No	1 2	C19
16	Do you have taps and running water in your house?	Yes No	1 2	C20
17	How many meals do you eat per day?	one two three Other (specify_____)	1 2 3 4	C21
18	Who helps you with your homework?	Dad Mom Brother Sister Uncle/Aunt Friend Grandfather/Grandmother No one Other (specify_____)	1 2 3 4 5 6 7 8 9	C22
19	How many times have you changed schools since grade one?	once twice More than twice (specify number of times(_____) Still at the same school	1 2 3 4	C23
20	How do you get to school?	I am brought to school by car I am brought to school by taxi or bus I am brought to school by train I ride bicycle, motorbike, or drive a car I walk to school	1 2 3 4 5	C24
21	How I feel about school	I like school I don't like school	1 2	C25

COGNITIVE AND LEARNING STYLES QUESTIONNAIRE

Part two

Write the number which appears next to the statement which describes you most of the time, in the block provided. Answer as honestly as you can. There are no right or wrong answers. Your answers will remain confidential.

22	I understand new work best when:		
	I can listen to the teacher explaining	1	
	The teacher uses pictures, diagrams and charts to explain new work	2	
	I practise the new work myself	3	C26
23	I prefer to listen to the radio	1	
	I prefer to read a book	2	
	I prefer to play sport	3	C27
24	I like to follow spoken instructions	1	
	I like to follow written instructions	2	
	I like to try something new by copying someone while doing it myself	3	C28
25	I like to sit still while I listen to my teacher	1	
	I like to draw pictures while I listen to the teacher	2	
	I like to tap my pencil or fingers on the table while I listen to the teacher	3	C29
26	I remember the work best when I say the work over and over	1	
	I remember the work best when I write things down or draw pictures and diagrams	2	
	I remember best if I can touch things I'm learning about	3	C30
27	My best ideas come to me when I'm listening to other people		
	My best ideas come to me when I'm watching other people	1	
	My best ideas come to me when I'm busy with some physical activity, e.g. out walking	2 3	C31
28	I can easily follow what my teacher is saying even when I'm staring out of the window and not looking at him or her	1	
	It helps me to look at the teacher when he or she is explaining something	2	
	I understand better when I can move around in the classroom	3	C32
29	I often hear my teacher's voice in my head long after he/she has finished talking	1	
	I often see pictures in my head when I close my eyes	2	
	I use my fingers to count and my lips when I read	3	C33
30	I like listening to music or people talking	1	
	I prefer reading	2	
	I like working with my hands	3	C34

31	I like to work alone I like to work in a group	1 2	C35
32	I easily find my way around new places I get lost easily when I'm in a new place	1 2	C36
33	I like sitting alone and thinking about things I like talking and discussing things	1 2	C37
34	I pay a lot of attention to detail in all I do I don't like detail; I prefer seeing the whole picture	1 2 2	C38
35	I prefer to work through problems myself, rather than asking for help I prefer to discuss new problems with other people	1 2	C39
36	I often look for patterns and connections in things around me It doesn't matter to me if things are a bit mixed up	1 2	C40
37	I can concentrate on one thing for a long time without thinking of other things I find it difficult to concentrate one one thing for a long time	1 2	C41
38	I like things to be organised I like things to be unplanned and to make things up as I go along	1 2	C42
39	I like tasks which give me step by step instructions I like tasks that let me do things my own way	1 2	C43
40	I like to finish one task before starting another It is not important to me to finish one task before I start another	1 2	C44

41	I prefer puzzles, crosswords and logical problems I prefer social activities	1 2	C45
42	I can concentrate even if there is a lot of noise in the room I need a quiet room if I want to be able to concentrate properly	1 2	C46
43	When starting a new task, I like to read to find more information When starting a new task, I like to discuss ideas with my classmates	1 2	C47
44	I like to do tasks in ways that have been successful in the past I like tasks that allow me to try new ways of doing things	1 2	C48
45	I would rather accept a smaller reward straight after finishing my work than wait for a bigger one later I would rather wait for a bigger reward even if it comes much later	1 2	C49
46	I give the wrong answer when the teacher asks a question because I answer straight away I mostly give the right answer when the teacher asks a question because I first think about the answer	1 2	C50
47	I usually leave difficult problems and go on to something else because I don't have patience I try to find my way around problems even if it takes a long time	1 2	C51
48	I don't read through my work once I've finished it I read through my work when I've finished it to check that everything is correct	1 2	C52
49	I find it difficult to concentrate on one thing for a long time. I can concentrate on one thing for a long time without thinking of other things	1 2	C53
50	I often speak before thinking about it I usually think about what I want to say, before I speak	1 2	C54
51	I'm usually the first in class to finish a task I usually take time to finish a task	1 2	C55
52	I always hand in my completed work on time I often forget to finish my work	1 2	C56

53	I think other people see me as lazy, dumb and slow	1	
	I think other people see me as strong-willed, independent and clever	2	C57
54	I care what other people think of me	1	
	I don't care about what other people think of me	2	C58
55	If someone asks me to do something I don't want to do, I say 'yes' because I'm afraid to say 'no'	1	
	If someone asks me to do something I don't want to do, I'm not afraid to say 'no'	2	C59
56	When I don't understand something my teacher is explaining, I am afraid to ask her to explain again	1	
	When I don't understand something my teacher is explaining, I'm not afraid to ask her to explain again	2	C60
57	People often ask me to speak more loudly in order to be heard		
	Yes	1	
	No	2	C61
58	I often feel so angry, I want to scream, because I am too afraid to say how angry I am		
	Yes	1	
	No	2	C62
59	I don't like following instructions and rules	1	
	I think following rules/instructions is important	2	C63
60	Most school rules are a waste of time	1	
	I think it is important to obey all school rules	2	C64
61	I'm often late for school	1	
	I'm usually on time for school	2	C65
62	My teachers/parents/guardians often have to remind me to finish my work	1	
	I never leave my work unfinished	2	C66

Appendix 2 - Teacher Questionnaire

Dear Teacher

I am currently engaged in a study to establish the modes of thinking and learning of disadvantaged learners.

You could provide valuable information with regard to research on this subject. Your co-operation in completing the questionnaire would be greatly appreciated.

THANK YOU KINDLY

It would be appreciated if you could consider the following before you start:

1. There are no right or wrong answers.

2. Please respond to **ALL** statements by entering the relevant code in the block next to the statement.

3. The information obtained from this investigation **will remain confidential** and will be used for research purposes only.

4. The researcher will collect questionnaires a week from the date of distribution.

5. Name and address of questionnaire compiler:

Mrs C. Rosa
P.O.Box 8824
Edenglen 1613
Tel/fax (011) 974 3883

QUESTIONNAIRE TO TEACHERS

Section A: Resources and teaching environment

Supply the following particulars by filling in the number next to the statement which you have selected, in the block provided. This questionnaire is for research purposes only. Your responses will remainconfidential.

1	Male		1	
	Female		2	☐ C1
2	Highest Qualification	Std. 8 + Teachers Certificate	1	
		3 year Teachers Diploma	2	
		4 year Teachers Diploma	3	
		Degree and Diploma	4	
		Honours Degree	5	
		Masters Degree	6	
		Doctorate	7	☐
		Other (specify_____)	8	C2
3	Language medium of tuition at the school where you teach	Zulu	1	
		Xhosa	2	
		English	3	
		Sotho (N/S)	4	
		Afrikaans	5	
		Tswana	6	☐
		Other (specify_____)	7	C3
4	Teacher's preferred language in the classroom	Zulu	1	
		Xhosa	2	
		English	3	
		Sotho (N/S)	4	
		Afrikaans	5	
		Tswana	6	☐
		Other (specify_____)	7	C4
5	The language with which the learners would be most comfortable in the classroom	Zulu	1	
		Xhosa	2	
		English	3	
		Tswana	4	
		Afrikaans	5	
		Tswana	6	☐
		Other (specify_____)	7	C5
6	Most frequently used teaching method in your classroom	Lecturing	1	
		Group work	2	
		Games	3	
		Quizzes	4	
		Debates/discussions	5	
		Student Projects	6	
		Research done by students	7	☐
		Other (specify_____)	8	C6

7	Least used teaching method in your classroom	Lecturing Group work Games Quizzes Debates/discussions Student projects Research done by students Other (specify_____)	1 2 3 4 5 6 7 8	C7
8	Your most preferred teaching aid	Textbooks Newspapers/magazines Overhead projector Slide projector Television/Video combination CD Player/tape recorder Radio Chalkboard Library Other (specify_____)	01 02 03 04 05 06 07 08 09 10	C8 C9
9	Based on your answer to question 8, why is it your most preferred teaching aid?	Most effective Most enjoyable Most available Easiest to work with Other (specify_____)	1 2 3 4 5	C10
10	Your least preferred teaching aid	Textbooks Newspapers/magazines Overhead projector Slide projector Television/Video combination C.D. Player/tape recorder Radio Chalkboard Library Other (specify_____)	01 02 03 04 05 06 07 08 09 10	C11 C12
11	Based on your answer to question 10, why is it your least preferred teaching aid?	Difficult to control Too noisy Learners reluctant to participate Not available Too expensive Other (specify_____)	1 2 3 4 5 6	C13

Section B

Classroom activities and learner involvement

On a scale from 1 to 10, evaluate the following statements according to your classroom situation

Your responses will remain confidential.

	During the lessons, the learners are allowed to:	
12	answer questions	C14
13	ask questions	C15
14	do individual activities in silence	C16
15	participate in a class debate	C17
16	freely move from group to group	C18
17	question the lesson content	C19
18	work in a way not requested by me	C20
19	digress from the task to something associated with it	C21
20	make suggestions about which tasks/projects to do	C22
21	get into free/spontaneous discussion about the lesson content	C23
22	work in groups decided by me	C24

SECTION B continued

On a scale from 1 to 10, please evaluate the following statements according to your classroom situation.

1 = Totally disagree 10 = Totally agree

	During the lesson, the learners are allowed to:	
23	interrupt me while I am explaining a concept, so that I should clarify something	C25
24	get into a heated debate with one another about an aspect of the lesson	C26
25	disagree with me about aspects of the lesson content	C27
26	move around in the classroom during group work	C28
27	decide on the method of working they wish to use to complete a homework task e.g. writing, drawing etc	C29
28	criticise my interpretation of the lesson content	C30
29	select learning material they regard as relevant to them	C31
30	talk in the classroom about the task, while doing individual tasks	C32

TEACHING METHODS

Please evaluate the statements on a scale of 1 to 10 and place the number you have chosen, in the block provided.

1 = totally disagree. 10 = totally agree

31	Repetitive activities should be included as a part of teaching in the classroom	C33
32	Group work is an important method of teaching and all teaching should include it where possible	C34
33	All teaching should include activities which encourage reading and listening	C35
34	All teaching methods encourage problem solving, original or imaginative work	C36
35	More than one teaching method can be used during a lesson	C37
36	Teaching methods do not influence the way learners assimilate information	C38
37	It is important for teaching methods to allow for frequent teacher interaction with individual learners during a lesson	C39
38	The use of a lot of visual aids, e.g. pictures wall charts and mind maps during a lesson does not improve the learner's ability to understand new material	C40
39	It is important to keep to a strict routine during lessons	C41

OBSTACLES TO LEARNER ACHIEVEMENT

Please evaluate the statements on a scale of 1 to 10 and place the number you have chosen, in the block provided.

1 = totally disagree. 10 = totally agree

40	I am able to give individual attention to learners with learning difficulties, in my classroom setting	C42
41	Learners from disadvantaged backgrounds generally do worse than other learners	C43
42	It is necessary for teachers to rely on psychometric tests to assess learners' intellectual ability	C44
43	The poor language skills of disadvantaged learners hamper their ability to achieve	C45
44	Most of my learners do not have access to a technology-rich environment, i.e. computers, television, etc.	C46
45	Most of my learners do not attach meaning to the curriculum content	C47
46	The language of instruction inhibits understanding of curriculum content among my learners	C48
47	My classroom setting encourages achievement among my learners	C49
48	My learners generally do not identify with the subject matter, which negatively affects their motivation to achieve	C50
49	My learners generally have a poor self-image, which negatively affects their ability to achieve	C51

Appendix 3 - Observation of Classroom Activities.

Appendix One

OBSERVATION OF ACTIVITY IN THE CLASSROOM

1	Age group	6 - 8	1	
		9 - 12	2	
		13 - 15	3	
		Over 16	4	C1
2	Grade	Grade 1 - 3	1	
		Grade 4 - 6	2	
		Grades 7 - 9	3	
		Grades 10 - 12	4	C2
3	Number of learners in the classroom	Less than 20	1	
		Between 20 and 35	2	
		Between 35 and 50	3	
		More than 50	4	C3
4	Home language of the majority of learners in the classroom	English	1	
		Zulu	2	
		Xhosa	3	
		Afrikaans	4	
		N/S Sotho	5	
		Tswana	6	
		Other (specify:_____)	7	C4
5	Medium of instruction in the classroom	English	1	
		Zulu	2	
		Xhosa	3	
		Afrikaans	4	
		N/S Sotho	5	
		Tswana	6	
		Other (specify:_____)	7	C5
6	General socio-economic status of learners	Wealthy	1	
		Middle class	2	
		Working class	3	
		Poverty stricken	4	C6
7	Teaching aids used during the lesson	Textbooks	1	
		Newspapers/magazines	2	
		Overhead Projector	3	
		Slide Projector	4	
		Television/Video combination	5	
		C.D. Player/tape recorder	6	
		Radio	7	
		Student projects	8	
		chalkboard	9	
		Library	10	C7 C8
		Combination:_____	11	

8	Teaching method most frequently used	Lecturing Group work Games Quizzes Debates/discussions Projects Research done by students Combination:_____	1 2 3 4 5 6 7 8	 [ ] C9
9	Subject taught	Mathematics Science Business Studies Typing Art History Geography Computer Science Languages Bible Studies Biology Industrial Arts (wood/metalwork) Home Economics Life Skills/Vocational Guidance Physical Education Other (specify:_____)	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	 [ ][ ] C10 C11
10	Level of learner participation	Frequent Infrequent None	1 2 3	 [ ] C12
11	Frequency of correct responses	Frequent Generally Some Seldom	1 2 3 4	 [ ] C13
12	Opportunities for critical thinking	Frequent Some Seldom None	1 2 3 4	 [ ] C14
13	Opportunities for creative thinking	Frequent Some Seldom None	1 2 3 4	 [ ] C15

14	Types of learner responses	Critical thought evident Creative thought evident Intuitive thought evident Impulsive thinking evident	1 2 3 4	 ☐ C16
15	Level of Learner motivation	Very motivated Some motivation No motivation	1 2 3	 ☐ C17
16	Level of learner understanding of lesson content	Learners understand easily Learners have some difficulty understanding Learners are unable to understand	1 2 3	 ☐ C18
17	Learners able to carry out instructions	With ease With some difficulty With a great deal of difficulty Not at all	1 2 3 4	 ☐ C19
18	Frequency of learner request for assistance from the teacher	Frequently Seldom Never	1 2 3	 ☐ C20
19	Teacher expectations of learners	High Low None	1 2 3	 ☐ C21
20	Level of learners' self-confidence	Very good Average None	1 2 3	 ☐ C22
21	Level of noise in the classroom	Absolute silence Quiet discussion Rowdiness Disruptive	1 2 3 4	 ☐ C23
22	Learners' ability to concentrate	Consistent Inconsistent Lacking	1 2 3	 ☐ C24
23	Level of learners' self-discipline	High Inconsistent Lacking	1 2 3	 ☐ C25
24	Self-image of learners is generally:	Good Average Poor	1 2 3	 ☐ C26
25	Method of maintaining order in the classroom	Threats Shouting Humiliating learners Physical punishment Reprimand Lecture Moving around the classroom Other (specify_____)	1 2 3 4 5 6 7 8	 ☐ C27

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