THE THEORETICAL BACKGROUND OF THE COGNITIVE TEACHING STYLE MODEL TO BE USED IN THIS RESEARCH

2.1 Introduction

In this chapter I will first explore and document the main psychological theory which supports and underpins the cognitive teaching style I will be using in the research. Later I will deal with the two main learning theory categories viz. the neo-behaviourists and the cognitive group. After this discussion I will consider the classical approach to education and finally put forward the response in terms of teaching and learning methodology to these theories. In considering this response I will concentrate on those theorists whose contributions influenced the model significantly. I will also point out which aspects of their theories were specifically used to develop the model.

During my eight months of working closely with the Doxa Juniors in 2000 and the first month at Masupatsela school my experience with the street children taught me a number of lessons about them and what they respond to. It was obvious that the scars of past trauma were just beneath the surface and still raw. This could be seen when disputes arose. In times like these they responded vociferously and aggressively as individuals and as a group adopted a pack mentality immediately (Diary, 08:02:2002). The cynical distrust of adults caused by home and street encounters was still a reality and the missing years of academic depravation were revealed at every turn in the classroom.

Because the Doxa juniors' were exposed to seemingly loving but firm care and concern and security from Johannes, the "house father" for over a year, their outlook to life and learning was far more positive and optimistic than the other children at the school. This together with the fact that their basic needs of food, clothing and shelter were taken care of and their welfare was ostensibly championed transparently by "Madala" gave them a sparkle in their eye and a keenness in their endeavours in the classroom - characteristics which were often missing in the children from other shelters and elsewhere.

In analysing my beliefs and practices in the classroom I realised that they could be summarised as follows: I believed fiercely in the potential of the students, I was honest, fair, consistent and real with them, I desperately wanted them to be successful and I tried to understand the difficult

world from which they came and which was still very much with them in their memories. On top of this I showed an infectious enthusiasm for them. On reflection I realised that these were the qualities and the foundations of Carl Rogers' person-centred therapy and which my intuition told me would be vital if my teaching and the street children's learning, was to be successful.

2.2   Carl Rogers

2.2.1 Introduction

Rogers (1983) states strongly that one of the great tragedies of modern education is that only cognitive learning is regarded as important. It is the other side, the affective side of the teaching and learning coin, which deals with the self-concept, self-image, self-esteem, feelings, emotions, attitudes and motivation which, in his opinion, are just if not more important.

From the many experts who have written on the affective issues, I have chosen to limit my discussion to Carl Rogers. I have done this for three reasons. First, it was my reading of his book, *Freedom to learn* (1969) that profoundly affected and changed the way I related to the students in my class and influenced the kind of learning atmosphere I tried to establish in the classroom. Second, it is because the street children with whom I will be working have experienced in most cases such terrible trauma, bleak unhappiness, stark and often cruel reality in their home situation, on the streets, in the shelters and with the public in general that a special relationship needs to be nurtured and cultivated with them. A relationship, I believe, which is different from the authoritative and cold one that constitutes the reality of most mainstream classrooms. It will be essential to turn the distrust they have of adults gently into trust for those who have their interests at heart, their learned despair into new hope and their limited vision for themselves into realistic personal options. It will be necessary to repair and build step by slow step their fragmented and fragile self-esteem and their often deep sense of inferiority by providing an environment, atmosphere and a way of connecting with them which supports these aims. The person-centred approach and the crucial roles that the self-concept, empathy, congruence and positive regard, as advocated by Rogers, play in learning are therefore explored below. Third, a consensus at the Centre for Cognitive Development, chose aspects of Rogers's theory dealing with the self-concept and its educational applications to represent the affective side of learning and to influence the cognitive teaching style model.

Because most of what Rogers wrote about education is an application of his person-centred psychotherapy it is necessary to understand the basic concepts on which this theory rests.

2.2.2 The basic concepts of Rogers' person-centred therapy

In his book *Client-centred therapy* Rogers (1951) believes that the philosophical orientation of this therapy is one where the attitude of the counsellor or in the case of education the teacher, towards the worth and significance of the individual or student is extremely important. People and children are seen to have inherent value and dignity and this held belief needs to be projected with realness in the behaviour of the therapist or teacher. The teacher or counsellor believes that the individual has sufficient capacity to deal constructively with all aspects of his life. This belief in their inherent potential will be a difficult but crucial factor in dealing with street children in the classroom. Rogers believes that this philosophy and the accompanying respect for others can only be implemented if it is an integral part of the personality make-up of the therapist or teacher.

The central hypothesis therefore rests on the belief that people will grow if they are in a relationship where the person who helps, experiences and communicates a realness, caring**,** and an understanding that is deeply sensitive and non-judgmental. The underlying view of man's nature on which the hypothesis is based is that man has the tendency towards self-actualization. As Rogers (1959, p. 196) himself says self-actualization "is the inherent tendency of the organism to develop all its capacities in ways which serve to maintain or enhance the organism." It is my experience with the street children that they have come to the realization that education is one positive way to improve their situation. This awareness provides the motivation for them to forfeit the freedom of the streets for the long term perceived benefits of the classroom. This insight is strong, as can be expected, in children from the shelters because it is supported and encouraged there by the "house fathers"and school attendance is part of the policy of being accepted into the shelter. However it is probably even stronger and more admirable in those who live permanently on the street. It is these children who come to school out of their own volition and in spite of the extremely difficult and debilitating conditions in which they live.

As the child grows he comes into contact with significant others like his parents or teachers who impose conditions of worth onto him. He is told he is acceptable and lovable if he behaves in line with these standards. He then accepts and assimilates these conditions into his self-concept.

Rogers (1959) maintains that the individual values an experience according to these imposed conditions of worth and not because the experience enhances or fails to enhance himself. If this is true it has significant importance to street children who's early influence is often provided by significant others with very negative consequences.

Although restrictions are placed on his basic urges through the above conditioning the individual still experiences them intuitively. An incongruent situation then arises between the basic self-actualization forces he experiences and his capacity to act on them. The key question, as Meador (1984) states, that person-centred therapy tries to answer, is how can the individual reclaim his self-actualizing drives and acknowledge their wisdom.

Rogers maintains that if certain defined conditions are present the individual is able to permit the self-actualizing ability to prevail over the internalised restrictions that have been imposed by prerequisites of worth. These defined conditions are that the individual must perceive in the therapist or teacher relationship a genuineness or congruence, accurate empathetic understanding, and unconditional positive regard.

2.2.2.1 Genuineness or congruence

Meador (1984) defines this as the ability of the teacher or therapist to be aware of what he is experiencing inside and to let this experience of what he thinks and feels to be transparent in the relationship with the student or client. The teacher needs to walk his talk and not merely act out a role. He follows his own feelings and makes them open. Phares (1991) sees therapists and teachers as being congruent if they express the behaviour, feelings, or attitudes that the students or clients stimulate in them. In short the teacher and therapist is himself.

2.2.2.2 Empathetic understanding

This is an attempt by the teacher or therapist through his own being to project himself into the world of the student or client in an attempt to experience their feelings and emotions within himself. Using his own feelings as reference points he tries to experience the emotions and his response to those emotions, of the student or client. The teacher communicates empathetic understanding by showing interest in and commitment to the student and by transmitting a sense to the student that he and his plight, are understood. Working with the street children was real

challenge for me because their life experiences and their realities are and were very different to mine.

2.2.2.3 Unconditional positive regard

Rogers (1951) sees this as a non-possessive caring or acceptance by the teacher of his students' individuality. All individuals have a need for positive regard. In most relationships students have learned that to receive approval and acceptance certain stipulations and conditions have to be met. With Rogers this is not so. Acceptance is given without hidden agendas. In its basic form unconditional positive regard is nothing more than an unreserved respect and liking for the student as a human being. The crux is that the teacher must believe and have faith in the students ability to achieve his inner potential. The difficult part is that this needs to be achieved without evaluative judgements. With street children this aspect will be of specific importance to the teacher because it is often the case that they bring to the classroom unattractive, disruptive and difficult aspects of their trauma, past experiences and deprivation.

2.2.2.4 The self- concept

According to Rogers (1983) the self-concept is concerned with the "picture" an individual has of himself and the value that he attaches to himself. It refers to how a person perceives and judges himself in the areas of appearance, abilities, talents, competence and relations with others as well as the self he would like to be - the ideal self.

The development of the self-concept is facilitated by two processes. First it evolves out of the subjective perception of the individual's experiences in the world. The individual evaluates these events which can be both social and physical and attaches a personal meaning to them. Second, through social interaction and communication with significant others their self-concept grows and changes.

Rogers (1983) believes that there are a further two key factors in the development of the self-concept. The first is unconditional positive regard. By this, as I have mentioned, is meant acceptance of the child for what and how he is. Children are not measured against others either in terms of their talents or achievements. Rogers sees this ideal as unobtainable and so most situations result in children only feeling worthy when they have met certain conditions laid down

by significant others such as teachers. Rogers calls this conditional positive regard. The aim for teachers is to attempt to provide unconditional positive regard for the learners.

If positive regard from others is essential for healthy development of the self-concept, then the social environment in the form of parents, siblings, extended family, friends and teachers plays a crucial role. It is in these particular areas of significant others that street children have suffered their most debilitating depravation. They often come across as being confident, loud, in your face and their behaviour as having no borders. Williams (1993) calls this precocious demeanor and seemingly self- assuredness "assumed adulthood". He maintains that it comes as a result of a society rejecting and ostracizing them and from the harsh and demanding circumstances that life, home and the street has foisted on them. Necessity and survival have forced them to be old when they are still young. Their brashness and audacity can in many cases lead mistakenly to the assumption that they have healthy self-concepts. However as Williams (1993) believes this premature adulthood which has been assumed can also mask aspects of latent childhood and a weak self-concept. This adopted adult status has direct implications with regard to the relationship between the teacher and learner. As Fabio Dallape (1987, p. 82) from Kenya says:

> "The teachers must be aware that their learners are mature youth, almost responsible adults. They are independent persons, taking care of themselves. The learners would never accept to remain in a primary school situation where the relationship between teachers is a relationship between adults and children. "

Because most children in mainstream society and now these street children at Masupatsela spend such a significant part of their time in the presence of teachers, it becomes evident just how important a role teachers play in the development of the child's self-concept and therefore their ability to learn successfully. Understanding their behaviour and the reasons for it therefore became extremely important for me as the teacher.

2.2.2.5 The influence of the self-concept on behaviour
Rogers (1983) believes that it is predominantly the self-concept that directs, regulates and integrates behaviour. Children will behave according to the image they have of themselves. If they receive messages of incompetency and believe them, they will act in an incompetent way

and visa versa. A sound self-concept will therefore predispose a child to act with confidence in the classroom, participate with assurance, risk without fear and in so doing derive the maximum benefit from schooling. It is therefore vital for teachers to work extremely hard at developing positive and healthy self-concepts in children. How much more effort will be needed with children who have come from homes where they have been traumatized and later where they have been abused by the harsh cruelty of the street?

2.2.3 What students want from school

In his book *Freedom to learn* Rogers (Rogers & Freiberg, 1994) interviewed a number of mainstream students and asked them what they wanted from school. The responses that he received showed how closely their wishes were to the ideas he had developed for education. I see no reason why street children should not want exactly the same for themselves.

- Students wanted to be trusted and respected.
- Students wanted to be part of a family.
- Students want teachers to be helpers.
- Students want opportunities to be responsible.
- Students want freedom, not licence.
- Students want a place where people care.
- Students want teachers who help them succeed, not fail.
- Students want to have choices.

2.2.4 Contributions of Rogers to the cognitive teaching style model

Rogers's contribution to the model is significant in that it emphasises the crucial part that the affective factors play in successful learning and therefore the important role a relaxed, supportive and caring environment plays in the classroom. The following are specific aspects of his client centred theory which have influenced the cognitive teaching style model:

- A positive self-concept in children is vital for successful learning. Children need to know who they are, how they relate to others and who they would like to be.
- Children will perform at school if they believe that they have the ability to do the things required of them.
- Much of the development of children's self-concept occurs through the positive self-regard and approval they receive from others. Seeing that students spend up to 1200

hours a year at school, peers and especially teachers play a significant part in the development of pupils' self-concept.

- Positive self-affirmation through successful classroom experiences is therefore needed to build the child's self-concept. Teachers need to make sure these experiences happen on a regular basis.

- The teacher needs to provide the students with accurate and honest affirmation which is congruent with their potential. This happens through appropriate and honest praise and a classroom atmosphere which is warm and accepting.

- Rogers (1983) says that the primary task of the teacher is to let students learn.

- To facilitate learning teachers need to be themselves, be genuine and communicate their feelings if appropriate. Rogers (1983) labels this attitude realness in the facilitator.

- The teacher needs to respect and trust children and see them as good and inwardly motivated. This attribute Rogers (1983) terms prizing, acceptance and trust.

- Another valuable attitude for teachers to have is the ability to put themselves into the position of the learner and so be sensitive to and understand, what the student is experiencing from a child's point of view. Rogers (1983) calls this quality empathetic understanding.

2.2.5 Research findings regarding the client centred approach in schools

In his book *Freedom to learn for the 80's* by Carl Rogers (1983) David Aspey, Flora Roebuck, Reinhard Tausch and Anne-Marie Tausch report on some very large and exhaustive research studies carried out into student centred education. Aspey and Roebuck provide evidence from The National Consortium for Humanizing Education (NCHE) initiative which conducted research into student centred education over a period of seventeen years in forty- two North American States and in seven countries. The findings of these investigations can be summarised in the following statement (Rogers, 1983, p 199):

"Students learn more and behave better when they receive high levels of understanding, and genuineness, than when they are given low levels of them."

In one study in this body of research involving 600 teachers and 10 000 students it was found that students who experienced high facilitative teachers were found to:

- miss fewer days of schooling during the year
- have increased scores on self-concept scores, indicating more positive self-regard and make greater improvement on academic achievement scores
- have fewer disciplinary problems
- commit fewer acts of vandalism
- be more spontaneous and use higher levels of thinking.

This research also found that in classrooms where teachers showed more empathy, were more congruent and were more respectful of their students there was (Rogers, 1983):

- more student talk and the asking of questions
- more student problem solving
- more responses to questions
- more involvement in learning
- more eye contact with the teacher
- greater creativity.

More disruptive behaviour occurred in classes with low levels of teacher empathy, congruence, respect, praising, accepting student ideas and asking for thinking (Rogers, 1983).

Some very important findings to come out of this research, in terms of street children, were those concerned with "educationally handicapped" students. It was found that these students who experienced teachers who displayed high levels of empathy, congruence and positive regard (Rogers, 1983):

- Missed fewer days of school during the year
- Maintained or increased their self-concept scores
- Made greater academic gains.

In fact, for students with learning difficulties, the teachers' level of interpersonal facilitation was the most important factor in student outcome gains.

These findings were corroborated by Reinhard and Anne-Marie Tausch (1980) in their studies in German schools over a period of ten years. The following summary captures their findings. It was found that in all of their school studies teachers who were empathetic, understanding,

genuine, warm, respectful and non-directive proved to facilitate significantly the intellectual contributions of the students, their spontaneity, their independence, their initiative, their positive feelings and their positive perceptions of the teacher.

2.3 Classification of modern learning theories

What teachers do in the classroom is based on what they believe about the way learners should be educated. Therefore, in order to understand educational practice one needs to understand the beliefs and theories which inform it. Bigge and Shermis (1992) divide modern learning theory into two major families. Firstly they mention the stimulus-response conditioning theories of the neo-behaviouristic family. The underlying behaviouristic assumption behind these theories is that individuals are passive and reactive. The second group of theories belong to the cognitive group. Here the cognitive-interactionist assumption is that people are interactive with their environments and do not merely passively accept them.

Underpinning the majority of educational practices in the Republic of South Africa before the advent of Outcomes Based Education and still in many areas at present, are learning theories from the neo-behaviouristic family or as they were more commonly labelled, Classical Educational Theory. Because of their prevalence throughout the country and the effect they have had on the students, it is necessary to look at a summary of these theories before discussing an alternative.

2.3.1   Classical theory of education

2.3.1.1 Introduction

Behind this theory lies the belief that knowledge consists of facts which can be verified objectively. Knowledge is therefore not constructed by the individual but lies outside in the world. The mind is homogeneous and is seen as a blank page - Locke's *tabula rasa*. Learning is regarded as the transfer of factual knowledge to the brain. This transfer takes place via the senses i.e. sight, hearing, touch, taste and smell, with sight and hearing dominating the process in school learning. These beliefs result in specific classroom practices and educational outcomes.

2.3.1.2 Classroom practices and outcomes for the students

Postman and Weingarter in Grossman (1986) believe that the effect of classical theory is that

pupils learn:

- Passive acceptance is more acceptable than active criticism.

- Discovering knowledge is beyond their power.

- Recall is the highest form of intellectual achievement and the collection of facts the goal of education.

- The voice of authority is to be trusted and valued more than independent judgement.

- Their own ideas and those of their classmates are inconsequential.

- There is always a single unambiguous right answer to a question.

- Subjects are independent of each other and certain subjects e.g. Mathematics and Science have more status than others such as Music and Art.

Grossman (1986) also mentions further classical theory implications for pupils and classroom organization. These are:

- The role of the pupil is mainly a passive one of listening and looking so that knowledge can be acquired predominantly through the ears and eyes.

- Learners therefore more often than not face the front, sit in straight rows, are required to be quiet, work individually, remain still and concentrate on the teacher.

2.3.1.3 Classroom practices and outcomes for the teacher

If verifiable factual knowledge is seen to lie outside the pupil then it must lie within the teacher or some other knowledge source such as books, films, tapes or computer discs. The expectation therefore often exists with students that teachers are all knowing and infallible, a position which teachers frequently find threatening and which often prevents them from opening and freeing up classroom discussion. The teacher is seen and expected to be in control of the learning process and is responsible for what the students learn, how they learn it and how fast they progress. As Bigge and Shermis (1992, p.34) put it:

> "Teachers were to be architects and builders of minds of children and youths; they were to develop a systematic instructional program centred on procedures designed to form proper habits in students. Teaching then became a matter of stimulating the senses as opposed to training the mental faculties."

Authority and power lie with the teacher. Education is therefore teacher centred.

2.3.2   The Centre's response to classical theory

It was in response to the ineffectual, limiting and constricting effects of this educational practice on the learners in our country, that we at the Centre started to investigate alternative approaches. Apart from the traditional theorists such as Piaget and Vygotsky, we began to consider more recent developments with regard to how students learn, how teaching styles should respond to these research findings and what the relationship between the teacher and the child should be to support them. Some examples of these recent developments include Costa's (1991, p. 7) idea of "the school as a home for the mind",   where processes such as knowledge production, metacognition, decision- making, creativity and problem-solving are the subject matter of instruction and content is selected because it contributes to these thinking processes. Perkins's (1986) knowledge as design, De Bono's (1970) lateral thinking and Marzano's (1992) classroom instruction called "Dimensions of Learning" which concentrates on authentic student learning, are further examples. In terms of the Republic of South Africa we have considered the work done by Skuy, Lomofsky, Fridjohn, and Green (1993) and Skuy, Mentis, Nkwe, Arnott and Hickson (1990) in the application of Feuerstein's Instrumental Enrichment   into disadvantaged communities. It must also be acknowledged that the essence of Outcomes Based Education and Curriculum 2005 has been a conscientious attempt to move away from the classical approach to learning towards a more student-centred ideal.

It must be mentioned at this point that the driving motivation behind our quest lay in the idea that learners who thought independently could be developed through the widespread application of different and more progressive educational practices. The model which emerged, and which I will deal with in chapter three, developed over a period of seven years and was an eclectic one in that it reflected the varied educational perspectives and experiences of those people who, over the years, had joined the Centre. This process is documented in the promotional booklet entitled, *Empowering learners through cognition: 10 years on,* brought out by the Centre in 1996.

We realised that thinking learners could be developed in two ways. Firstly, by consciously using a cognitive teaching style in the classroom, teachers could implicitly encourage the advancement of thinking. In other words by interacting with the pupils in a specific way and by providing the space and time for them to think independently and socially, teachers could, together with the learning of syllabus content, develop the pupils' ability to think. In short, teachers could teach

<u>for</u> thinking.

Secondly, thinking skills and strategies could be taught explicitly. These skills and strategies could be taught independently and then applied to classroom content and life in general as is done with Feuerstein's Instrumental Enrichment programme in schools in Israel or they could be developed through the subject content itself. Costa (1991) for example suggests that process should become content and problem-solving. Metacognition, decision-making, creativity and learning to learn should be taught through the medium of the content. Teaching cognitive skills explicitly we have labelled teaching <u>about</u> thinking.

The two approaches of using a cognitive teaching style and teaching thinking explicitly would then be practised simultaneously and would be seen to complement each other. However, over a period of time we developed the belief that the former should be in place before the latter can be done effectively. This thesis will limit itself to the first of these methods, viz. a cognitive teaching style which is designed to develop thinking learners implicitly through the type interaction in the classroom with the teacher and their peers.

Although it must have appeared as if the Centre's eclectic cognitive teaching style had emerged out of the substantial educational and practical experience of the staff, we also investigated in depth, its roots in educational theories. Through many workshops we established that the Centre's model drew on and was supported by a number of theories from the interactionist and cognitive family of theorists. Before outlining the model in chapter three it is necessary, therefore, to provide some insight into its theoretical roots and underpinnings. What follows is not an exhaustive exposition of the theorists' educational ideas but a personal selection of those facets which have played the most significant role in informing the teaching and learning model and which I believe can contribute positively to an education approach for the country and especially for street children.

The educational theorists which have informed the cognitive teaching style model most significantly have been:

• Jean Piaget

- Reuven Feuerstein
- Lev Vigotsky
- Jerome Bruner

2.3.2.1 Jean Piaget: The key concepts of his theory

A constructive view of learning

Piaget is seen as being the first of the theorists to move significantly away from the Classical theory of how children learn. Clarke-Stewart and Friedman (1987) write that for Piaget knowledge is not imposed on children from the outside but discovered and constructed internally by them as they mentally gather and organize information. This they do in an attempt to make sense of their world. It happens as they interact personally and actively with their world. The knowledge that is gained is not seen as static but rather as something which lives and grows dynamically within the minds of children as they investigate and manipulate their world. Knowledge is therefore constructed by the individual.

Schema

The initial exploration of the world is guided first by inherited primitive reflexes but later, as they develop, through more complex mental structures or representations of how things are and work. These structures Piaget called schema. For Naude and Bodibe (1988) these schema represent the cognitive framework through which children organize their experience and their perceptions of the environment.

Adaption and organization

Ginsburg and Opper (1979) maintain that Piaget believed that this active construction takes place as a result of two basic tendencies which children inherit, namely organization and adaption. Adaption is the inherited tendency of children to modify their schema to create a good match between their already acquired conception of reality and that of the environment. Organization involves the tendency of the child to integrate psychological structures into higher order systems. In other words it is the process whereby the child combines and integrates separate schema e.g. a baby combines the staring and reaching schema when taking a rattle from you.

Accommodation and assimilation

Clarke-Stewart and Friedman (1987) when describing Piaget's theory state that as the child interacts with the environment these schema expand and qualitative changes in them occur through the twin complimentary processes of accommodation and assimilation. Assimilation being an attempt by the child, to understand new information by incorporating it into his existing schema. New experiences which do not fit into existing schema result in the development of more apt structures. This process is called accommodation. Intelligence for Piaget is the ability of individuals to use their schema in this way to adapt to the environment.

Equilibrium as a function of assimilation and accommodation

Piaget sees the self-search for internal equilibrium as the driving force behind this exploration of the environment by the child. It is this self-regulatory attempt by the individual to harmonize himself with his environment that results in cognitive development and the acquisition of knowledge. According to Piaget, maturation and the active involvement of children in learning are two further factors which affect cognitive development.

The stages of development

Piaget sees the development of children as advancing through four progressive and fixed stages. Clarke-Stewart and Friedman (1987) summarise these stages as follows :

- Sensorimotor - birth to 2 years
- Pre-operational - 2 to 7 years
- Concrete operational - 7 to 11 years
- Formal operational - Over 11 years

Grossman (1986) is of the opinion that although children may move through these stages at different ages, the progression remains the same for all. What is also significant with regard to the stages is that each stage provides the child with qualitatively different knowledge. It is also possible for a child to operate in one stage for some kinds of knowledge while functioning in another of the stages for others.

Piaget's development theory represents a radical and significant move away from that of the Classical theorists and in doing so suggests far reaching implications for educational practice in general, and the Centre's cognitive teaching style in particular. I have realised that its basic tenets

have formed the platform on which I have developed my own approach to teaching as well.

Piaget's contributions to the cognitive teaching style model

If the above is Piaget's basic theory of how children develop what aspects of it underpinned our model? The following were the most important and were supported by the writings of a number of staff members (Grossman, 1986; Wouters, 1993; Rodseth, 1995b):

• Knowledge cannot be given to students. It is not waiting to be found but must be constructed actively by children from their mental and physical experiences with the environment. This constructivist paradigm needs to inform the teaching and learning style.

• Rote learning, therefore, needs to be de-emphasised in favour of deeper levels of understanding, meaning and sense.

• Children learn best from concrete experience especially during the concrete operational stage.

• Education needs to be substantially more child-centred with the teacher becoming the organizer of the learning environment and not, as in the past, the transmitter of knowledge.

• The power relations within the classroom need to shift away from the authoritative teacher based style to one where children are given more responsibility for their learning.

• More needs to be made of the natural curiosity of children.

• Grossman (1986) states that children should not be seen as homogeneous with regard to a set of schema developing within them. Consideration needs to be given to the uniqueness of each individual.

It was this belief that pupils construct their knowledge actively and cognitively as opposed to passively accepting it from other sources, which the Centre decided would underpin its cognitive teaching style model. In other words the model would be based within the constructivist paradigm.

Limitations in Piaget's development theory for the cognitive teaching style model

There were however, aspects within educational practice which Piaget's theory did not deal with adequately or in which certain limitations were evident.

- The role of language in learning is underestimated. It is seen as being merely the medium of expressing what has been learned and of reflecting the development stages the child has passed through. Language is not seen as playing an integral part in the construction of knowledge. Piaget sees self-talk or egocentric monologues as just a display of an immature, self-centred stage of development (Rodseth, 1995b).

- Because Piaget sees the learner as the creator of his own knowledge operating best when working alone and actively solving problems in the world, he plays down the role of the teacher. The teacher becomes more the organiser of the child's learning environment and mediated instruction therefore does not play an important role in development (Rodseth, 1995b).

- Piaget's theory discounts the social and cultural aspects of learning. The acquiring of knowledge is seen primarily as an individual concern. As Vygotsky (1978, p.36) says: "In our conception, the true development of thinking is not from the individual to the social, but from the social to the individual."

- Ginsburg and Opper (1979) are of the opinion that Piaget's detailed theories and his empirical investigations systematically ignore the emotional aspect of learning in favour of the structure of intellect.

To seek answers to these limitations and to address some of the real problems we at the Centre experienced during our in-service work with teachers, for instance the issue of multilingualism and large classroom numbers, we drew on the ideas of other theorists.

2.3.2.2 Reuven Feuerstein

During the early stage of the Centre's existence a number of its staff attended Reuven Feuerstein's international conferences on cognitive modifiability and Instrumental Enrichment in Israel. On our return we believed that elements of this theory could be adapted and used in our cognitive teaching style model.

Cognitive modifiability

Feuerstein, Hoffmann, Rand and Miller (1980, p. 9) define cognitive modifiability as "structural changes, or changes to the state of the organism, brought about by a deliberate programme of

intervention that will facilitate the generation of continuous growth by rendering the organism receptive and sensitive to internal and external sources of stimulation." In the school situation the organism is the student and the deliberate programme of intervention is what is done with the students in the classroom. The essential features of the process are the structural changes that occur in the minds of learners and which alter the course of their cognitive development.

According to Feuerstein et al (1980) changes in cognitive development occur in two forms. Firstly, cognitive development happens naturally as the pupil ages and matures, Secondly, as the learner interacts directly with and responds to his environment specific mental structures develop and change. These interactions with the environment can happen naturally and spontaneously or can be organised purposefully by others. It is during these intentional and purposeful programs of intervention that learners are made conscious and aware of and responsive and sensitive to internal and external stimuli. Feuerstein believes that it is during these times that cognitive modification or change occurs.

Feuerstein further contends that the cognitive development and performance of a child is linked directly to how successfully the knowledge, values and beliefs of the child's culture have been transmitted or mediated to him.

Mediated Learning Experience (MLE)
Feuerstein et al (1980) agrees with Piaget that direct exposure to environmental stimuli forms the most important source of the pupil's experience and therefore the development of cognitive structures.

However, he is of the opinion that learning from direct exposure to stimuli does not result in the child developing higher mental processes and ethical or moral norms. To this learning from direct exposure, Feuerstein adds learning which is experienced through mediation by parents, siblings, other adults or more able peers. These more experienced and more capable individuals he calls mediators. In this kind of interaction the mediator intentionally places himself between the learner and what needs to be learnt. He deliberately chooses, filters, orders and excludes information. In this way the mediator, guided by his intentions, culture and emotional investment, affects the pupil's cognitive structures, behaviour patterns and learning habits in a

conscious and deliberate way. Because of their life experience, mediators enrich the interaction by bringing additional aspects such as attitudes, values, goals and means which have been transmitted over generations, to the learning situation. The learning which is experienced in this way is referred to by Feuerstein as "Mediated Learning Experience" or MLE (Feuerstein et al, 1980, p. 16).

The aim of the acquisition of the attributes mentioned above, obtained through MLE, is to increase the ability of the child to become cognitively modified through further efficient use of direct exposure with the environment. This cycle is seen to lead to self-regulated cognitive growth. Therefore, it is the quality and quantity of MLE which individuals receive which determines differential cognitive development in them. A lack of MLE results in children being culturally deprived. This manifests itself in the absence or decreased modifiability of the pupil and therefore lowered cognitive growth.

Feuerstein (1972) states clearly that in his experience he had derived evidence for the positive cognitive modifiability of the low functioning disadvantaged adolescents using his strategies such as MLE. Although many of the children through improved general enrichment were able to improve their academic studies it was in areas of conceptual thinking that they remained deficient. MLE was able to help in these areas (Feuerstein, 1972). Mediated learning experiences are therefore seen to support and complement Piaget's direct exposure learning.

In terms of street children the lack of quality MLE received by them from significant others is one of the reasons why they may show signs of being culturally deprived and cognitively suppressed in the formal sense.

Characteristics of a mediated learning experience
Certain characteristics define an interaction between a child and a more competent person as being a mediated learning experience:
• The mediator must have a definite intention or intentions in engaging the learner in the learning experience.
• The interaction must transcend the immediate situation so that the learning can be applied in other places and instances.

- MLE must give meaning to the situation.
- MLE must develop a feeling of competence in the learner and regulate and control his behaviour (Feuerstein et al, 1980).

Feuerstein's contribution to the cognitive teaching style model

Feuerstein's theories bring a number of new dimensions to Piaget's constructivist paradigm and in this way have impacted on the model.

- His theory (1980) represents an active modification approach to cognitive development rather than a passive acceptance one. Its aim is to change individuals by helping them to adapt to their environments and not adapt the environments to the performance level of the individual. It is crucial therefore that teachers believe that the cognitive ability of their pupils is not fixed and static but can be modified positively through the use of intended, definite, interactive and dynamic classroom practices.

- Grossman (1986) is of the opinion that Feuerstein's theory represents a very positive and optimistic view of the individual's potential for education because, except for the most extreme incidents of genetic and organic pathology and impairment, individuals can be cognitively modified at all ages and stages. Teachers therefore need to develop a positive belief in the potential of all pupils to develop cognitively and in the case of this study street children.

- Unlike Piaget, in Feuerstein's theory the teacher plays a fundamental and important role in the learning and cognitive development of the child. It is through their intentions, the use of selected questions and the responses of the children to these questions, that the teacher leads children to construct their own knowledge. This provides the pupil with self-confidence and the cognitive schemata to develop further.

- One of the most crucial aspects for teaching captured in the mediated learning experience is the protraction of the pupil's thinking by the teacher through not providing absolute and complete answers immediately. By extending and stimulating the mediative interaction through further responses and questions, the child is pushed beyond immediate certainty which, if given, would prevent further thought.

- Teaching needs to be seen as holistic. Meaning and relevance of what is being learnt needs to be linked and transferred from the immediate situation to a wider perspective. A deeper understanding is obtained in this way and the knowledge then becomes relevant

and portable.

Feuerstein and Krasilowsky (1972) believed that interventional strategies using direct exposure to sources of stimuli as well as mediated learning experience could be successful in significantly cognitively modifying socio-culturally deprived adolescents. Feuerstein (1976) also reports how his programme of group adaption for immigrant adolescents in Israel showed how individuals within this group who were socially disadvantaged, presented behaviour problems and who were described as high risk, compared favourably with normal youth. Luther and Wylie (1990) reported how Feuerstein's programs helped significantly in the areas of mathematics, verbal and non-verbal abstract reasoning, self-esteem, oral expression, science and spelling when carried out with disadvantaged students in junior high and secondary schools.

I now turn to the Russian education theorists who extended Piaget's theory and who has influenced the Centre's cognitive teaching style model extensively.

2.3.2.3 Lev Vygotsky

Intellectual development and functioning

Increased interest in the relationship between constructivism and cognitive growth came with the discovery and appearance of Vygotsky's writings in the West. Like Piaget and Feuerstein, Vygotsky believed that active, direct environmental exposure was an important factor of cognitive enhancement and development of human knowledge. Learning should start with concrete activities and problem-solving. He called this interaction with the world internalised thought. However, where Piaget downplayed the role of language, arguing that it exerted no formative effects on the structure of thinking, Wood (1988) stresses that Vygotsky emphasised strongly the crucial role that social, cultural and therefore language played in intellectual functioning and the development of individuals.

Enculturation

Through signs and symbols such as language, literature, art, music and science, a society ensures that its values and beliefs are transmitted from generation to generation. The interactive process of social mediation using these symbols makes sure this happens. This process can take place in the home, between parents and children, or in the wider society like schools between children

and more capable adults and peers. It is through these general interactions that everyday concepts like "brother" and "toys" are developed.

The role of language in learning

Wood (1988) makes the point that unlike Piaget, Vygotsky placed language and communication at the very heart of personal and intellectual development. In Vygotsky's opinion, as mentioned in Wood (1988), early speech is not merely personal and egocentric in nature but rather has a social and communicative source and purpose. Initially it functions in a communicative capacity but later it is internalised into "inner speech" and verbal thinking. In this way it becomes a "tool" of thought which changes the way in which children learn, think, understand and regulate themselves. Muthukrishna (1993) captures this process succinctly when she says that external speech involves the turning of thoughts into words, inner speech involves the turning of words into thoughts. Through the actions of doing, reading, talking and writing in social settings, speech becomes what Vygotsky calls higher mental processes. These processes include the ability to plan, analyse, synthesise, organise and evaluate experiences. This provides the learner with the capacity to construct their own knowledge and to self-regulate their thinking. Wood (1988) states that, according to Vygotsky, language therefore does not merely mirror concepts already formed on a non-verbal level, but leads and structures the processes of thinking and the formation and understanding of concepts themselves. Pupils therefore need to talk and write about concepts for their own understanding.

It is in the context of language that black children and especially street children in South Africa have a distinct disadvantage. In virtually all situations street children who are at school receive their instruction in a second or third language - in most cases English. This is further exacerbated by the fact that the teachers who are providing the instruction, in many instances, are also using a second or third language. Listening, talking, reading and writing in a language other than the mother tongue poses severe restrictions on the learner with regard to understanding and cognition.

The role of instruction

If language and communication are crucial to social mediation and therefore personal and intellectual development, it follows that instruction and teaching are also of vital importance. As

mentioned before, this can occur in the natural social world of the child but it can also occur in educational situations like schools. Vygotsky claims that in these special environments such as schools, enculturation differs significantly from what happens in society in general. Moll (1993) in his book on Vygotsky, emphasises the importance of the social organization of instruction in the form of schooling and how it socialises the thinking of children in a special way. Rodseth (1995b) in his comments on Vygotsky, states that it is in these educational settings where scientific concepts, for example, force and magnetism, and the cognitive capacities such as the ability to generalise, abstract, compare, categorise, analyse and use metacognitive abilities, develop. This happens through doing, talking, reading and writing. The strength and value of scientific concepts, in Vygotsky's opinion, lies in the ability of the individual to use these concepts, which he or she gained through instruction, voluntarily. Moll (1993) agrees with Vygotsky's view that the location of learning in schools provides the type of cultural experiences where higher cognitive processes such as voluntary attention and logical memory are formed. As Muthukrishna (1993) states in her summary of Vygotsky's theory, the focus of instruction should be on the creation of a social environment which is mutually established and where children can learn.

Vygotsky's ideas on mediation

Mediated teaching in Vygotsky's terms therefore leads to cognitive growth. Commenting on Vygotsky, Wood (1988) remarks that cooperatively achieved success is at the root of learning and development. Thus, it is with instruction which is situated in many different contexts and mediated by more knowledgeable peers, siblings, parents, grandparents, friends and teachers, that the cultural transmission of knowledge is chiefly achieved. This transmission occurs in the form of dialogues between learner and mediator. These dialogues make use of intentional, inquiring and open questions, the creation of authentic tasks and the extension of the responses received from the pupils, and are mediated through the medium of language.

Rodseth (1995b) says that apart from people, Vygotsky also believes that other signs and symbols have the capacity to mediate strongly to learners. Good text, diagrams, pictures and more recently television programmes, films, and computer programmes can in themselves mediate strongly to learners or be used by teachers to do so.

The zone of proximal development and its relation to mediation and cognitive development

It is in this context of mediation by adults or more competent peers that Vygotsky's concept of the zone of proximal development becomes relevant and important. Vygotsky (1978, p. 86) defines this zone as:

> "The distance between the actual developmental 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."

This zone describes those functions which are in the process of maturation and are still immature and developing. It indicates the level of tasks or problems which pupils are willing to attempt, provided adequate adult or peer mediative assistance is received. It is therefore in this role as mediator that the teacher must play a crucial part in first encouraging pupils into this zone by using appropriately challenging material, and then assisting them to develop their emerging cognitive functions while engaged with the task in this zone.

Muthukrishna (1993) comments that Vygotsky believed that the intellectual skills that learners gain can be connected directly to the way in which they interact with others in novel problem-solving situations and challenging environments. The kind of assistance that they receive in these zones of proximal development will determine what is internalised, transformed and later applied autonomously to direct new problem solving behaviours.

In terms of schooling it is therefore important for teaching to be pitched at the zones of proximal development of the students so that emerging and rudimentary cognitive functions can be encouraged to develop.

Cognitive self-awareness

Central to Vygotsky's whole theory lies the concept of cognitive self-awareness, self-control and self-regulatory practices. The underlying aim of social mediation is therefore to develop within learners a metacognitive awareness and an increasing ability, through independent inner speech, to monitor, self-regulate, control and direct their own thinking and behaviour. This is done to

encourage and enable them to consciously understand and use their own improved cognition spontaneously. Moll (1993) mentions that it was the development of conscious awareness and the ability to control knowledge voluntarily, that Vygotsky thought of primarily as a product of instruction.

Vygotsky's contribution to the cognitive teaching style model

Vygotsky's theories on learning and cognition add new dimensions to the approach used in the cognitive teaching style described so far. These include:

- Vygotsky, along with both Piaget and Feuerstein, believed that learners are active constructors of their own knowledge as opposed to passive receivers of it.

- The role of language, both spoken and written, is critical in learning and in the development of thinking.

- Teachers play a crucial role in assisting the cognitive development of learners through their intentional mediative interactions and instruction using the cultural symbols of language, literature, music, art and science.

- Social interaction with peers within the classroom plays an important part in learning and cognitive development. In this context cooperative learning becomes relevant and important.

- Cognizance needs to be taken of the students' zones of proximal development so that questions, tasks, content and lessons are relevant and pitched at a level which will be challenging and extend, expand and ripen their emerging cognitive abilities.

- Metacognition in the form of self-awareness, self-regulatory activities and executive control processes, should play a significant role in teaching and learning.

2.3.2.4 Jerome Bruner

Bruner's theory is a theory for the classroom. It draws on several other theories including those of Piaget and Vygotsky but also on a keen observation of classroom practice. It can therefore be termed a descriptive theory of classroom instruction.

Bruner's theory of "coming to know"

Wood (1988) indicates a number of ways in which Bruner and Piaget's theories are in agreement. Firstly, learning should be set in action and problem-solving and secondly, that abstract thinking

should emerge or be distilled out of concrete actions. Both agreed that teaching which concentrated on the abstract manipulation of techniques such as the blind application of Physics formulae to standard problems or the mere memorization of text, led to superficial and meaningless understanding. What is required first is a deep understanding of the underlying principles through working with practical and concrete problems. However, Bruner departs from Piaget in maintaining that conceptual links between practical, concrete actions and more abstract layers of thinking can be made by learners before Piaget's specific developmental stage for this type of thinking has been reached. Bruner (1966) agrees that although there is a sequence of steps or stages of mental growth, these are not strictly linked to age.

Bruner (1966) suggests the following purposeful structure as an alternative view of "coming to know" what is experienced in the world. Firstly, we know things implicitly through action or doing. Although a person might "know" how to surf, finding the words, images, pictures or diagrams to convey this knowledge to others can be frustratingly difficult. This stage of knowing or representing knowledge Bruner calls the enactive stage. Piaget's idea of practical intelligence is a similar concept. Stage two of depicting knowledge or knowing occurs when we are able to summarise and organise our perceptions with the use of diagrams and pictures which, although they may include transformations, correspond very closely to what they represent. Being able to understand, interpret and construct a design drawing of a house would be an example of this kind of knowing. Bruner labelled this representation of knowledge iconic. Finally there is the symbolic stage where knowledge is known and can be represented within a symbol system such as words, written language or in mathematical code. Understanding and spontaneously representing the concept of the area of a rectangle as being $A = L \times B$ would capture this kind of knowing.

Although Bruner (1966) does see this sequence as being the optimum course for intellectual development, learners with sophisticated symbolic systems may circumvent the enactive and iconic stages. However if in this case the learner's symbolic system fails, he may not have the mental pictures of the other two systems to fall back on for support and therefore experience problems.

Bruner does not see formal reasoning as the final end to cognitive development. For him it is

only one of many ways in which individuals think maturely, creatively and adaptively when solving problems. Space and time therefore need to be made for the intuition, imagination and ingenuity of the learner and teachers need to react positively to novel responses and solutions proposed by pupils.

Mediation and instruction in the process of "coming to know"

In his summary of Bruner's approach to teaching, Wood (1988) stresses the importance that Bruner placed on the role that language, communication, and therefore especially instruction, plays in the development of understanding and knowledge. Although the processes behind intelligent, adaptive and sensible behaviour can be developed independently, they can effectively and efficiently be communicated and taught by more mature people. Therefore, if it is the aim to raise the pupil's thinking to a symbolic, rational and abstract level, instruction by more competent individuals can play a significant role. This is true whether the above aim is self-directed or guided by a more proficient person. Social interaction in the form of facilitation or mediation between the child, teacher and his peers serves this purpose at school. These concepts tie in with the theories of both Vygotsky and Feuerstein.

Bruner's concept of effective learning

Bruner sees effective learning as more than knowing the facts, formulae, procedures, standard solutions, tricks and algorithms of a subject. In his opinion successful learning occurs when learners comprehend the "ways of thinking" which characterise different disciplines. If Science is to be learnt then pupils need to get inside the subject of Science, take on the thinking of a scientist and practise what scientists do. The first type of learning produces impressive Science examination results the second creative scientists.

According to Bruner (1966) learning and problem-solving involve the search for alternatives and Wood (1988) in his comments on Bruner, adds to this the exploration of patterns, regularities, progressions and sequences for the purpose of transfer into other situations. Learning needs to be activated by curiosity of dissonance and ambiguity, maintained by expert guidance, and directed by the intentionality or goals of what is to be learned. It is the function of the mediating teacher to see that this happens in the classroom by providing structure and scaffolded assistance in the lessons.

Bruner's contribution to the cognitive teaching style model

Bruner's theory is useful as it combines the ideas of the previous theorists into a practical classroom approach. As mentioned before it is designed especially for the classroom. The following are elements of his work that I found useful when developing the cognitive teaching style model:

- Learning should take place through guided discovery and experience, and should occur as often as possible through the practical, representative and abstract stages. Lessons should have definite structure and help, initially in the form of scaffolding, should be provided.

- Education needs to be holistic and learning is an integrated experience and not a collection of unconnected detail and trivia memorised out of context for short-term examination purposes.

- Teachers should teach in an intellectually honest way and use appropriate behaviour and language for the specific discipline being taught. For example in the Science class the teacher should work as a scientist.

- Teachers should use the intrinsic curiosity of children by deliberately exciting it through dissonance, ambiguity, novelty and fun.

- Teaching should recognize the intuition, imagination, ingenuity, resourcefulness and flair of children and react with genuine interest and concern for the novel, original and unexpected responses they provide.

- Collaboration between both teacher and learners and between the pupils themselves, is an important factor in meaningful learning.

2.4 Conclusion

The cognitive teaching style model which follows in chapter three evolved over a period of eight years and was developed by the staff at the CCD. Its development was influenced simultaneously by two factors. Firstly, it was influenced by the expertise of those who joined the Centre and by the wide range of practical classroom observations experienced by the staff during this time. Secondly, it was moulded by a conscientious search for inspiration, ideas, support and justification in the research of educational theorists. This chapter provides the theoretical, educational roots and underpinnings for the model which follows in chapter three. To summarise: Rogers shows how important the affective aspect of learning is. Piaget provides the basic

constructivist paradigm and Feuerstein the importance of the teacher as a mediator and not transmitter of knowledge. Vygotsky, on the other hand, emphasises the important role that language plays in the construction of knowledge and also how important social learning is. Finally Bruner contributes the concepts of guided discovery and real integrated learning.

This is by no means an exhaustive list. Other facets of cognitive instruction such as the advancement of understanding through the "teaching of knowledge as design" as advocated by Perkins, (1986), De Bono's (1970) concept of lateral thinking and the pair problem solving ideas of Whimby and Lochhead (1985) have influenced the model to a lesser extent. It should also be noted that aspects of Classical Educational theory where appropriate have been retained. There is always a place for a stimulating lecture, an interesting story, a demonstration, explanation, for chanting and for memorization. It would be educationally unwise to throw the baby out with the bathwater. The truth lies in balance and the ability of the teacher to be sensitive to the occasion, to use the most appropriate methods to suit the situation and material to be learned and most important of all to connect with the students.

What follows in chapter three is an explanation of how the ideas of the theorists and the practical knowledge of the Centre's staff were welded into a cognitive teaching style model to be used in its programmes for the training of in-service teachers. It was aspects of this model that were used in this study when teaching street children in a school context.