CHAPTER 3

A MEDIATIONAL APPROACH TO COGNITIVE DEVELOPMENT

3.1 INTRODUCTION

In earlier years, the role of the educator was mainly that of a conveyor of knowledge where learners passively took in information and later on reproduced that exact information in the form of tests and examinations. Because of its ineffectiveness, in recent years this traditional role of the educator has changed (Fraser, 2006:1, Kozulin *et al.,* 2003:16). Piagetians and supporters of discovery learning wanted children to be more involved in their own learning. Educationalists argued that a child proved to be more than a passive recipient of information, but they were also concerned that independent exploration often leads to acquiring immature concepts and neglect of important school skills (Kozulin, 2003:16). The need for an alternative teaching and learning approach, which included concepts such as mediation, scaffolding, apprenticeship and organisation of learning activities, became evident (Kozulin, 2003:16).

In February 2000 the former Minister of Education, Professor Kader Asmal, documented the "Norms and Standards for Educators" as part of the National Education Policy Act (27/1996). This document details the competencies educators should be able to exhibit across a range of educator roles (Fraser, 2006:2). One of the seven roles of educators is that of a **mediator of learning**. Chapter Three will deal with the development of perspectives regarding mediation and how it was applied in this study, under the following headings:

- Definition of Mediated Learning Experience.
- The importance of Mediated Learning Experience for cognitive development.
- The competencies required of a mediator.
- The development of perspectives regarding mediation.
- Feuerstein's approach to Mediated Learning.

3.2 DEFINITION OF MEDIATED LEARNING EXPERIENCE (MLE)

Reuven Feuerstein's theory of Structural Cognitive Modifiability (*cf.* 3.6) and its applied systems demonstrate how the learning and adaptability of each individual may be considerably improved by producing structural changes in the brain, making the learner more modifiable, more able to learn and benefit from direct exposure to the environment and new experiences (Feuerstein *et al.*, 2010:25; Tzuriel & Shamir, 2010:49; Anon., 2008a; Fraser, 2006:9; Feuerstein & Feuerstein, 1991:3).

Feuerstein's theory and methodology are aimed at improving learning and teaching, increasing motivation and achievement, promoting inclusions and equality, improving behaviour and discipline and equipping learners to "learn how to learn and think". This methodology will enable learners to realise that their "failure" at school is not because of their inferiority or lack of intelligence, but due to inefficient thinking skills and strategies or lack of thorough planning (Anon., 2008a; Fraser, 2006:9; Feuerstein & Feuerstein, 1991:3).

During mediation a special quality of interaction or intervention between a learner and an experienced, active and intentioned person (the mediator) exists. The mediator selects and organises the world of stimuli for the learner and equips the learners with the cognitive processes to succeed in learning. The role of the mediator is different from that of a educator, as illustrated by Figure 3.1 and Figure 3.2 (adapted from Feuerstein *et al.*, 2010:28; Anon., 2008a; Fraser, 2006:9).

Figure 3.1: The role of the educator

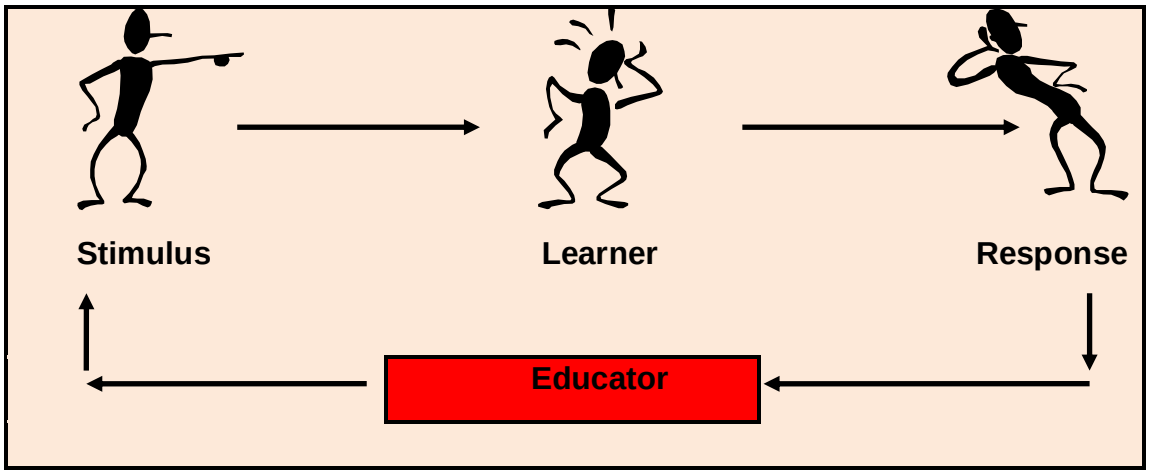
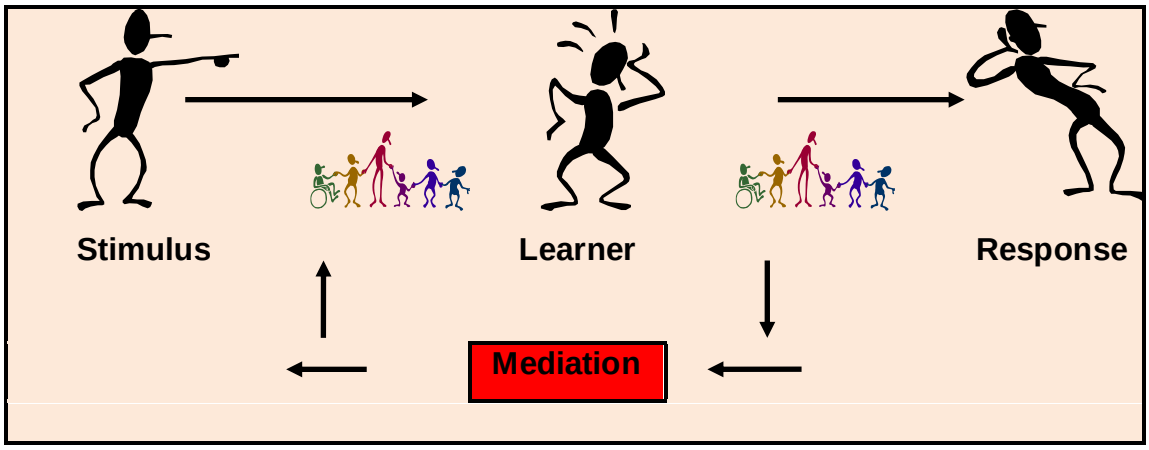


Figure 3.1 depicts the traditional educator as provider of a suitable stimulus, such as homework, test and assignment. The educator then observes the response of the learner to the stimulus. Based on the response, the educator interacts with the learner by means of criticism, praise, encouragement, grade or a new example. Either this process is continued until the educator or the learner is satisfied or time runs out. The educator creates his own selection of teaching methods, usually depending on the size of the class, the perceptible ability of the learners, as well as the subject matter (Anon., 2008a; Fraser, 2006:9).

During mediation the development of cognitive structures is more important than the content. ***How*** knowledge and skills are acquired is the focus in mediated learning, as illustrated in Figure 3.2.

Figure 3.2: The role of the mediator



In Feuerstein's theory of Mediated Learning Experience (MLE), Figure 3.1 is replaced by Figure 3.2 in which an affectionate human being intervenes in the process by placing himself between the learner and the stimulus and between the learner and the response as depicted in Figure 3.2.

The Mediated Learning Experience (MLE) theory is based on numerous assumptions, such as those indicated by Tzuriel (2001:24):

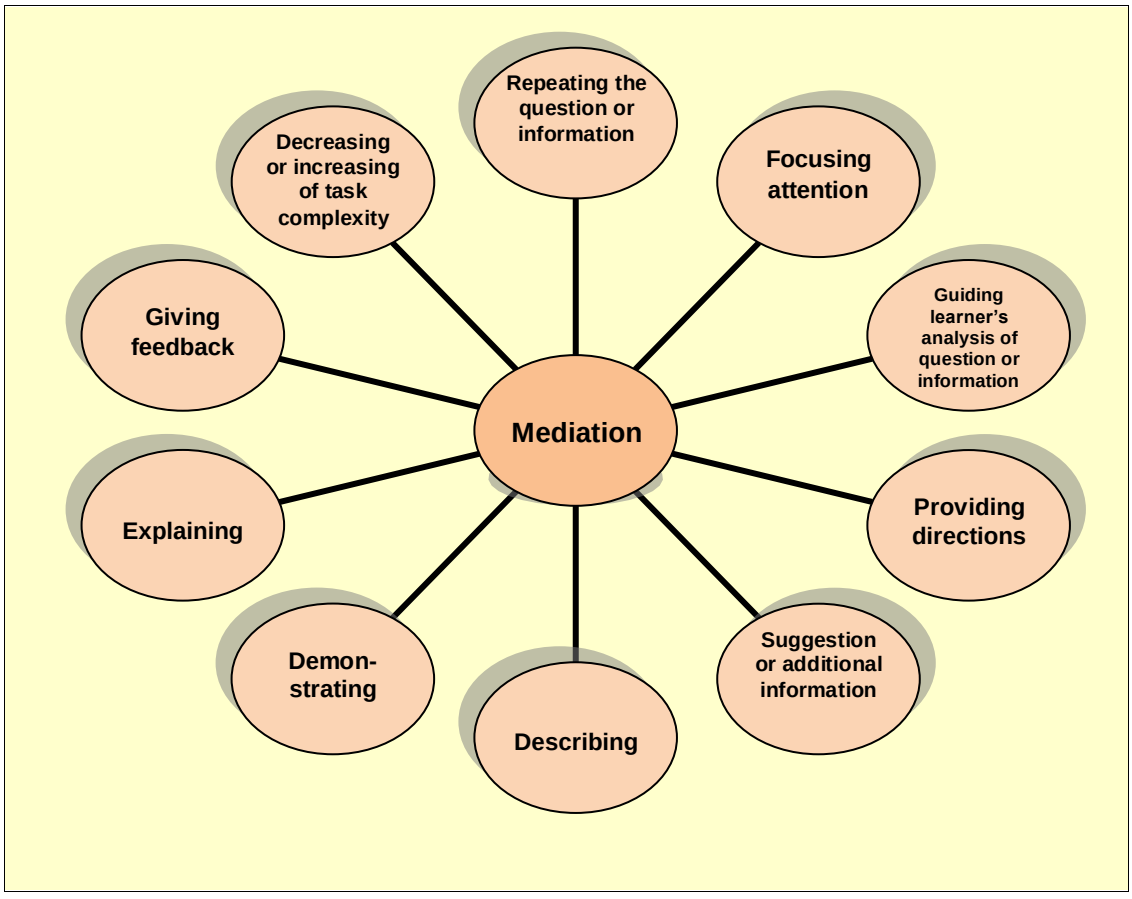
- human beings have a distinctive ability to modify their cognitive functioning and cognitive structures and the capacity to adapt to changing demands in the environment;

- cognitive modifiability is possible notwithstanding barriers of age, aetiology, culture and severity of condition; and
- MLE processes elucidate cognitive modifiability better than direct unmediated experiences.

According to my understanding, mediation is a teaching approach that focuses on **intentional intervention**, but not directing. Mediation will often "suggest", but not "tell". Cognitive mediation is about assisting a learner, through purposeful interactions, to construct a new level of understanding or meaning.

According to Fraser (2006:12), Lerner (2006:92), Donald *et al.* (2002:71,104,375), Tzuriel (2001:23) and Haywood (1994:27), mentors, educators, parents and peers can all act as mediators who help learners to progressively acquire social constructions of knowledge and meaning by means of mediation. Mediation can take the form of various actions, as illustrated in Figure 3.3 (Bouwer, 2008:55).

Figure 3.3: Forms of mediation



It is clear from Figure 3.3 that mediation takes place when the mediator **focuses** the learners' attention on the task, provides **direction** and **guides** the learners' analysis of questions or information. The mediator scaffolds learning by bringing **additional information** to mind, making use of **descriptions**, **demonstrations** and **explanations, repeating questions** or information, **decreasing or increasing** tasks and **giving feedback**.

According to Feuerstein (Feuerstein *et al*., 2010:32; Robinson & Lomofsky, 2010:39; De Beer & Gravett, 2010:79; Feuerstein *et al*., 2002:290-295; Meintjes, 2007:185; Pena *et al*., 2006:1038; Tzuriel, 2001:27; Kozulin & Presseisen, 1995:67-68; Haywood, 1994:27; Feuerstein & Feuerstein, 1991:11), mediation is an intentional effort to help learners organise and understand information in gradually more effective ways.

It is therefore clear from the preceding explanation that practising a mediational approach to teaching can fulfil an important role in optimising learners' cognitive development. The importance of mediation for cognitive development is deliberated in the following section.

3.3 THE IMPORTANCE OF MEDIATION FOR COGNITIVE DEVELOPMENT

According to Fraser (2006:9) and Tzuriel (2001:28-29) the mediator (or examiner) directs the learner to various aspects of a problem, creates associations with previously known concepts, connects past events to present experiences, emphasises efficient and inefficient behaviour patterns, gives feedback on the solution process and quality of the answer and encourages the learner to succeed during the mediation process.

By establishing **pre-required thinking behaviours**, the mediator ensures self-regulation, the possibility to apply rules; principles and strategies that could lead to more learner independence. Impulsivity is a universal characteristic of young learners in the age group five to seven years (Lerner, 2006:188; Tzuriel, 2001:28) and through a mediational teaching strategy, impulsivity can be decreased, as depicted in Figure 3.4.

According to my opinion, impulsivity can also be discouraged by enhancing the learner's **self-regulation** by emphasizing planned, comparative and evaluative behaviour, throughout the execution of learning tasks. The

mediator can **optimise reflective, insightful and analytic** behaviour in a learner by directing him to relate between his own thinking processes and the consequential cognitive performance. This can be done by presenting the learner with conflicts, contrasting information, intentional vagueness and absurd situations, which will cause a need to close the cognitive gap.

A mediator strives to **teach specific contents that are related to task-specific context** such as concepts, terms and relations for the learner in order to aid affective problem-solving. The importance of **feedback on success or failure in the learning process** between the mediator and the learner (and vice versa) cannot be emphasised enough (Tzuriel, 2001:29).

Mediated Learning does not depend on language, culture, contexts, or geographical location and its advantages are immense (Tzuriel, 2001:24-25). Not only are learners encouraged to **think systematically** and **objectively** about problem situations, but also a change in **thinking habits** is inevitable. MLE processes are **internalised** by the learner and gradually become an integrated mechanism of change within the learner. This, according to Tzuriel (2001:24-25), allows the learner to use the cognitive processes **independently**, to **benefit** from learning experiences and to **modify** his cognitive system.

Through mediation, learners' impulsive, emotional reactions are reinstated by logical, objective and more controlled responses (Feuerstein *et al*., 2007:18). Spontaneous correction of errors and reading of instructions will occur. There will be a definite decrease in trial and error response, dependency, impulsivity, physical aggression and absenteeism. An increase could be expected to occur in the need for precision, spontaneous use of vocabulary, concepts, learning aids, willingness to assist others and to accept help, curiosity, self-monitoring and reflection, active participation, tolerance, attention span, volunteering for extra tasks, engaging in higher order problems, control, social sensitivity, self-pride, enthusiasm, competence, self-image, quality of communication. Learners will be more prepared to assume responsibility, utilise cognitive functions and operations and immediately become involved in activities. Learners who experience a MLE classroom climate will exhibit a decrease in anxiety of failure and will be more able to develop strategies,

search for alternative answers (divergent thinking) and work in a more systematic and planned manner (Feuerstein *et al*., 2010:71; Feuerstein *et al*., 2007:18; Lomofsky, 2007).

In turn, a lack of MLE will:

- cause a lack of environmental opportunities for mediation;
- restrain the learner from benefiting from available mediational interactions;
- render learners unable to perceive significant meaning of learning experiences; and
- inhibit learners from applying rules and strategies to everyday situations (Tzuriel, 2001:25; Grosser, 1999:41).

In order to become a mediator of learning, educators have to be knowledgeable on the competencies required from a mediator. These competencies are briefly explored in the following section.

3.4 COMPETENCIES REQUIRED FROM A MEDIATOR

Competence in relation to a profession such as teaching can be defined as a person who holds the knowledge, skills and ability to perform the tasks and roles required, according to anticipated and conventional standards (Feuerstein *et al*., 2010:32; Fraser, 2006:2). The Norms and Standards for Educators specifically focus on applied competence, which exemplifies three integrated forms of competence, namely practical, foundational and reflexive competencies (Feuerstein *et al*., 2010:32; Fraser, 2006:3-5; Norms and Standards for Educators, 1996:1-78).

According to Grosser and De Waal (2008:45), Nieman and Monyai (2006a:2) and the Norms and Standards for Educators (1996), **practical competencies** in summary entail educators making informed decisions, utilising relevant teaching strategies to address learners' needs and disabilities while at the same time adjusting teaching strategies to the developmental phase of the learners and their learning styles. Critical and creative thinking in the classroom are encouraged, as well as learners' questioning regarding societal stereotypes.

Foundational competencies involve the educator's confidence in his knowledge of why he is doing what he is doing. In other words, the educator should realise the importance of language in a MLE classroom, understand the various learning styles and preferences in his classroom as well as be well informed regarding barriers to learning and the reasons why learners are not successful in the learning process (Grosser & De Waal, 2008:45; Nieman & Monyai, 2006a:3).

Reflexive competencies involve the educator's abilities to consider adjustments concerning accomplishing the learning objectives, justifying the learning mediation chosen, reflecting on the learning that takes place in the classroom, considering possibilities to overcome barriers to learning and reflecting on the ways in which to cope with critical issues, such as human rights (Grosser & De Waal, 2008: 45; Nieman & Monyai, 2006a:3; Norms & Standards for Educators, 1996:1-78).

What is important is that these competencies should be applied in an **integrated** manner where the mediator acts as a go-between or intermediary between two parties or individuals.

Apart from the aforementioned competencies, mediators should also instil in their learners effective communication, conflict and problem-solving skills, co-operative working ways and the exploration of alternatives (Feuerstein *et al*., 2010:32; Fraser, 2006:5). It is also important that learners should understand the nature, value and importance of the change taking place in their own learning. Therefore, the mediator of learning should play various roles, as summarised in Figure 3.4 (Feuerstein *et al.*, 2010:32; Fraser, 2006:13-20).

Figure 3.4: Roles of the mediator

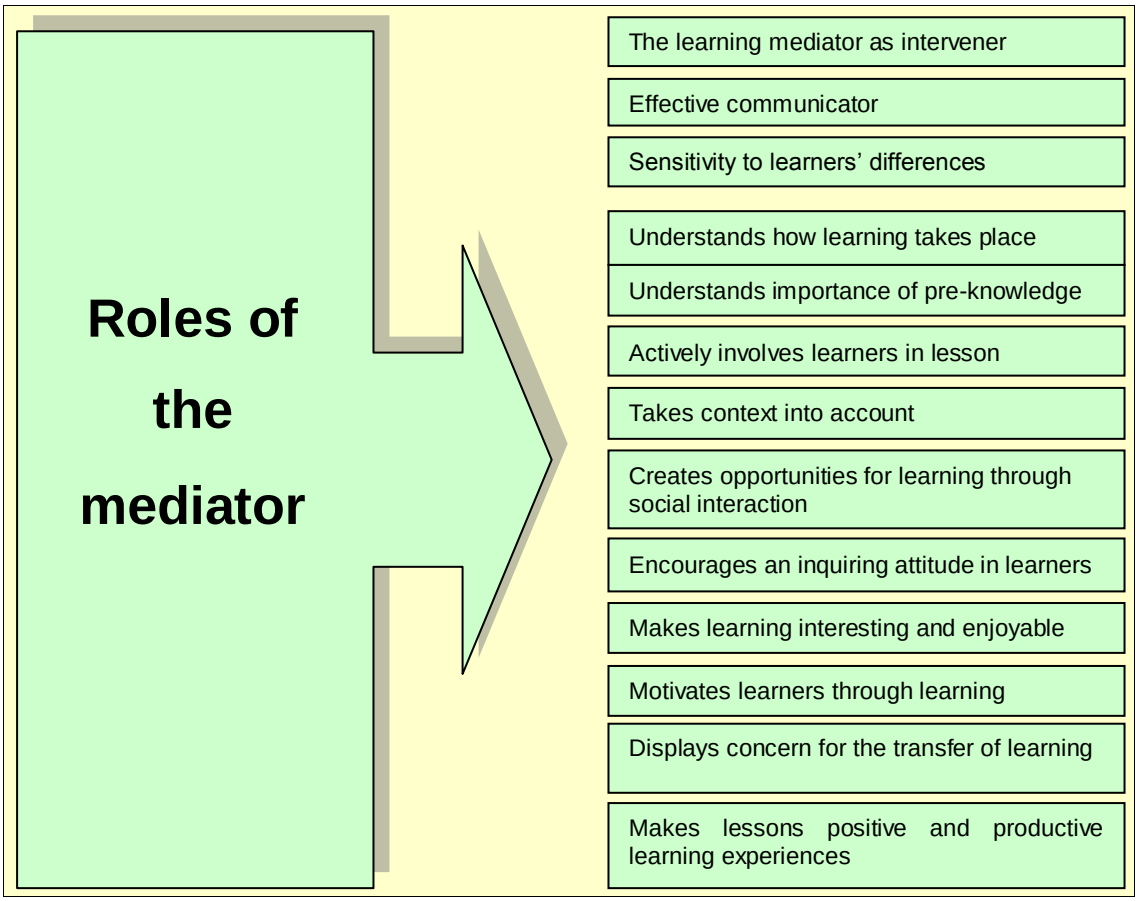


Figure 3.4 indicates that the educator should realise that no longer is he the conveyor of knowledge, but an intervener between learners' personal knowledge and skills and new learning content, together with associated thinking and doing (Feuerstein *et al.*, 2010:32; Fraser, 2006:14). Learning opportunities should be created, learners' progress monitored and feedback given. Opportunities to make sense of what is being learned are also important. The educator should be aware of linguistic diversity, since language and thinking and language and learning are intertwined (Feuerstein *et al.*, 2010:32; Fraser, 2006:14).

Due to South Africa's diverse community, educators should be aware of learners' background knowledge, degree of motivation, language proficiency, abilities, level of development, capacity, learning styles, learning preferences, culture, talents, special educational needs and home background to accommodate these differences through a differentiated approach to learners.

An effective mediator will understand how learners learn and what factors may influence the learning process (Fraser, 2006:15).

The importance of prior knowledge when mediating learning should not be ignored, because it forms the basis for the new knowledge, which the learner will construct. Active involvement not only improves memory; cognitive skills are also developed if learners are involved in various meaningful, interesting, realistic and achievable activities. Many opportunities should be provided for learners to reason with one another, discover facts and apply their newly discovered knowledge. According to Feuerstein *et al.* (2010:19-20) and Fraser (2006:16), activities which promote critical and creative thinking as well as problem-solving skills should be presented to learners.

Learning should take place in context by bringing the outside world and everyday tasks, activities and situations into the classroom and relating their background knowledge and real-life experiences to the learning content. Human beings are social creatures and for that reason learning is influenced by social interaction, interpersonal relationships and communication with others. Co-operative learning and group work enable learners to reflect on their learning processes and to learn from one another. Imperative life skills are learned during co-operative learning, such as developing the own personality, abiding by rules, respecting one another and more (Feuerstein *et al*., 2010:19-20; Fraser, 2006:18).

Learners should be encouraged to explore and take on challenges and therefore the educator should plan to present enjoyable and interesting activities. An enthusiastic, dedicated and motivated educator will not only motivate the learners, but will also make his work interesting and enjoyable. Educators should strive to motivate learners intrinsically by creating a learner-friendly environment in which learners are confident to enable them to achieve their goals. This can be done by involving learners actively, maintaining a high level of interest, communicating expectations and giving positive feedback (Feuerstein *et al*., 2010:19-20; Fraser, 2006:19).

Meaningful learning can only take place if learners can transfer or apply their learning in new learning situations. It is the responsibility of the educator to

ensure a positive and productive learning experience for all learners. This can be achieved by focusing on learning and not teaching, getting the learners to think, encouraging thinking by involving learners in appropriate activities, helping them to apply what they have learned in other subjects or the outside world, creating a positive environment that promotes curiosity, encouraging learners to ask questions and assisting them to learn ***how*** to learn (Feuerstein *et al*., 2010:19-20; Fraser, 2006:20).

As the literature revealed a number of perspectives on mediation I had to examine these to clearly identify a perspective that would guide the implementation of my intervention programme.

3.5 THE DEVELOPMENT OF PERSPECTIVES REGARDING MEDIATION

In this section, the perspectives of Vygotsky, Nyborg, Neo-Piagetian and Feuerstein regarding mediation will be outlined. As this study focused on the theoretical perspective of Feuerstein, emphasis will be placed on Feuerstein's perspective regarding mediation.

A critical evaluation of the aforementioned perspectives based on the literature review (Deutsch, 2003:31-32) highlights the following commonalities and differences.

All of the perspectives on mediation refer to the important role of mediation in cognitive development, the important role of intrinsic motivation during learning and shared activity for enhancing cognitive development. A number of differences are also noted among the perspectives. In comparison to the other frameworks, the Neo-Piagetian framework indicates a low-key role to the educator in guiding learners to discover principles and solve problems. The Vygotskian framework emphasized the notion of self-mediation (Deutsch, 2003:31-32), wheras Feuerstein and Nyborg, focus on the dominant role of the educator as a mediator of learning (Deutsch, 2003:31-32). According to Deutsch (2003:31-32), some of the frameworks (Nyborg & Feuerstein) focus on special needs children with significant intellectually related learning barriers; whereas the Neo-Piagetian framework and the framework of Vygotsky and Feuerstein focus on ethnically different children whose background make them at risk for learning demands. Feuerstein

distinguishes the most widely known parameters of mediation, and this perspective was chosen to guide the design and implementation of the intervention programme.

As the Feuerstein perspective guided the design and implementation of the ***CEPP*** intervention programme, the following section will be devoted to an in-depth discussion of this perspective.

3.6 FEUERSTEIN'S PERSPECTIVE ON MEDIATION

Feuerstein believes that a child needs subjacent cognitive skills before he can benefit from formal education (Feuerstein *et al.,* 2010:62). This includes observation, distinguishing between relevant and irrelevant information, organising stimuli, selecting information and distinguishing between differences and similarities. It is not necessary for children to learn these skills if they are involved in thorough "mediated learning experiences". A lack of MLE can lead to cultural deprivation (*cf.* 2.7.1) and an episodic grasp of the world so that the past and present remain unconnected on a personal and social level (Feuerstein *et al*., 2010:62; Grosser, 1999:39). It is important to mediate at a higher conceptual level than that which the child presently indicates by means of teaching via rules, principles and mental representation. This can have a positive influence on perceptual processes that may be inadequate in the learner's current performance (Deutsch, 2003:31-32).

Feuerstein's theory *inter alia* links the failure of learning to succeed mainly on adults, parents and educators and not only on the child and on his circumstances. His theory assists learners with knowing how to think and how to solve problems. Feuerstein believes that the human brain holds unlimited potential and that it is a network of thought actions, which should be developed and optimised by means of direct experience and comprehensive guidance (Grosser, 1999:39). Feuerstein is of the opinion that an intentional attempt (intentional engagement) should take place in order to help students organise and understand information in progressively more effective ways (Kozulin & Presseisen, 1995:67-68). According to Kozulin and Presseisen (1995:67-68), Feuerstein regards the role of the mediator as selecting,

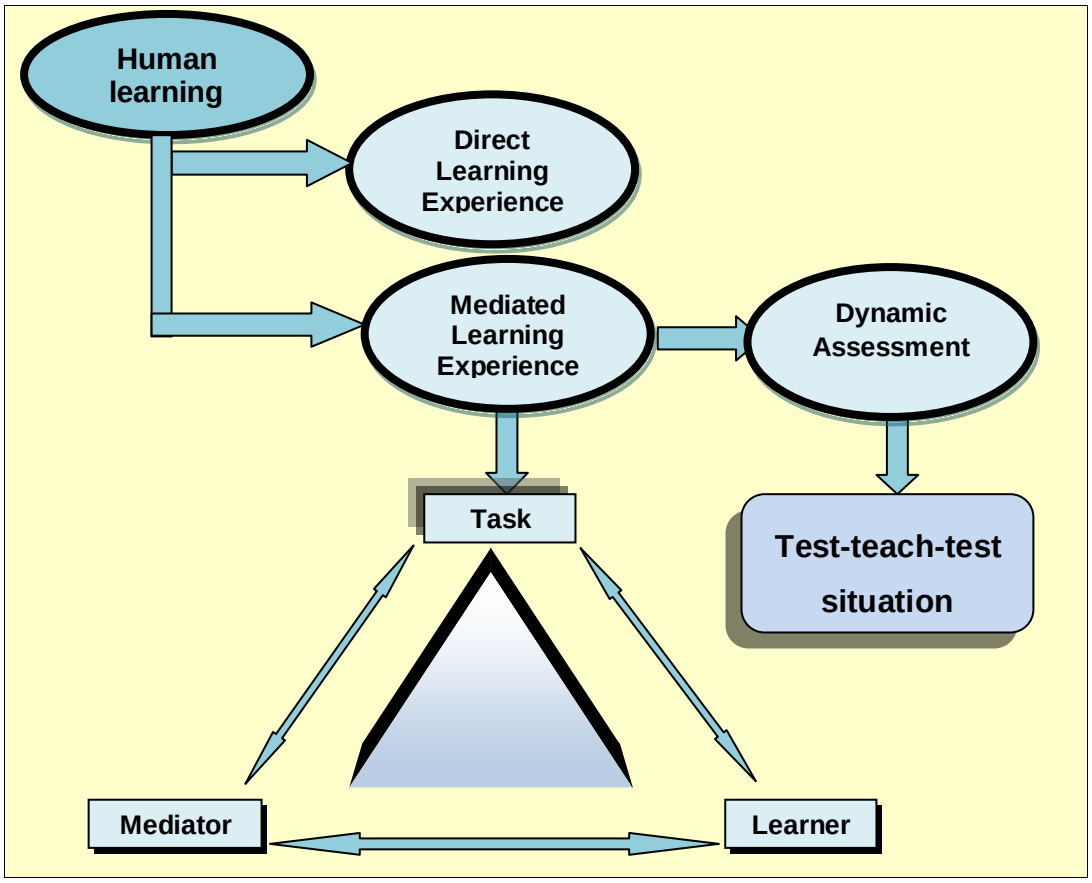
changing, increasing the number of objects to work with, extending cognitive processes, explaining meaning and stimulating generalisation for the learner. Because mediation gives meaning to objects within social contexts, it plays a critical role in learning (Kozulin & Presseisen, 1995:67-68).

According to Feuerstein (in Kozulin, Feuerstein & Feuerstein, 2001), the individual learns through direct experience as well as MLE. The mediator's role becomes extremely important when opportunities for direct experience are reduced or weakened due to internal factors, such as disability, or external factors, such as cultural deprivation (*cf.* 2.7.1) (Falik, 2006). In creating shared meaning, the mediator does not only serve as an instrument, but is also involved in changing the **way** in which the individual perceives, thinks and learns, as well as **what** the individual perceives, thinks and learns (Falik, 2006; Kozulin *et al.*, 2001).

3.6.1 Approaches to learning

Feuerstein believes there are two approaches to learning, namely a direct approach and a mediated approach as illustrated in Figure 3.5.

Figure 3.5: Feuerstein's Approach to Learning



According to Feuerstein, human learning takes place through incidental **direct learning experiences** and intentional **mediated learning experiences**. In order to increase cognitive modifiability, **dynamic assessment** (*cf*. 2.8.2) should take place during learning, which incorporates a test-intervene-retest format, as well as a focus on learner modifiability and underlying cognitive and meta-cognitive processes that facilitate motivation during learning (Hughes, 2008:224; Deutsch, 2003:32; Tzuriel, 2001:23; Tzuriel, 2000:392-294; Lidz, 1991:ix).

In Figure 3.5, a mediated learning experience involves the mediator's analysis of the task components, while the task components determine the level and nature of mediation required to execute and complete a task (*cf*. 3.6).

During the direct approach, the learner interacts directly with stimuli in the surrounding world. According to Feuerstein, this kind of learning is incidental and may not always be effective learning (Feuerstein *et al*., 2007:13; Norguez,

2002:n.p.; Burgess, 2000:3). The mediated approach has a different course of action, because it is an intentional interaction where the mediator focuses the learner's attention on a particular object or situation and assists him to interpret and gain meaning from the surrounding environment (Feuerstein *et al*., 2007:13; Norguez, 2002: n.p.; Burgess, 2000:3).

Central to Feuerstein's approach to learning and cognitive development are the notions of cognitive modifiability, cultural deprivation and mediated learning experience (Feuerstein *et al*., 2010:21, 40-46; Deutsch, 2003:30). Each of these aspects will be explored below.

3.6.1.1 Cognitive modifiability

Feuerstein reasons that when the learner has learnt how to select and focus relevant stimuli, he becomes more responsive to direct stimuli and can benefit from it independently, without the help of the mediator (Feuerstein *et al.,* 2010:21). He also believes that every individual can be changed and modified, which he calls "**cognitive modifiability**". Cognitive structures are modified or changed during an interactive process of mediation. Educators should not only be concerned with ***what*** they teach, but mainly ***how*** they teach it (Feuerstein *et al*., 2010:21; Feuerstein *et al*., 2007:13; Fraser, 2006:9; Pena *et al*., 2006:1038).

One of the central issues in the theory on cognitive modifiability is the **nature** versus **nurture theory**. The concept "nature" refers to inherited characteristics, while nurture refers to external or environmental influences in the young learner's life (Eggen & Kauchak, 2010:130; Patterson, 2008:8; 525; Papalia *et al*., 2008:12). The nature view of intelligence claims that it is determined by genetics. The nurture view of intelligence highlights the influence of the environment (culture, school, community & family) on intelligence, which I supported in the context of my study.

Most researchers hold the view that both nature and nurture influence intelligence. In other words, everybody is born with a certain potential for intelligence. Learners in a stimulating environment which exposes them to enriched learning experiences both in pre-school and in later schooling, score higher than learners who are deprived of a stimulating environment (Eggen &

Kauchak, 2010:130; Patterson, 2008:8; 525; Papalia *et al*., 2008:12; Bjorklund, 2005:8-9).

I agree with research, which provides evidence that interactions occur between the many levels of life, such as genetic, hormonal, physical environment and social environment, which include family and culture. Cultural effects cannot be meaningfully separated from biological influences, and play an important role in the cognitive development of an individual (Eggen & Kauchak, 2010:63-64; 130; Patterson, 2008:8; 525; Papalia *et al*., 2008:12; Bjorklund, 2005:8-9; Donald *et al*., 2002:99-101).

3.6.1.2 Cultural deprivation

Feuerstein also hypothesises that impeded cognitive performance could result in **culturally deprived** learners caused by a lack of MLE being provided in normal parent/child relationships. Learners can be deprived because of environmental or within-child factors (Deutsch, 2003:31). Such a learner does not acquire the adequate cognitive tools/skills needed to obtain maximum benefit from learning experiences. Feuerstein distinguishes between culturally different learners (learners from different cultures) and culturally deprived learners (Deutsch, 2003:30). According to Feuerstein, both groups may initially perform equally poorly, but the culturally different learner who receives adequate MLE can learn rapidly by exposure to new experiences and can modify his performance in flexible and adaptable ways (Deutsch, 2003:30). However, the learner deprived of adequate MLE is unable to utilise learning opportunities without mediation of a special kind and responds in an unsystematically, disorganised, chaotic, hit and miss approach to new experiences (Deutsch, 2003:30). Feuerstein explains that deficient cognitive functioning can originate from cultural deprivation and can be reversed through Mediated Learning Experiences.

3.6.1.3 Mediated Learning Experience (MLE)

Tzuriel (2001:24) defines MLE as an interactional process in which the mediator (competent, skilled adult, educator, facilitator and even a peer) intervenes between the learner and a set of stimuli in order to modify them by changing their frequency, order, intensity and context (*cf*. 3.3). This action

causes intentional learning, which assists the learner to take out the principles rooted in the learning material and transfer these principles to other areas of content and learning (De Witt, 2009:55; Benjamin, 2005:50; Deutsch, 2003:31; Tzuriel, 2001:24-25; Tzuriel, 2000:392; Kozulin & Presseisen, 1995:69-70; Haywood, 1994:33).

Lidz (2003:63) defines intentional mediation as a deliberate attempt by the mediator to change the learner's behaviour by means of communication and keeping him involved in the interaction. MLE not only sensitises the learner for learning through direct experience, it also awakens him to a high level of curiosity, alertness and perceptual sensitivity to the mediated stimuli, which enables him to create the cognitive functions required for temporal, spatial and cause-effect relationships between stimuli. This process makes information meaningful and transcendent. It is, however, important not to tell learners what they should do and what they should think. With the guidance of the mediator, the learners will be able to become critical thinkers. When mediating a learning process, the mediator should take the diverse needs of the learners into account, adapt teaching strategies, create a learner-friendly environment and classroom climate and be an expert in his field (Fraser, 2006:1; Miller, 2003:27; Tzuriel, 2001:24). Because the learners internalise MLE processes, these processes gradually become an integrated mechanism of change within the learner (De Witt, 2009:55; Benjamin, 2005:50; Tzuriel, 2001:24-25; Tzuriel, 2000:392-393; Kozulin & Presseisen, 1995:69-70; Haywood, 1994:33).

In the field of education, mediation means that educators should strive not to be transferors of knowledge (talk-and-chalk approach), but rather to teach their learners that a problem does not necessarily have only one solution. Feuerstein regards the teaching of cognitive structures more important than learning certain content which, in his view, can easily become outdated and unchangeable (Feuerstein *et al*., 2010:25; Tzuriel, 2001:24; Feuerstein, 1997; Feuerstein, 1980:22).

Learners should explore other possibilities and alternatives through communication with others in order to reach mutual understanding and come to a solution (Fraser, 2006:5). It is the duty of the mediator to expand the

learner's environment and link it with previous experiences and cultural background. This will assist learners to connect divergent aspects of experience in a meaningful way (Fraser, 2006:9). Dominick and Clark (in Fraser, 2006:8) explain that constructivism necessitates educators "*to get learners to use what they know to figure out what they have to know"* by fostering self-analysis, reflection, exploration and collaborative and co-operative learning. The educator should therefore act as a link or a "go-between" between learners, their peers, their cultural background, their environment and learning content to assist them in making sense of their world (Fraser, 2006:8-9).

Effective and meaningful learning takes place when there is someone who can act as a human mediator between learners and their environment. The mediator should expand the learners' environment by connecting it with previous experiences and background and assisting them with interpreting what they have experienced. This can be done by asking questions or letting learners explain their thinking (*cf.* Figure 3.1). In other words, the mediator helps learners to understand a situation. Only then will learners be able to use the familiar by means of direct experience to interpret the unfamiliar (Brewer, 2007:62; Bolani *et al*., 2007:10; Donald *et al*., 2006:59; Fraser, 2006:9; Benjamin, 2005:50; Lidz, 2003:45; Tzuriel, 2001:24-27; Tzuriel, 2000:394; Grosser, 1996:41; Haywood, 1994:35).

Although Feuerstein, Nyborg, Piaget and Vygotsky agree that children learn through interaction with their environment, Feuerstein, Nyborg and Vygotsky include the intentional intervention (mediation) of various stakeholders, such as peers, parents, educators and other mentors, who act as mediators (Brewer, 2007:8-10; Bolani *et al*., 2007:10; Donald *et al.*, 2006:59, 60; Fraser, 2006:9; Benjamin, 2005; Grosser, 1999:40).

Feuerstein regards the relationship between the learner and the mediator as a dyad and describes MLE as the proximal determinant of cognitive development with organismic and environmental determinants in the centre (Deutsch, 2003:33; Kozulin & Presseisen, 1995:69-70).

In a learning situation where only the learner and the learning task are involved, the non-mediated observed performance of a learner is the product of prior learning experience. Feuerstein adds a third constituent in the form of an intentional, reciprocal mediator who, by means of selection and application of various MLE methods, at different levels of intensity and frequency, manipulates all three variables: the learner, the task and his own mediational activities (*cf.* Figure 3.5). The mediator therefore is an active interventionist rather than a passive recorder (Lidz, 1991:ix). This enables the learner to more cognitively modifiable learning behaviours (Deutsch, 2003:33).

The main goal of MLE is to:

- transfer and generalise cognitive behaviours by means of meta-cognitive insight; and
- gradually shift from behaviours directed externally towards self-efficacy and self-reflection.

The implications that MLE hold for classroom teaching and learning, are summarized in Figure 3.6.

Figure 3.6: Implications of mediation of learning

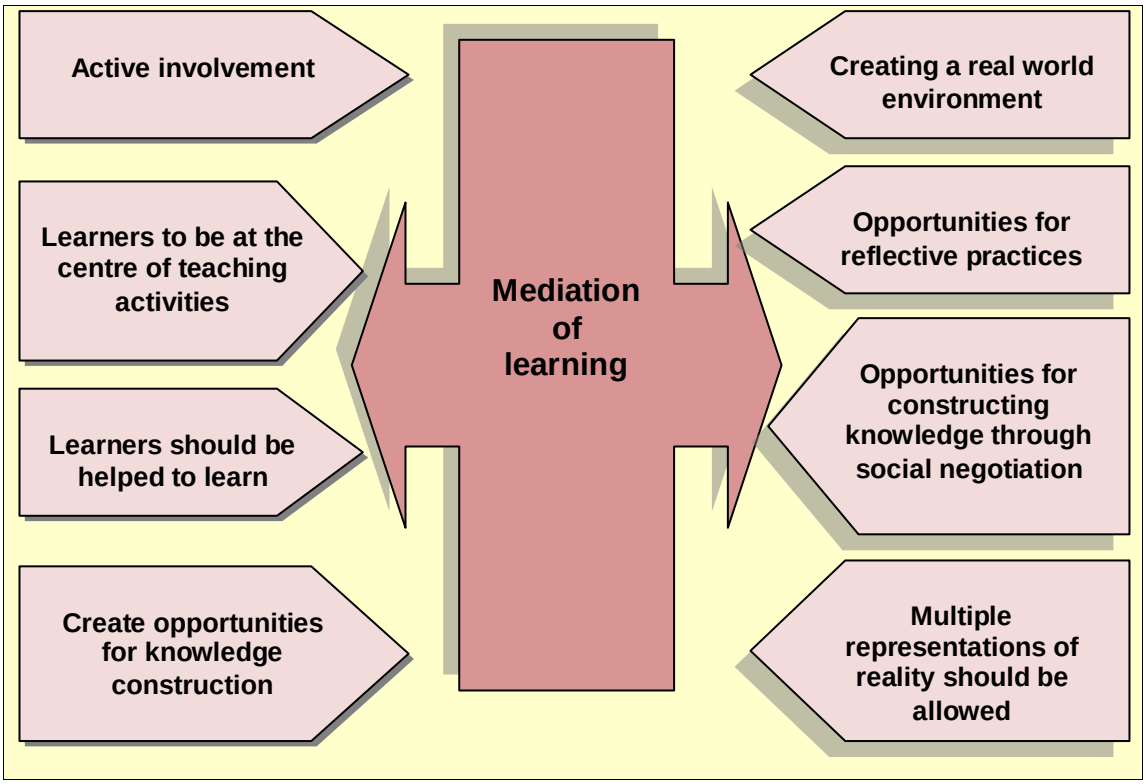


Figure 3.6 indicates that if learners are to construct their own meaning; they should be **actively** involved in their learning to look for and find solutions. The learner should therefore be at the **centre** of teaching activities. The educator should create a learning environment and learning activities that will assist learners in constructing knowledge instead of merely absorbing information (Fraser, 2006:7; Killen, 2002:3). **Helping learners to learn** will end in "good learners" with the necessary skills for future learning activities. The educator should provide guidance and assistance that makes it easy for learners to learn. An important aspect to remember is that the focus of mediation of learning should be on the **construction of knowledge** and not the reproduction of information. Learning should take place in realistic, **real world environments** where learners are assisted to obtain strategies to solve real-life problems and where assessment is integrated with the learning tasks (Fraser, 2006:8). In order to become independent and critical thinkers, learners should be encouraged to **reflect** on their experiences and learning strategies and evaluate in what way activities helped them to gain understanding (Fraser, 2006:7,8; Killen, 2002:3-4).

Co-operative learning should be encouraged because learning is a **social activity** and depends on the interactions with others. The educator should provide multiple interpretations of reality, tools and learning environments which will assist learners in interpreting the multiple perspectives in the world (Fraser, 2006:7,8; Killen, 2002:3-4).

Creating mediated learning experiences requires that educators should incorporate a number of principles in the structuring of learning activities. The principles that guided the design and implementation of intervention are explored in the following section.

3.6.2 Principles of a mediated learning experience

Feuerstein's mediational approach is characterised by the application of twelve principles during teaching (Feuerstein *et al.,* 2010:40-46). The first three principles, also known as universal principles, namely ***intentionality and reciprocity*** (the most important and comprehensive form of mediation), ***mediation of meaning*** and ***transcendence*** should always be present during a MLE experience. They separate interactions as MLE from, for example, direct instruction (Feuerstein *et al*., 2010:40-46; Anon., 2008a; Feuerstein *et al*., 2007:13; Fraser, 2006:10; Feuerstein, Klein & Tannenbaum, 2005; Lidz, 2003:45; Deutsch, 2003:34-37; Miller, 2003:28; Tzuriel, 2001:25-27; Haywood, 1994:32-34; Feuerstein & Feuerstein, 1991:15-49).

The other nine principles may function according to the specific needs and circumstances of the learners' specific situational and cultural needs and are necessary for sustained change (Feuerstein *et al*., 2010:40-46; Anon., 2008a; Feuerstein *et al*., 2007:13; Fraser, 2006:10; Feuerstein *et al*., 2005; Lidz, 2003:45; Deutsch, 2003:34-37; Miller, 2003:28; Tzuriel, 2001:25-27; Haywood, 1994:32-34; Feuerstein & Feuerstein, 1991:15-49).

The situational principles link to specific learning experiences and refer to the following critical elements: mediation of regulation and control, feelings of competence, sharing behaviour; individuation and challenge; novelty and complexity.

The integrative orienting belief system criteria are important to integrate changes in functioning into cognitive structures in order to support sustained

change. They refer to mediation of goal-seeking, goal-setting and goal-achieving; awareness of the human as a changing entity; the search for an optimistic alternative and a feeling of belonging.

In order to familiarize the learners with the principles that guided the completion of activities during the implementation of the intervention child-friendly symbols were used. The use of these symbols was regarded as appropriate for young learners who still mainly function at a concrete level of understanding.

Each of the principles and how they were applied in practice in the context of the study, is described below.

3.6.2.1 Intentionality and reciprocity

I intentionally awakened a shared desire to learn and purposefully engaged the learners' attention in the learning process. By awaking the learners' interest and curiosity, I fostered a desire to learn. Meta-cognitive skills, such as self-reflection, insight and articulation, played an important role. The focus was not only on ***how***, but also on ***why*** actions were executed. I engaged the learners by making eye contact through tone of voice or elaboration. This principle deals with the ***what, who, where, when*** and ***how*** of learning.

3.6.2.2 Transcendence

I went beyond the immediate learning experience. Learners had to bridge, transfer or apply learning from current experiences to new experiences and had to know how and where learning can be applied in other situations. Transcendence also leads to self-reflection, which in turn help learners to understand themselves better.

3.6.2.3 Mediation of meaning

The learners had to understand the value and relevance of what they were learning. Meaning is linked to cultural roots, which influence the nature of the values to be transmitted. Learners were encouraged to search for meaning and causation in the context of their own situations. This principle deals with the why and what of learning.

3.6.2.4 Mediation of competence

Feelings of competence are related to motivation. I fostered appropriate task-related competence in the learners and provided opportunities for them to interact with tasks they can master. These experiences lead to feelings of success, because I gave positive feedback and support.

3.6.2.5 Mediation of regulation and control of behaviour

I assisted learners to monitor their own behaviour in order to develop meta-cognitive behaviour; self-reflective functioning; and a need for controlled and planned behaviour. This assisted learners to reduce impulsiveness and encouraged them to think before acting or speaking.

3.6.2.6 Mediation of sharing behaviour

I encouraged the need for sharing behaviour and co-operative learning between learners and promoted participation with others, because this is a vital part of our social existence and also because some problems are better solved through co-operation.

3.6.2.7 Mediation of individuation and psychological differentiation

Mediated emotional modifiability leads to individuation and self-identity, together with social and sharing behaviours (Feuerstein *et al.*, 2010:45; Anon., 2008b; Feuerstein *et al.*, 2007:13; Fraser, 2006:11; Feuerstein *et al.*, 2005; Lidz, 2003:45; Deutsch, 2003:34-37; Tzuriel, 2001:25-27; Haywood, 1994:32-34; Feuerstein & Feuerstein, 1991:15-49). I valued and recognised individual differences and opposing responses, and encouraged autonomy, independence and creativity in the learners' thinking.

3.6.2.8 Mediation of goal-seeking, goal-setting, and goal-achieving behaviour

I directed learners to plan, set and achieve goals. Goal-directed behaviour towards personal and academic achievements was promoted, as this assisted learners in evaluating whether they achieved their goals and if the goals were realistic.

3.6.2.9 Mediation of challenge: The search for novelty and complexity

Learners should be assisted to not be afraid of, but rather to meet challenges. I provided activities that were difficult enough to present a challenge to learners, but they were not too difficult so that learners became discouraged. They were assisted to develop the cognitive skills necessary to adapt accordingly to increasing levels of difficulty.

3.6.2.10 Mediation of an awareness of the human being as a changing entity

I implemented an active modification approach and also strongly believed in change and adaptability (Feuerstein *et al.*, 2010:57; Anon., 2008b; Feuerstein *et al.*, 2007:13; Fraser, 2006:12; Feuerstein *et al.,* 2005; Lidz, 2003:45; Deutsch, 2003:34-37; Tzuriel, 2001:25-27; Haywood, 1994:32-34; Feuerstein & Feuerstein, 1991:15-49). I was aware of and recognised even the slightest

change in learners. I taught the learners how to assess themselves and become aware of their own progress.

3.6.2.11 Mediation of the search for an optimistic alternative

I strived to instil positive thinking and behaviour in learners which will continue throughout life. The mediator, as well as the learners, should always believe that something is possible. This will encourage learners to search for various ways to solve a problem. According to Feuerstein (1991:48), "*knowing that something is possible makes the involved individual become committed to the search for ways to turn the possible into a materialized experience. The child whose first response is 'It is impossible' stops looking for alternatives which may help him to solve the problem".*

3.6.2.12 Mediation of the feeling of belonging

I enabled learners to bond with other learners, to go beyond their own, immediate needs and link their experiences with those of others. In the end, I strived to assist a learner in becoming the owner of his own thoughts and the independent manager of his own achievement.

In line with the viewpoint of Deutsch (2003:38) the main aims for using a mediated learning approach in the case of the study was to optimise cognitive development by enhancing the following:

- **Regulation of behaviour** where the mediator helps the learner to overcome behaviours such as impulsivity.
- **Rule teaching** where the learner is encouraged to identify rules for problem- solving.
- **Insight** by generalising a problem-solving approach.
- **Sequencing** by helping the learner to respond in an organised and sequenced manner.

3.7 CHAPTER SUMMARY

Chapter Three reflects on the theoretical framework of the Mediated Learning Experience according to which my intervention programme was designed and implemented. A thorough definition of MLE was given (*cf*. 3.2) in which I discussed the difference between a educator and a mediator of learning, where the mediator of learning intentionally intervenes in the learner's learning to assist the learner in gaining meaning and understanding, and not only conveys knowledge (*cf.* 3.2).

The forms of mediation *(cf*. Figure 3.4) as well as the importance of mediation for cognitive development (*cf*. 3.2) were reviewed. The forms of mediation entail strategies such as focusing learners' attention on the work at hand, guiding, suggesting and providing direction in learners' learning by demonstrating, explaining, describing, questioning, giving feedback and decreasing or increasing the complexity of tasks. In essence the importance of cognitive development refers to the aspiration to more independent learning where learners reflect on their work and apply rules, principles and strategies to various learning content.

I also dealt with the mediation process (*cf.* Figure 3.5), which includes the improvement of problematic cognitive processes and preparing and establishing pre-required thinking behaviour to optimise reflective and analytical processes. Self-regulation and planned working ways play an important role in the mediational process, which goes hand in hand with feedback on success and failure.

Mediators play a crucial role in the mediation process and have to possess certain competencies to be a successful mediator. In 3.4 I examined the roles and competencies of a mediator. The role of a mediator includes being an effective communicator and intervener, who is sensitive to learners' differences, understands how learning takes place and acknowledges the importance of pre-knowledge. A mediator should consider the context of a learner and actively involve learners in the learning experience by creating opportunities for learning through social interaction. The mediator should also

strive to make learning interesting and enjoyable and motivate learners to become critical and creative thinkers.

Mediators should also possess the following competencies: practical competencies, which include educators making informed decisions about the utilization of relevant teaching strategies to address learners' needs. Foundational competencies involve the educator's acknowledgement of the importance of language in a MLE classroom, various learning styles and preferences in his classroom as well as barriers to learning and the reasons why learners are not successful in the learning process. Reflexive competencies inter alia entail the educator's abilities to consider adjustments concerning accomplishment of the learning objectives and considering possibilities to overcome barriers to learning (*cf*. 3.4).

Various theoretical perspectives regarding mediation were also under scrutiny (*cf.* 3.5). I referred to the views of Vygotsky, who emphasises the notion of self-mediation, and Nyborg, and Feuerstein, who focus on the influential role of the educator as mediator. I also examined the Neo-Piagetian framework, which together with that of Feuerstein and Vygotsky, focuses on ethnically different children whose backgrounds leave them at risk of not meeting the learning demands.

Feuerstein's perspective was reported in more detail, because my intervention programme was based on his perspective (*cf*. 3.6). According to Feuerstein, intelligence is not fixed and static and poor cognitive functioning is a result of a lack of MLE. During MLE, cognitive and social learning is facilitated, while the mediator intervenes intentionally to equip the learner with cognitive and meta-cognitive skills and strategies, cognitive functions and appropriate non-intellective factors imperative for academic performance.

Mediated Learning involves the application of a number of principles during teaching and learning. The principles of MLE utilised in this study were discussed in detail and involved *intentionality and reciprocity*, *mediation of meaning*, *transcendence, competence, self-regulation and control of behaviour, sharing behaviour, individuation, goal- seeking, challenge, change,*

mediation of searching for alternative and mediation of feeling of belonging (*cf*. 3.6.2.1- 3.6.2.12)

In Chapter Four, I focus on the empirical research design utilised in the context of the study.

"It must be remembered that the purpose of education is not to fill the minds of students with facts... It is to teach them to think, if that is possible, and always to think for themselves."

~ Robert Hutchins ~