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**The effect of visual-motor and auditory development on
academic performance of learners in the foundation phase.**

by

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DECLARATION

I declare that the dissertation for the M.Ed. degree titled: “ The effect of visual-motor development and auditory development on academic performance of learners in the foundation phase” is my original and independent work; all the sources consulted by means of complete references are indicated and acknowledged and that this dissertation has never been submitted to any other university or faculty for the degree Magister Educationis.



SIBUSISO PHUMULANI RADEBE

September 2002

This dissertation is dedicated to all learners with special educational needs in South Africa especially those in the foundation phase.

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CHAPTER 1.

Introductory Chapter

1.1 Introduction

This study seeks to address the effect of poor visual perception, poor motor development and auditory perception on performance of learners in the foundation phase. It will therefore be concerned with broad aspects of visual perception, motor development and auditory perception. Guidelines to improve visual perception, motor development and auditory perception will be provided. The word "He" will be used for both sexes, meaning 'he' and 'she', and/ 'his' and 'her'.

Perception as one of the most important processes of learning plays a vital role in learner's performance. According to Robertson and Halverson (1984:11) "Perception is the process through which an individual extracts information from the environment. This definition implies active exploration of, and selection from, the mass of stimuli available. It also implies interpretation of the stimuli selected". Many learners with learning disabilities live in a warped perceptual world. Although they have no basic impairment in their sensory organs, they cannot interpret sensations in a normal manner. They do not integrate sensory stimuli in their environmental surroundings the way other learners do.

A more explicit explanation of perception will be provided under the following subheadings:

- Perception
- Visual perception and
- Auditory perception

The kinds of visual and auditory perceptual disabilities with which this study is concerned about must be distinguished from the types of visual

and auditory deficits that are most commonly associated with the blind or the deaf. Such defects are caused by improper functioning of the sensory organ itself e.g. the eye or the ear due to malformation, injury or disease. The visual and auditory perceptual problems addressed here are problems that occur in a learner despite the fact that he has structurally sound sensory organs.

For the purpose of this study, more attention will be devoted on “visual perception, motor development and auditory perception” than other types of perception, although there will be synthesis of different perceptual areas. The discussion to follow then seeks to explain what visual perception, motor development and auditory perception are and what are their effects on learners’ performance. Lastly, it will provide some guidelines on how to help learners with deficits in the above-mentioned perceptual areas.

1.2 STUDY MOTIVATION

The researcher has a practical experience of learners who show poor academic performance due to their deficits in visual perception, motor development and auditory perception. Such learners show that they have learning problems in academic tasks such as reading, writing, spelling, mathematics, and sports or fail to interpret their external world meaningfully. The researcher then concluded that visual perception; motor development and auditory perception are of vital importance in learners’ performance. It then became clear that poor visual perception, inadequate motor development and poor auditory perception negatively affect the performance of learners, especially in the foundation phase. Kapp (1991:387) saw “perceptual deficiencies as an important manifestation in learning disabled children”. Since then special attention has largely been given to visual perception, motor development

and auditory perceptual deficiencies. Williams (1983:118) concurs with Kapp (1991) by saying "visual perceptual abilities are more important in early learning than in later development of motor skills". Learning curves plotted on the basis of visual perception abilities of learners revealed that those individuals who had superior visual abilities made the most rapid progress in the early stages of skill acquisition. Visual perception, motor development and auditory perception are some of the perceptual skills needed for meaningful learning to take place. These perceptual skills will be discussed in detail in chapters 02 and 03.

1.3 STATEMENT OF THE PROBLEM

Visual perception, visual-motor development and auditory perception form a solid base for meaningful learning to take place. This occurs at a very early age of human development. Louw, Van Eden & Louw (1998:159) agree with the previous statement by saying "...within a few hours after birth neonates can already distinguish between specific sounds. The new-born's typical reaction to the perception of sound is to turn his or her head in the direction of the sound and to stop suddenly doing whatever he/ she was doing (e.g. sucking)." This explains how human beings develop and the importance of proper development in learning. Louw et al (1998:174) further say, "...babies of six months already have reasonably well developed auditory perception".

Visual perception is also important for the child's development, learning and understanding of his environment. Children need to develop a good sense of depth perception in order to understand their surroundings. According to Louw et al (1998:172) "the development of accurate depth perception is naturally of great importance for the baby, since it protects the child against dangerous situations, for example, falling down a flight of stairs". It then becomes clear that deficits in visual-perception

negatively affect the development of a child.

It is important that developmental difficulties be identified at an early stage and rectified as they affect the learning of a child. Visual perception plays a very important part in all activities. Many learners who go to school suffer from underdeveloped visual- motor development, auditory perception, and are then required to read and write at a stage of their lives when they are not yet ready to do so. It is therefore advisable to let children go through the school readiness programme(s) before they start formal learning. According to Kapp (1991:186), "school readiness refers to a learning and maturation history through which the child can be expected to make good progress in school circumstances with regard to his real abilities and state of education". School readiness programmes help learners to develop good visual perception, auditory and motor perceptual skills that are indispensable in reading, writing, spelling, mathematical tasks and many other related tasks.

Kapp (1991:187) further says "Non-school-readiness indicates that the child has not reached the developmental level at which he/she can fulfil the demands of the school situation as a whole...." Kapp (1991:185) also says, "*school entry is one of the main events in the life of the child and therefore it is important that he/she should be ready for it. His/her readiness for formal learning, as it figures in the school situation, forms the basis for the way in which the child becomes involved and gives meaning to the formal learning situation and exercises an important influence on the future course of his/her learning and becoming. The child who is not yet ready for school on school entry is already at a disadvantage in the formal learning situation*". He might find formal learning difficult or problematic. In most cases learners in Grade 1 are found not emotionally ready for formal schooling. Kapp (1991:194) confirms this when explaining " Affective-social criteria for school-

readiness" by saying " *The child who still evidences the following shortcomings regarding his affective social life, is probably not yet ready for school.*

- *Is still so dependent on his mother that he does not want to be separated from her.*
- *Still prefers to play alone instead of with others (lack of group identity).*
- *Lacks self-confidence and self-esteem (a poor self- image).*
- *Is unable to make relatively simple decisions by himself.*
- *Is not in a position to, within limits, exercise control over the expression of his emotions.*

1.4 OBJECTIVES OF THE STUDY

By means of a literature study the purpose of this study is to:

- Describe visual perception, visual- motor development and auditory perception and their influence on academic performance of learners in the foundation phase.
- Determine the effect of poor visual-motor development and auditory perceptual problems on academic performance of learners in the foundation phase.
- Explain different modalities of visual- motor and auditory perception.
- Provide activities through which visual-motor development and auditory perception can be improved.

1.5 PERCEPTION

Perception is the interpretation of information received by the brain through our senses. This means, we receive information by looking, listening, smelling, tasting, touching and through the body sensations. This information must be processed before it can become meaningful

hence the process is called perception. As a matter of fact, no learning can take place without perception. When a learner reads, he not only see the words, he also has to see the differences between the letters and the words. When listening to what his educator says, a learner does not only hear sounds, but also understands or interprets what an educator says by means of auditory perception. When a child touches an object, he is aware that it is rough, smooth, hot or cold (Azaliah College of further and higher education 1997:20). This means that such a child perceives his environment correctly.

Development of perceptual skills therefore becomes an important precondition for academic achievement. Some learners perform poorly in schools because of the incorrect interpretation of information by their sensory system. The “ abnormality” is not in the sensory organ itself, but in perception resulting from stimulation to the sensory organ. According to the Teacher’s manual (1986:23), perception is understood as “ the interpretation the brain gives to information received through the five senses”. They are the senses of sight, hearing, touch, smell and taste. An additional sense namely the kinaesthetic or muscular sluse causes (through the brain) a feeling of muscular movement.

By implication, perception means

- The reception of sensory impulses from the environment and from the person’s own body through senses.
- The ability to discriminate from a number of sensory impressions based on the previous experiences and acquired information.
- The interpretation of and giving meaning to these impressions.

In the interpretation of information gathered from the environment, sensation also plays a vital role. It then becomes clear that there is a close relationship between sensation and perception. Westen (1996:117) rightly puts it like this; "Sensation refers to the process by which the sense organs gather information about the environment. Perception is

the closely related process by which the brain organizes and interprets these sensations. Sensations are immediate experiences of qualities (such as red or hot), whereas perceptions are always experiences of objects or events".

When perception occurs, sensory impressions play a vital role in forming a contact between the outside world and the brain. Information supplied to the brain is done through the senses. The brain then interprets what is fed into it and uses previous impressions and information to assist in the interpretation.

Kapp (1991:387) confirms the above statement when saying, "Perception is seen as the interpretation of and giving meaning to information received by the brain from the various senses". Kapp (1991:387) further says, "The dissimilarity of sensations from the same object experienced by different people is explained in terms of the important role played by prior experience, ideas, mental images, memory and attitudes".

Auditory perception on the other hand is another aspect of perception that plays a vital role in learners' performance. It takes place in the brain not in the ear. Cosford (1990: 21) says " Auditory perception is the mental process that takes place in the brain after the ear nerves have performed their functions correctly ". There is evidence that perceptual disturbances are important factors in the failure to learn, particularly at the early stages of academic instruction. It is therefore important to understand how does perception take place. Perception includes several distinct areas, such as visual perception; auditory perception and the perception of other forms of information such as pain, gustatory, tactile or olfactory input (Gaddes 1985:164). According to Mercer (1983:374) "students with perceptual difficulties exhibit a variety of problems". Some do not attend to the relevant dimensions of visual stimuli. Others may not be able to differentiate between selected speech sounds. Grove

and Hauptfleisch (1982:53) have this to say, " the moment perception occurs, it is brought in relation to previous perceptions as well as with existing concept and thought processes". The perceptual process is immediately changed into thought patterns.

In the process of information interpretation, there are many concepts that are formed, stored in the brain and can be recalled later if needed. This is what is called "memory". The following example will illustrate this:

When a person looks at a tree for instance, sensation takes place and the brain interprets the visual world and perception takes place. When thought processes are involved, conception takes place. The brain then recognises it as a complete "tree", which is an indication of good visual perception. Ohlhff (1996:26) says, "Visual perception is the ability of the brain to make contact with the outside world through the eyes, and to interpret those stimuli." This interpretation correlates with experiences, consequential understanding and conception. A learner should therefore be able to comprehend the meaning of symbols, written words or pictures. Visual perception then becomes a learned phenomenon and it can be corrected. The interpretation is also correlated with auditory perception. In the developing brain, perception is immediately succeeded by conception, depending on the ability of the brain to process and integrate. A well-developed brain enables a child to have good perception. Booysen and De Witt (1995:85) say "perceptual development is a complex process which is partially dependent on the child's genotype, the maturation of his sensory system, the kind of sensory experiences available to him for analysis and interpretation, his developing cognitive abilities and the social context in which he functions". Louw (1995:238-239) concurs with the above statement.

1.6 DEFINITIONS OF OPERATIONAL CONCEPTS

1.6.1 Perception

According to Stratton and Hayes (1994:139) "perception is the process by which we analyse and make sense out of incoming sensory information".

Eysenck and Keane (1996:27) on the other hand say "the term perception refers to the means by which information acquired from the environment via the sense organs is transformed into experiences of objects, events, sounds, tastes, and many more". Barnhart & Barnhart (1987:1548) say, " Perception is the study of the complex process by which patterns of environmental energies become known as objects". In the same vein, Tennant (1986:4) described perception as "the complex composite of psychological processes and does not avail itself to simple definition". Nevertheless, perception is described as the contact made by the brain with the outside world by means of data fed into it through the senses. For example, the eye sees an object, but it is the brain that recognises the meaning of this object (Tennant 1986). According to Booyesen and De Witt (1995:71) "perception...is the ability of the brain to make contact with the surrounding world by means of the sensory organs. It also involves the brain's control of the information which reaches the nervous system via the sensory organs, and its processing of and reaction to the information". Burden (1997:211) says, "Perception is the selection and interpretation of information collected by the senses". In the teacher's manual (1986:23) perception is understood as "the interpretation the brain gives to information received through the five senses". According to Humphrey (1992:53) "Perception is concerned with how we obtain information from the environment through the various sensory modalities and what we make of it.

1.6.2 Visual perception

Lerner (1989:221-235) says "visual perception is the cognition and interpretation of a visual sensation and the mental association of the present visual stimuli with memories of past experiences". Stratton and Hayes (1993:214) explain visual perception as "the analysis and interpretation of information received and processed through the visual system". Tennant (1986:1) says, "visual perception can be described as perception involving the visual sense receptors, namely the eyes and the primary zone of the occipital lobes of the brain. According to Ohlff (1996:26) "visual perception is the ability of the brain to make contact with the outside world through the eyes, and to interpret those stimuli". That means then that interpretation of visual stimuli occurs in the brain, not in the eyes. In the same vein Cosford (1990:42) says "Visual perception may be called the mental process which takes place inside the brain and which gives meaning to things seen by the eyes". When one perceives a square as a figure for instance, the sensory impression of them occurs in the eyes, but the recognition of them as forming a square occurs in the brain. Williams (1983:73) on the other hand says, "visual perception may be defined simply as a pick-up and analysis of sensory information from the external environment through the use of the visual mechanism". Burden (1998:56) explains visual perception by describing visual discrimination as "the ability to indicate differences between objects by doing certain visual activities." Visual perception is involved in most school activities such as reading, writing, spelling and other mathematical tasks that are necessary for success in school-work. Yet a majority of our pupils enter school being not yet ready to perform the visual perceptual tasks required of them.

1.6.3 Auditory perception

Booyesen and De Witt (1995:92) describe auditory perception as “the interpretation of information that is conducted to the brain via the ears”. Auditory perception is the mental process that takes place in the brain after the ear and the ear nerves have performed their functions correctly...one might say that poor auditory acuity is a mechanical problem while poor auditory perception is a problem concerning the correct meaning of sounds (Cosford 1990:21). Williams (1988:19) echoes Booyesen and De Witt (1995) by saying “auditory perception is the ability to register what is heard and give meaning to it”

1.6.4 Visual-Motor Co-ordination

According to Gallahue and Ozmun (1995:325) “visual-motor co-ordination refers to the ability to track and make interception judgements about a moving object”. Sutherland (1995:497) says, “Visual -motor co-ordination is the ability to execute skilled motor movements under visual control”. According to Tennant (1986:4) “visual-motor perception or integration is a composite of behaviours involving, among others, visual perception and motor co-ordination”. Tenannt (1986:4) continues to say “it refers to the expression of or reaction to a visually perceived stimulus by means of motor behaviour in accordance with the demands of a specific task. It involves the effective working together of the eyes and muscles of the body”.

1.7 Performance

Penguin (1992:306) defines performance as “ accomplishment,

achievement, completion, execution, discharge, conduct, behaviour.” For the purpose of this study, performance is understood as an achievement of the execution of a task at an expected level.

1.8 Learner

According to Penguin (1992:256) a learner is a “novice, beginner, tyro, neophyte, apprentice, trainee, pupil, student ”. In this context, a learner is a pupil who must be taught by an educator in a learning teaching school environment.

1.9 Educator

Education labour relations council (1999:1-1) explains an educator as “any person who teaches, educates or trains other persons at an education institution or assists in rendering education services or education auxiliary or support services provided by or in an education department...”

1.10 The course of the study

Chapter 1 deals with the motivation of the research, the statement of the problem, objectives of the study, and the definition of operational concepts.

Chapter 2 is the description of visual perception, visual- motor coordination and development, and their effect on academic performance of learners in the foundation phase.

Chapter 3 deals with auditory perception and aspects like Sound, Auditory acuity, Auditory perception, Auditory processing, Auditory

attention, Auditory discrimination, Sound localization, Auditory Association, Auditory figure-ground, Auditory memory, Auditory blending, Auditory closure and Auditory analysis and Synthesis. Chapter 4 describes foundation phase, age entry to the phase, criteria for foundation phase and the content.

Chapter 5 concentrates on activities to improve poor visual perception, inadequate motor development and poor auditory perception.

Chapter 6 is the concluding chapter where a summary of all the chapters is provided. Recommendations and suggestions for future research are also provided.

CHAPTER 2

Visual perception and motor development

2.1 INTRODUCTION

Visual perception and visual motor development are of vital importance in learning. They are also very important in most learning activities/tasks that a learner is expected to complete at school. The growing child adapts to his environment on the basis of experiences he perceives through his sense modalities. This he does from the beginning of life (Louw, 1998). In the same vein Tennant (1986:05) says, "a child is born with a genetic potential for development, but the realisation of this potential is dependent on the experiences he/she has in interacting with the environment." Burden (1997:166) says, "Each child comes into the world with certain possibilities, intellectual abilities, physical potentials, aptitudes and personality traits. At birth these are merely potentialities- in the following years they must be realised". Du Toit (1997:47) says, "When a child's development does not correspond more or less with that of other children in the same age group, we say that he/she has a developmental problem".

Visual perception and motor development play an important role in learning and in the manner in which the developing child perceives a given experience. This is confirmed by Burden (1998:53) when saying "The ability to learn implies the development of the most basic perceptual-motor abilities and skills through certain educational exercises, practices and learning programmes." *Visual-motor perception or integration is a composite of behaviours involving, among others, visual perception and motor co-ordination. It refers to the expression of or*

reaction to a visually perceived stimulus by means of motor behaviour in accordance with the demands of a specific task. It involves the working together of the eyes and muscles of the body (Tennant 1986:04). For one to talk of a good or poor visual perception in learners, one has to make use of visual perception tests as assessment tools. Some of these tests as highlighted by Cosford (1990:10) are “Marianne Frostig Test, Valett Test, Bender Gestalt Test, Beery Visio-motor Integration Test, Good enough Test, and certain items from the Illinois Test of Psycholinguistic Abilities”. These tests give some indication about the child’s level of visual-motor perception. Cosford (1990:10) continues to say areas that are measured by some of these tests are: “visual-motor coordination, visual memory, position in space, visual sequencing, visual closure, visual figure ground and visual discrimination”.

Poor visual perception is a major problem for learners who have learning disabilities. According to Tennant (1986:13) “perceptual-motor problems cause a child to battle in the academic arena...”. Such learners have problems in reading, writing, spelling, copying and many other academic tasks. Good visual perception is of primary importance in learning. Tennant (1986:10) confirms this by saying “visual perception is an extremely important aspect of learning”. It plays an important part in most of the learning tasks learners encounter when entering school. These include activities such as throwing, catching, climbing, and the more academic tasks such as reading, writing and copying. Ohlhff (1996:26) says “visual perception plays a significant role in school learning, particularly in reading”. Poor visual perception also affects motoric development of learners.

Motor development is the development of controlled body movements. A person as a whole is involved and motor development is not just the automatic reactions of the muscles (Burden 1997:212).

Louw (1995:236-237) says " physical-motor development depends on four factors particularly: the physical maturation of the brain and the body systems, the achievement of control over the various body parts through exercise, the acquisition of an accurate body image and the development of bilateral control". The child should be physically capable of making progress at school. His hearing and his sight should be well developed so that he can identify and discriminate both auditory and visually, that is, he should be able to identify and to discriminate between the different sounds as well as the different letters and words on the writing board (Grove and Hauptfleisch 1982:04).

In motor development a distinction is made between gross and fine motor development. Gross motor movements are those where the larger muscles of the body are involved, for example walking, jumping, running, bending, or crouching. In the same vein Brennan and Jackson (1984:10) say " gross motor activity involves walking, running, hopping, skipping and jumping as well as crawling, movement to rhythmic patterns and general agility". Louw (1995:237) confirms the above by saying "*There are two kinds of motor skills that develop during early childhood. Firstly, gross motor skills that involve the use of the large muscles, for example the muscles for climbing or running. Secondly, fine motor skills that involve the use of the small muscles of the hand and fingers, for example the muscles used for painting or cutting with scissors. These skills usually develop within the context of the child's play and their development is also dependent on physical growth*". Learners, who have a deficit in visual- motor development, experience problems in their education. This contributes a lot to a number of learners with poor academic performance.

There are occasions when a learner is required to exhibit the skill of drawing something from memory, but the concern of the foundation educator is the learners' ability to copy. A foundation phase learner who

is unable to use a pencil and paper or crayon in order to reproduce simple lines and geometric figures may be exhibiting a visual- motor deficit. A learner who experiences a visual- motor problem will have difficulty in performing certain tasks. The most apparent academic area affected by a visual-motor deficit will be handwriting. Poor visual- motor problems can also contribute indirectly to reading and spelling.

2.2 The structure of the visual system

Visible light is very important for people to see, more especially in the education of learners. The brain should correctly interpret every image projected into the eye. This means that visible light plays a vital role in seeing and in visual perception. Goldstein (1999:30) confirms this by saying, "light energy entering the eyes causes us to perceive, and most of this energy is reflected into our eyes from objects. This process of reflection creates the optic array- the structured light as objects in our environment". The light reflected into the eye is focused to create an image within the eye. It becomes clear then that the eye plays a vital role in visual perception. According to Kapp (1991:357) "The eye is a spherical organ (some 25 mm in diameter in adults) with a highly complex mechanism which makes visual perception possible". Images are then created which cause electrical signals in the receptors, and these signals trigger the chain of events that eventually culminate in perception.

Goldstein (1999:30) say "visible light is a band of energy within the electromagnetic spectrum, which is a continuum of electromagnetic energy- energy radiated as waves that are produced by electric charges". In-order to understand how does the visual system work, it is important to look at how does light travel through the eye until images are perceived as meaningful objects by the brain.

As light enters the eye it passes through the **cornea** (the transparent front of the eye), then through a hole called the **pupil**, and then through the **lens**. The cornea and the lens focus light onto the **retina**, a thin network of neurons, which consists of the **rod** and **cone** receptors and four other types of neurons. The rods and cones generate electrical signals in response to light. These signals are then transmitted through the other four kinds of neurones- the **bipolar cells, horizontal cells, amacrine cells, and ganglion cells**. Electrical signals in the ganglion cells leave the back of the eye by way of the **optic nerve**.

Most of the impulses in the optic nerve reach a nucleus in the **thalamus** called the **lateral geniculate nucleus (LGN)** and from there travel to the **visual receiving area** in the occipital lobe of the brain (also called the **visual cortex** or **striate cortex**) (Goldstein 1999:31-32).

2.3 Modalities of visual perception.

Tennant (1986:4) says, "visual perception refers to perception involving the visual sense receptors; that is, the eyes and the primary zones of the occipital lobes of the brain". Accurate visual observation enables school beginners to learn to read, spell and do mathematical tasks (Williams 1988:142). They may be good in games and in physical education. Such learners are neat balanced, move easily and have a sense of rhythm. Brennan and Jackson (1984:16) also say "Alertness is also a feature of well co-ordinated pupils who seem highly aware of people and objects in their environment through their constant scanning and short-term memory in changing situations". Grove and Hauptfleisch (1982:41) on the other hand say, "Defective visual perception prevents the child from recognising the word". Visual perception develops gradually from concrete (the easiest or lowest level of visual perception), then semi-concrete, to the highest form of visual perception, and abstract

perception. Major differences exist in the way learners learn. Some learners learn best by listening, some learn best by looking, and some learn best by touching or perform an action. Each of these ways of learning and receiving information is called a perceptual modality. Different areas of visual perception can be identified as important in visual development.

2.3.1 Visual discrimination

Visual discrimination is one of the most important visual perceptual processes in learning. It refers to the ability to differentiate one object from another (Lerner 1989:286 & Azaliah College of further and higher education 1997:27). For example, a learner may be asked to find the rabbit with one ear in a row of rabbits with two ears or he must see that **0** and **o** are different and that the words **am** and **am** are the same. The Teacher's manual (1986:29) states, "visual discrimination is the ability to distinguish by means of vision between similarities and differences". Grove and Hauptfleisch (1982:05) share the same idea with the Teacher's manual (1968) when saying, "Visual discrimination requires the ability to compare, to classify and to identify similarities and differences". Free State Education Department (1998:IV) also describes visual discrimination as "The ability to identify similarities and differences in letters, words or objects that are seen". Booysen and De Witt (1995:91) agree with the Free State Education Department (1998)

by saying "visual discrimination is the brain's ability to distinguish between similarities and differences through the eyes".

When asked to visually distinguish between the letters (m) and (n), a learner must perceive the number of humps in each letter. The skill of matching identical pictures, designs, shapes, letters, and words is

another visual discrimination task. Objects may be discriminated by colour, shape, pattern, size, position, or brightness. The ability to visually discriminate letters and words becomes essential in learning to read. Grove and Hauptfleisch (1982:05) confirm the above by saying "Auditory and visual memory are both extremely important when a child is learning to read". Auditory and visual memory will be fully discussed in the sections to follow.

A learner with a visual discrimination disability is not able to match and /or distinguish similarities and differences in words, letters, pictures and objects. He will experience difficulties in learning to read, write, and spell.

According to Williams (1983; 81) "developmentally, discrimination abilities appear first and seem to provide the foundation upon which the other abilities are built. A learner who is having problems with visual discrimination cannot identify similarities and/or differences between words, letters, pictures and objects. Insufficient visual perception of objects or forms, e.g. letters and words that often appear in schoolbooks, becomes a serious problem, especially if a learner has a weak visual memory. Related aspects are comprehension, classification and differentiation, which are all indispensable in formal learning.

2.3.2 Perception of position in space

By position in space is meant the way the object is orientated in relation to the pupil or observer. The Azaliah College of further and higher education (1997:23) sees position in space as "...the ability to see an object or symbol in relation to the person's body. In the words, the person sees an object as above, behind, right, in front of...". Spatially, the pupil remains the centre of his own world and he perceives an object as being behind, in front, above or below himself or written symbols in

their correct relation to himself. The above is confirmed by the Free State Education Department (1998:IV) when saying position in space “may be defined as the accurate interpretation of an object as being behind, before, above, below or next to something else”. According to Williams (1983:104) “ perception of spatial orientation refers to the ability of the child to recognise, identify, or simply be aware of the position or orientation of objects in two-or three-dimensional space. Learners with disability in perception of position in space, reverse letters and numbers. They confused letters of the same shape but different direction such as p and b.

Further more, spatial relations is understood as the perception of position of objects in space. This dimension of visual functioning implies the perception of the placement of an object or a symbol (pictures, letters, or numbers) and the spatial relation of that entity to other entities surrounding it. In reading, words must be seen as separate entities surrounded by space. A learner having problems regarding the perception of spatial relations will have learning problems in connection with sequential arrangement. He may have problems in reading letters in words in the correct order and in writing letters in a word in a certain order or in correct direction (Teachers’ manual 1986:24). A learner for example, might read the word “string” as “stiring” or spell it as “sitnrg”. He might have trouble distinguishing between “cold” and “coal”, “m” and “n”, and “b” and “d”. He may be unable to remember the sequence of processes involved in solving problems. This could cause a learner to appear inattentive. Such a learner probably will have trouble with “up”, “down”, “front”, “back”, “left”, and “right”.

2.3.3 Figure- ground discrimination

According to Louw and Edwards (1993:150) the term figure-ground

refers “to the way we divide the visual field (or part of it) into a figure and a background”. A child needs to pay selective attention to relevant visual stimuli by ignoring the background and clearly identifying the foreground. In order to understand figure-ground perception and its significance, it is important to remember that we perceive most clearly those things to which we turn our attention. The Free State Education Department (1998:IV) sees visual figure-ground as “The ability to distinguish between something that is in the foreground e.g. a butterfly in a bed of flowers, from the background (the bed of flowers).

Research has proved that children at all ages can identify familiar visual stimuli easily from a distracting environment than unfamiliar stimuli. This is echoed by Williams (1983:104) when saying “in general, children at all ages are better at identifying familiar figures imbedded in distracting background than they are at picking out unfamiliar or more abstract ones from similar backgrounds”. Pupils with a deficit in this area cannot focus on the item in question apart from the visual background. Consequently, a pupil is distracted by irrelevant stimuli.

2.3.4 Visual closure

Visual closure is a task in which the subject is asked to recognise or identify an object although the total stimulus is not presented. Azaliah College of further and higher education (1997:29) sees visual closure as “...the ability to identify a picture, numeral, letter or word when part of it is missing”. For example, a competent reader can read a line of print when the top half of the print is covered. There are enough letter clues in the remaining portion for the reader to provide visual closure to read the line. A learner having visual closure problem frequently loses the place where he is reading. Such a learner appears to be inattentive. He easily omits words or digits. He also finds it difficult to locate objects even though they are on the table in front of him. Such a learner cannot

draw a straight line. Very often he does not complete a letter or word that he writes.

2.3.5 Object recognition

Object recognition is the ability to recognise the nature of objects when viewing them. This includes recognition of geometric shapes, such as a square; of objects such as cat, a face, or a toy; of alphabetic letters and numbers; and of words. The kinder gardener's ability to recognise geometric patterns, letters, and numbers has been found to be a good predictor of reading achievement.

2.3.6 Visual memory

Visual memory is the brain's ability to remember what the eyes have seen (Booyesen and De Witt 1995: 92 & Grove and Hauptfleisch 1982:144). This means the brain must be able to encode and decode what has been encoded into it.

There are two forms of memory:

- Visual short term memory
- Visual long term memory

Visual **short-term memory** is the ability to store a visual image in the brain and to recall the image immediately. For example, when pupils copy from the board, they must remember the word they are busy writing.

Visual **long-term memory** is the ability to store a visual image in the brain and to recall it after a long period of time. For example, pupils must be able to remember the **sh/ch** sounds that were taught a few days/ weeks ago (Azaliah college of further and higher education 1997:28).

In a school situation, a learner must be able to remember what he has seen. This is confirmed by the Free State Education Department (1998: IV) by saying visual memory is "The ability to remember what has been seen". It is influenced by a number of factors like attention, concentration, and interest on the object being observed and understanding. Visual memory is sometimes called visual retention by a number of people. Brennan and Jackson (1984:25) for instance say *"Visual retention is important because it is rarely possible for the pupil to observe with equal accuracy the whole of the visual field with which he is working or even to scrutinise simultaneously two figures to be compared. In these tasks he is frequently retaining a visual image of one figure while closely examining the other and comparing it with the image, that is, he is making use of his short-term visual memory. In the same way, visual recognition often depends on a longer-term visual memory of significant features or in variances carried over from previous experience and learning. It follows, therefore, that there is a close association between visual retention and visual discrimination"*.

2.3.7 Visual comprehension

Booyesen and De Witt (1995:92) say visual comprehension is the brain's ability to form concepts after the eyes have seen something. It is a prerequisite for abstract thinking, problem-solving and drawing conclusions.

2.4 Modalities of perceptual motor skills

2.4.1 Spatial awareness (orientation)

Booyesen and De Witt (1995: 93) say "spatial orientation can be divided into two categories: Firstly, it is the awareness of what space is

occupied by the body as such and secondly it is the ability to manipulate the body in a given space, that is the child needs kinaesthetic experience to experience his world". This experience later makes it possible for him to determine the position of specific objects simply by looking at them.

2.4.2 Laterality

Teacher's manual (1986:27), explains laterality as "the inner or internal feeling that the body has two sides". According to Grove and Hauptfleisch (1982:134) "Laterality is the inner awareness of left and right". Humphrey (1992:68) shares the same understanding with Grove and Hauptfleisch (1982) when describing laterality as "an internal awareness of the left and right sides of the body in relation to the child himself/herself". From laterality develops dominance and directional awareness, which is important in future learning, e.g. arithmetic, reading and writing (Booyesen and De Witt 1995:93).

Tennant (1986:11) confirms the above by saying "reading and writing is dependent upon this awareness of left and right because- at least in the western languages- one reads and writes from left to right". If a child has not developed the internal concept of left and right, perceptual efficiency in coping with the external environment will be impaired. Many reversals of letters and words can be contributed to insufficient laterality (Grove and Hauptfleisch 1982:134). A child must be aware of his body movements and be able to differentiate the various parts in a co-ordinated manner (Tennant 1986).

2.4.3 Dominance

Booyesen and De Witt (1995:93) and the Free State Education

Department (1998: III) say by “dominance is meant that preference is given to one of the sides of the body”. Grove and Hauptfleisch (1982:134) concur with the above statement when saying, “ Dominance is the preference of the use of one hand or one side of the body”. Either the left or the right side of the body becomes the dominant side. A **right-dominant** learner prefers to use his right hand, right foot, right eye and right ear. However, a learner may have **crossed dominance**. He may prefer his right hand, left foot, right eye and left ear. Some learners have **mixed dominance**. Sometimes they use their left hand and sometimes their right hand when writing or drawing. Tennant (1986:12) says “the sooner it is established the less difficulty a child will have practising fine and gross motor functions, following directions, and learning sequentially”.

2.4.4 Direction awareness

Grove and Hauptfleisch (1982:134) say by directionality or direction awareness “is meant the determining of direction outside the body, e.g. forwards; backwards; to the right or to the left”. According to Humphrey (1992:68) “Directionality is the projection into space of laterality that is, the awareness of left and right, up and down, over and under in the world around the child ”. To have a useful three-dimensional representation of our environment, we need to know not only the distances of objects from us, also their directions. In everyday life vision probably plays the main role in deciding about directions, although more than one sense may be involved. When someone behind you calls your name, you first perceive the approximate direction of the voice by hearing (Louw and Edwards 1993:147).

Direction awareness develops from laterality and enables one to perceive objects in relation to oneself. All the concepts of laterality, body image

and directionality are interrelated and interdependent. Burden (1997:213) says

“ All these concepts are not only closely interrelated but also interdependent.

A well-established body image is needed before laterality can develop, and laterality in turn provides the basis for directionality”. Development of good directional awareness is very important for reading and writing. Reading and writing requires one to move his hand and/or eyes from left to right in a very coordinated manner. It will be limited and often inaccurate until good laterality has been developed. Booyesen and De Witt (1995:93) termed direction awareness “an external projection of laterality”. Directionality is the ability to know right from left, up from down, and forward from backward. It lends dimension to objects in space.

It is important to note that direction awareness is dependent on both a process of maturation and experience. Thus, if a learner has established internal awareness of the distinction between his right and left sides, he will be ready to transfer these concepts of direction to his external world of space. Learners with directionality difficulties usually find commands and instructions very confusing,
i.e.:

Draw a line under the table.

Place the book on top of the desk

Teacher’s manual (1986:28) states “ this can cause problems if the child does not know, for example, in which direction he/she has to walk, coming from the toilet to his classroom”.

2.4.5 Crossing the middle line

This is the ability to cross the middle line of the body when doing a task. For example, a learner must be able to write on the left-hand side of the

paper with his right hand. According to the Free State Education Department (1998: IV) middle line crossing "is the vertical middle line of the body". Learners must be able to work from one side of the body crossing over to the other side when ruling a line across a page or writing from one side of the page to the other side (Free State Education Department 1998). Body image and laterality form the basis of the ability to cross the middle line. For instance, a learner may scratch his right arm with his left hand. This function is particularly important in the execution of tasks such as reading and writing, where a learner constantly has to cross his own middle line (Booyesen and De Witt 1995:93). *The ability to cross the lateral middle line is necessary if a child is to learn to make purposeful movements across an entire page. A right-handed child with middle line problems may write on only the right hand side of the paper or may move the paper to the right. A left-handed child with middle line problems may write from the middle line to the left* (Tennant 1986).

Burden (1997:213) says "The middle line or lateral middle line is the body's imaginary vertical middle line. Children sometimes have difficulty in crossing over this middle line with parts of their bodies. Such children will choose to perform an action with a part of their bodies on the opposite side, rather than move past the middle line".

2.4.6 Eye movements

Movement of the eyes and eye muscles includes movement from left to right, and up and down, as well as focussing the eyes (Booyesen and De Witt 1995:93). According to Azaliah College of further and higher education (1997:26) eye movement "refers to the way that a learner follows a moving object and his ability to fixate (look at an object). In other words, the learner must be able to look at something further away

(such as the board) and then look at something nearby (such as his book). " He must also be able to follow a moving object without moving his head". If learners' eye movements are not smooth and controlled, his visual perception will be inadequate, hampering progress at school. A learner might have a problem with reading for an example if he has a problem with eye movements. The faulty eye movements of learners with reading problems can usually be detected while they are reading. Regressive eye movements very often occur in weak readers because of:

- A lack of comprehension of the meaning of words,
- Insufficient study of the words for analysis, and
- The inability to move the eyes back all the way at the end of a line.

Some learners tend to read too fast. In cases like those, the eye movements are too fast to allow for comprehension (Grove and Hauptfleisch 1982:41). Once a learner has learned to control the eye movements, he has to learn to co-ordinate the eye and hand muscles (Tennant 1986).

Low vision print readers may have special problems with whole-word recognition if they see words in fragments rather than as whole words. Several eye abnormalities may cause visual information to be perceived in small units. First, very restricted fields of muscular vision resulting from glaucoma or retinites may cause such a perception of words in fragments. Another fragmentation of information may be caused by rapid eye movements. These involuntary jerky movements of the eye may actually become more pronounced as the beginning reader tries to concentrate on a letter or word.

The third cause of fragmented vision may be in the interpretation of information in the brain. Perceptual confusion within the brain may result in visual information that is fragmented (Randall, Mila and Larhea 1987:133-135).

2.5 Eye-hand-foot co-ordination

According to Booyesen and De Witt (1995:93) "eye-hand-foot co-ordination is the ability to perform movements with the hands and feet as guided by the eyes". Cosford (1990: 85) talks of hand/eye coordination as "the ability to make the hands carry out instructions from the brain that have been relayed through the eyes". This skill is vital for learners to perceive curves of letters and numbers correctly when copying from the chalkboard or from the book. Brennan and Jackson (1984:16) say "Moving the body in the environment in a controlled manner in order to attain a desired objective efficiently with economy of movement requires the integration of practically all the sensory information available to him/her .The process is best described as sensory-motor integration." This co-ordination is termed eye-hand co-ordination (Tennant 1986:23). Hand/eye co-ordination plays a vital role in activities such as coping, drawing, writing and many other activities that need co-ordination between hands and eyes.

2.6 Gross motor movements

Booyesen and De Witt (1995: 93) say this " refers to the effective use of the whole body in gross motor or cross-motor movement and to the complex time-space integration of different parts of the body, together or individually". Gross motor movements involve the controlled body movements. The person as a whole is involved and motor development is not just the automatic reactions of the muscles (Teachers' manual 1986:23). Movements such as running, hopping, jumping, throwing, catching, hitting, walking, crawling, climbing, rolling movements and balancing are some of the activities to improve gross motor development [Lerner 1997:258]. Cosford (1990: 71) concurs with the above statement when defining gross motor skills as "the ability to crawl, run, skip and

hop". Cosford (1990) further says, "These movements use the larger muscles of the body". According to Tennant (1986:12) "gross motor co-ordination gives rise to fine-motor co-ordination such as control over the small eye-muscles, control over the detailed movements of the hand when writing and the ability to track the movements of the hand when copying".

2.7 Fine motor skills

Booyesen and De Witt (1995:93) describe fine motor skills as "...the ability to control the small muscles of the body, primary the eyes and hands (e.g. hand writing) necessary to accomplish academic asks". In the same vain Burden (1997:212) say "Fine motor movements are those in which groups of smaller muscles are used". Teachers' manual (1986:23) states that " in the case of fine motor development, smaller groups of muscles are involved for example when writing, painting, using small appliances and tools, striking a match or winding up a wrist watch". Children develop fine-motor skills as they learn to pick up small objects such as beads or chunks of food, cut with a scissor, grasp and use crayons and pencils, use a fork and a spoon. They need ample opportunities for building with blocks, manipulating small toys, stringing beads and buttoning [Lerner 1997: 258]. These activities do not only require delicate co-ordination between muscles, but also co-ordination between the muscles and the sense of sight (the eye), which is called eye-hand co-ordination.

2.8 Perceptual problems relating to visual perception and motor skills

2.8.1 The effect of poor visual perception on performance

2.8.1.1 Reversals

Many children who have deficits in visual perception usually reverse letters, vowels and numbers when reading and/or writing. They sometimes mix up the order of syllables within words and produce spoonerisms. Dockrell and Mcshane (1993:101-102) confirm this when saying "in the United States, reading difficulties were due to "reversals", which could be of two types". The first type involves confusing letters with the same form but opposite orientation, such as 'b' and 'd'. Teacher's manual (1986:33) concur with Dockrell and Mcshane (1993) by stating that " if a child has a problem in visual discrimination, he/she will initially have difficulty in distinguishing between 'm' and 'n', 'b' and 'd'." This will create problems in both reading and writing It also applies to the placement of a circle on a stick from left to right or top to bottom changing the name of the letter from "p" to "q", and the addition of a small line changes "c" to "e".

The second type involves reversing, either partially or totally, the order of letters in a word or the direction the word is facing as when "was" is read as "saw", "no" to "on", and "top" to "pot". One incident of such confusion happened during teachers' strike. The boy with directional perception difficulties looked at the picked signs, lettered "On strike", was read by the youngster as "No strike". Another example is a pupil who reversed the letters in the word in making a Christmas card. He printed "Leon" instead of "Noel".

Smith (1994:179) confirms the above when saying, "children with poor

visual perception show confusion of letters that differ in orientation". They also show confusion of words that can be dynamically reversed (tea-eat). The reversal of letters and words often occurs when pupils have to read, but especially when they have to write or copy words or sentences. Perceiving letters and words in reverse is just one form of perceptual deficit that has been proposed to account for reading difficulties. In the same vein Grove and Hauptfleisch (1982:41) say "Inadequate visual discrimination causes an inability to discriminate between letters which are fairly similar (e.g. b-d,t-f,n-u)". A child may read *dog as bog, gun as gnu or tree as free*. When children are learning to do cursive writing, they find it hard to remember the motor patterns of letters.

Williams (1983:118) says, "Visual perception plays an important role in the learning and performance of motor skills. About 10-15% of pupils at grade one suffer from poor visual perception or a delay in its development. For six-year-olds, visual perception abilities are very important in the learning of gross perceptual-motor tasks". Some learners who have learning problems that result in writing reversals may produce letters written with a reverse horizontal orientation. Learners with poor visual-motor perception may exchange the sequence of words as well as letter shapes and concepts.

2.8.1.2 Visual discrimination

Learners with poor visual discrimination do not always see the differences and similarities in objects, shapes, pictures and symbols. They confuse letters, words and numbers that are nearly the same. The following are few examples:

- Numbers: 5/8; 6/9; 3/8; 12/21
- Letters [printed]: a/o; a/d; b/h; r/n; I/l; E/F;D/O

- Letters [cursive]: a/d; c/o; l/b; T/F; I/J; H/K
- Words: cot/cat; could/cold; hen/hem; were/where; through/though.

Such learners also find it difficult to distinguish between different forms. For example, they find it difficult to discern the difference between a square and rectangle; or between a circle and an oval. If a learner cannot distinguish between different forms, he will find it very difficult to read because form perception is the basis of reading.

2.8.1.3 Visual analysis and synthesis

Learners who have a deficit in this skill find it difficult to break up a whole into meaningful parts and to put the parts back to form a meaningful whole. Consequently, they often;

- Find it difficult to build a puzzle or to build something using construction toys
- Have difficulty with activities such as joining the dots and completing half-drawn pictures
- Find word-building very difficult
- Find it difficult to break a word into sounds, for example:
spend=sp-e-nd
- Have problems when asked to put sounds together to form words, for example, **t-ee-th= teeth**
- Have problems with syllabification as they struggle to break words into syllables, for example, **electric = e-lec-tric**
- Have difficulty putting syllables together, for example, **com-pe-ti-tion = competition**
- Misread words, for example, they read **better** instead of **butter**
- Add sounds to words when reading or writing, for example, **sting** instead of **sing**

➤ Leave out sounds and syllables when reading or writing, for example,

Stand becomes **sand**; **showing** becomes **show**.

➤ Have difficulty analysing numbers such as $74 = 70+4$; $452 = 400+50+2$

➤ Have difficulty synthesising numbers, for example, $300+90+8 = 398$

➤ Have difficulties when working with fractions

➤ Find problem solving extremely difficult, as it is necessary to analyse a problem.

2.8.1.4 Visual memory and recall

Silver and Hagin (1990:310) say, “children who have perceptual problems have difficulty remembering the names of people and common objects”.

These learners find it difficult to remember what they have seen after a short and/ or a long period of time.

Learners with a poor **short-term** memory often

➤ Keep looking up and re-reading when they copy from the board or a work-card because they cannot remember what they have just read

➤ Do poorly in reading comprehension tests because they forget what they have read- they either guess the answer or go back and re-read the passage and consequently do not finish the test.

Learners with a poor **long-term** memory often

➤ Forget sounds in phonics and spelling rules

➤ Have difficulty remembering sight words in reading [for example, **put, could**]

➤ Spell phonetically [write what they hear, for example, **woomin** instead of **woman**; **laft** instead of **laughed**; **ladys** instead of **ladies** because they do not remember phonic sounds, sight words and

spelling or grammar rules

- Have difficulty remembering combinations and tables in mathematics
- Forget steps in mathematics such as those needed for long division and regrouping and problem solving
- Do poorly in cultural subjects because they cannot remember the facts.

2.8.1.5 Visual sequencing

Learners with this problem often

- Cannot put pictures in a logical order to form a story
- Read **on** instead of **no** [same letters but in a different sequence]
- Write **pest** instead of **step** [correct sounds but the order is wrong] or put vowels in the wrong order, for example, **theif** instead of **thief**; **poepel** instead of **people**
- Write numerals in the wrong order, for example, **011** instead of **110**.

2.8.1.6 Visual closure

According to Lerner (1985:280) "Visual closure is a task in which the subject is asked to recognise or identify an object, despite the fact that the total stimulus is not presented". Learners with deficit in visual closure often

- Find it difficult to complete words such as **R-V [river]; w-th-[weather]**
- Have difficulty with close exercises where they have to fill in the correct word to finish the sentence
- Omit letters or parts of a word when reading, for example **pupil** becomes **pill**; **quickly** becomes **quick**.

2.8.1.7 Visual association

Such learners usually have problems with

- Word pairs presented in picture form such as **bucket** and **spade**; **key** and **lock**
- Associating lower case letters with capital letters [dD;rR] in print and in cursive writing
- Associating print [manuscript writing] with cursive letters
- Gender and diminutives such as **ram- ewe-** lamb when presented in picture form.

2.8.1.8 Visual form constancy

Learners who have problems with visual form constancy often

- Read a word at the beginning of a passage but do not recognise the same word further down in the passage.
- Have difficulty reading words when written in a different style.
- Have difficulty in mathematics when working with shapes.

2.8.2 The effect of gross motor development and fine motor skills on performance

2.8.2.1 Body image

Learners with problems in body image usually have problems with naming

- Their own body parts
- Body parts of other people
- Body parts in a picture

2.8.2.2 Laterality and directionality

Learners who are poor in laterality and directionality have problems such as:

- Reversing letters and numbers such as **b/d; p/q; 13/31**
- Reading and writing from right to left [they read /write **pan** instead of **nap; bad** instead of **dad**]

2.8.2.3 Dominance

These learners often invert their letters and numbers [write them “upside down”] for example: **q** instead of **b; t** instead of **f; y** instead of **h**.

2.8.2.4 Crossing the midline

These learners often

- Turn their book sideways when writing and reading
- Write on one half of the page
- Lose their place when reading because their eyes “jump” when they cross the midline
- Find it difficult to throw, catch and kick a ball

2.8.2.5 Position in space

Learners who have a deficit in position in space have problems such as:

- Reversals and inversions of numbers such as **6/9; 5/3; 21/12**
- Reversals and inversions of letters such as **f/t; b/p; m/w; n/u; h/y**
- Reversals and inversions of words such as **saw/was; ten/net; pest/best**

2.8.2.6 Gross motor co-ordination

Learners with gross motor co-ordination problems show some of the following problems:

- They are clumsy. This means that they bump into people and things fall easily and drop things.
- Their movements are jerky and without rhythm
- They have difficulties with activities such as jumping, hopping, skipping, throwing, catching and kicking.

2.8.2.7 Fine motor co-ordination

Such learners usually

- Find it difficult to turn over the pages of a book, pick up small objects such as beads and to thread them, tie buttons or fasten shoe-laces
- Have difficulties with their pencil or pen grip
- Have a “shaky” handwriting
- Find activities such as paper folding, cutting out or tracing very difficult.

2.8.2.8 Omission

Randall et al (1987:133) say “visually impaired students who have learning problems may omit letters in words or omit whole word(s) in sentences as they read or write”. A pupil may read the sentence, ‘The girl’s dress was carefully washed and pressed.’ as ‘The girl dress was careful wash and passed.’ The most frequently omitted letters are the vowels.

2.8.2.9 Fore-ground, back-ground recognition

A learner who has a problem with this skill is not able to distinguish an object in the fore-ground from the back-ground, for example in a picture of a cow standing in front of a hedge. The cow melts into the background. It may also happen that the background becomes so dominant that the cow cannot be distinguished. Such perceptual disturbances can result in difficulty for a learner to distinguish forms especially on pictures. This may also affect a learner when writing or reading (Teacher's Manual 1986:31). Such learners have difficulty in focusing on what is important at that moment. As a result they often cannot find what they are looking for. They;

- Have difficulties when copying from the board or a work-card
- Lose their place in a reading passage
- Skip lines and leave out words when reading
- Find it difficult to concentrate and are easily distracted
- Cannot see parts as parts of a whole.

2. 8.2.10 Conclusion

Visual perception and motor skills are major problems for learners who have learning disabilities. Such learners have problems in reading, writing, and spelling, in sports activities and in life in general. Ohlhff (1996:26) says "visual perception plays a significant role in school learning, particularly in reading".

Poor visual perception also affects motoric development of learners. Many learners with poor visual-motor perception have associated difficulties in execution of duties or tasks. This as it was said before is attributed to poor visual-motor perception. Different modalities of visual perception and of perceptual-motor skills have been discussed above in

attempting to understand visual perception and motor problems. Problems relating to visual-motor skills have also been discussed. It is important to mention that poor auditory perception also negatively affects academic performance of learners. A learner might have good visual-motor perception, but poor auditory perception. Chapter 03 will then deal with the effect of poor auditory perceptual problems on academic performance.

CHAPTER 3

Auditory perception

3.1 Introduction

Auditory perception is the ability of the brain to make contact with the outside world through hearing. Williams (1988:19) defines auditory perception as the “ability to register what is heard and give meaning to it”. It is the mental process that takes place in the brain after the ear and the ear nerves have performed their functions correctly (Cosford 1990:21).

A learner with inadequate auditory perception reacts slowly to instructions that are given to the class as a whole. Imagine what would happen if no auditory perception takes place in the brain, we would hear sounds but we would not know what they meant. For example, one might hear a loud high-pitched sound, but would not know what that sound for, or might hear a series of strange and varied sounds but would not know that these sounds were words. This is because it is the function of the brain to associate sounds with experiences of seeing or doing that has taken place in the past. This explains why a learner can find reading difficult. He can see a letter or a word, but if the brain has not learnt from past experience to make an association, then there will be no meaningful interpretation.

Auditory perception is further understood as the ability to select pertinent sounds out of the environment. A learner with auditory perceptual difficulties may hear perfectly well but still be unable to interpret what is heard correctly. (Cosford 1990:21) says “ Such a

mental process enables people to make sense of the sound waves that have been transmitted through the ear". Learners with auditory perceptual problems often find it difficult to receive, organize, and interpret auditory stimuli even though they have an intact hearing mechanism and a good auditory acuity needed to hear. A number of learners with learning problems have been described as having auditory perceptual problems (Reynolds & Mann 1987:158). Reynolds & Mann [1987:158] further says *if a child's language or learning problem cannot be attributed to mental retardation, hearing loss, frank neurological signs, severe emotional disturbance, paralysis of the speech musculature, or infantile autism; it is hypothesized that the child might have difficulty processing speech and language through the auditory mode and thus might have auditory perceptual deficits.* All these skills should be practiced in the pre-primary phase, as it is needed in the foundation phase.

Schoolwork demands a very subtle ability to hear similarities and differences between sounds in order to read and to spell. It is usually only at school where learners with poor auditory perception have significant problems, because their auditory perception is good enough for most routine everyday activities. It is the educator's task to ensure that his pupils can differentiate between similar sounds they hear and sounds which are not similar. This calls for the educator to plan his lessons appropriately. Such lessons must give pupils an opportunity to develop their ability to listen carefully with understanding.

Academic activities given to learners should develop the ability to differentiate between sounds in order to spell, read and write. It is thus of primary importance for the educator to identify a learner with auditory perceptual problems in order to help him.

Hearing on the other hand plays a very important role in learning to read and write. Even a learner with normal hearing acuity may

experience problems in perceiving and conceptualising what he hears. Poor auditory perception in school results in poor performance. Quite frequently educators and parents find that learners with poor auditory perception do not respond consistently to instructions.

3.2 SOUND

The form of energy that produces hearing is called sound. Sound is transmitted in the form of pressure waves. Although sound waves, just like light waves, can be described in terms of wavelength, it is more usual to specify the frequency of sound waves, that is, the number of waves passing some fixed point in a second. Humans can hear sound with frequencies of about 20 to 20 000 hertz, that is, 20 to 20 000 pressure waves per second (Louw and Edwards 1993:133). Moore (1982:1-2) says, "sound wave weakens as it moves from the source, and also may be subject to reflections and refractions caused by walls or objects in its path. Thus the sound 'image' reaching the ear will differ somewhat from that initially generated. Schiffman (1996: 106) says, "a spoken word consists of a short pattern of sounds lasting less than a second". Moreover, the perception of speech persists when the sounds comprising words undergo a number of marked changes. That is, words retain their identity and are perceived accurately under a number of distorting conditions: for example, varying accents, dialects and voice qualities, masking background noises and sound omissions. In the classroom situation, this then means an educator's voice should be audible enough for all learners to hear. In a situation where an educator's voice is too soft and the class is too big, many learners might experience auditory perceptual problems. This would not be because learners have problems with their ears.

3.3 AUDITORY ACUITY

Williams (1983: 136) says “auditory acuity involves the detection by the individual of the presence or absence of sound”. According to Cosford (1990:17) “good auditory acuity is of primary importance in children’s learning because they need to hear language correctly”. A learner with auditory acuity problems, experiences difficulties in using language and that as a result affect his school -work. Another problem relating to poor auditory acuity is that if a learner can -not hear certain sounds clearly, he will not use them in his speech. He may therefore have problems with bad pronunciation (speech articulation).

3.4 AUDITORY PERCEPTION

This perceptual process is very important in the learning-to-read-process. Auditory perception comprises a hierarchical series of steps between the detection or hearing of sound at the periphery (the ear) to “discriminating, sequencing, storing and recalling the rapidly changing spectra that characterize the speech stream centrally (at the cortical level)’ (Reynolds & Mann 1987: 158).

Learners with language or learning problems may have specific deficits at any stage in this complex process. According to Reynolds and Mann (1987: 158) “it is important to evaluate basic auditory perception separately from speech or language perception to pinpoint deficits”. Williams (1988:19) agrees to this by saying that “tests of auditory perception measure characteristics such as attention span for words, auditory discrimination, auditory sequential and memory”. Auditory perception is a group of different skills that people use to make sense of their world.

3.5 AUDITORY PROCESSING

A learner with inadequate auditory perception reacts slowly to instructions that are given to him or to the class as a whole. A learner may hear what an educator says but cannot give meaning to it, in other words does not understand what he hears. It is thus important for educators to correctly identify learners with auditory perceptual problems if they really want to help them. Poor or faulty auditory perception causes a learner to hear sounds that are different to those heard by "normal" learners, and the result is that his reproduction of the same sounds will be different. He will, for example, not hear the word 'cat' accurately and might reproduce it as 'cap'.

The teaching and learning situation demands that learners must acquire learning auditory. Listening skill then becomes very important for them to get insight of the information presented orally. Sometimes our learners do not hear and/or interpret correctly what has been said because of various barriers to listening. The Edutech Master Learner [2001:16] highlight the following barriers to listening:

- Prior expectations which result in:
 - You not being able to understand what you hear
 - The information being too easy and thus not worth listening to and the information not being interesting.
 - The listener is not motivated to listen, as he sees no purpose in getting the information.
 - The listener has negative attitudes towards the speaker or to the topic.
 - The listener has other pressing thoughts on his mind and only pretends to listen.
 - The listener is cold, too warm, hungry, thirsty or is not feeling well.

- The listener is sleepy and his body posture aggravates the lack of concentration.
- The listener is emotionally upset (anxious, tense, stressed), may be because he does not understand the information.
- The speaker is inaudible or speaks unclearly.
- There are distractions and interference (e.g. noise)

To develop their listening ability, our learners need a great deal of exposure to spoken language and ample practice in various listening situations. However, in addition to exposure and practice, it is vitally important for them to become engaged in the process of listening and develop a desire to understand [Althouse 1981]. Reynolds & Mann (1987:159) refer to this ability as “auditory processing”. Auditory processing involves receiving information from the physical environment; transmit it through the auditory system and into the brain for meaningful interpretation. Auditory processing is a process and part of perception. Listening develops through attention to accuracy and analysis of form. By learning to perceive sounds and words accurately as they work on meaning-oriented activities, learners can make steady progress. By learning to hear sounds and words more accurately, learners gain confidence in listening for meaning (Althouse 1981). A number of auditory perception skills are involved in auditory processing which helps us to give insight of what we hear. These are: auditory discrimination, auditory attention, auditory association, auditory figure-ground, auditory memory, sound localization, sound or auditory blending, auditory closure, auditory analysis and synthesis (Cosford 1990:22). The above-mentioned perceptual skills will be discussed in the paragraphs to follow.

3.5.1 Auditory attention

Reynolds and Mann (1987:159) define auditory attention as “ the ability to attend to sound, particularly speech, over long periods of time”. A learner with auditory attention problems usually appears not to hear a thing an educator says to him. As the saying goes, “Once you get his attention, you can teach him.” Major emphasis then is in the area of classroom management in relation to structuring the learning environment for success.

3.5.2 Auditory discrimination

Auditory discrimination refers to the ability to hear similarities and differences between and among two or more sounds. Cosford (1990:23) says auditory discrimination “ refers to the ability to hear similarities and differences between sounds. This skill is very important for learning phonetic groupings of words”. Learners need to have good auditory discrimination skills as they are sometimes expected to differentiate between different sounds.

The above is confirmed by Blom (1993:30) when saying, “ Auditory discrimination tasks require the child to differentiate between two acoustic stimuli that vary primary on one dimension. Such tasks may include discrimination of pitch and loudness as well as various speech sounds”. Auditory discrimination may involve gross discrimination problems where a learner is unable to distinguish the difference between the sound of a large bass drum and the sound of a coin dropped on a glass surface. If he is unable to detect a difference between these two diverse sounds, he will most likely have difficulty in hearing the difference between speech sounds such as those emphasized in a phonic approach to reading. Williams (1988:19) on the other hand

believes that "children, who are unable to discriminate satisfactory, may have problems in speaking clearly".

A learner with poor auditory discrimination will find it difficult to differentiate between sounds that sound almost the same, depending on the sound frequency of a sound. Hendrick (1984:378) describes auditory training and discrimination as of vital importance when saying, "auditory discrimination skills are important, and practice on them should be consistently incorporated into the curriculum at the pre-school level". Learners need work on learning to tell sounds apart and telling when they are the same. It is an important activity because it is a pre-reading skill and also because it helps learners learn to discriminate between sounds and to speak more clearly (Blom: 31]. Althouse (1981:195) says, " the influence of auditory and visual discrimination together is greater than that of intelligence in learning to read". Althouse (1981:195) further says other studies have found that " auditory discrimination correlates positively with reading achievement".

A learner with auditory discrimination problems cannot hear the similarity between 'round' and 'outside'. Such a learner experience difficulty in reading or spelling all the words with an 'ou' sound in them. He is unable to hear that words rhyme e.g. 'told', 'rolled', 'sold'. A learner with poor auditory discrimination will also have difficulty in hearing the differences between sounds e.g. 'pen' and 'pin' (Cosford 1990:23). In teaching discrimination among sounds, a learner is taught to select from a group of instruments the one that was sounded behind him. Discrimination among speech sounds may be taught by requiring a learner to associate the syllables 'moo' and 'baa' with the pictures of a cow and a sheep.

3.5.3 Auditory association

Faas (1981:296) says "auditory association is the ability to relate spoken words and concepts to each other in a meaningful way". Learners with auditory association problems fail to comprehend two or more concepts at once and to form relationships between them. According to Reynolds & Mann (1987:159) "auditory association is the ability to identify a sound with its source". Disturbances in auditory association negatively affect the reading ability of a learner. To be able to read, a learner must be able to understand the recognised words, and associate sounds with letters. The ability to make associations between the printed letter and the spoken word, or between a printed word and the spoken equivalent, is very important and a necessity in the process of learning how to read.

A learner with poor auditory association perceptual skills cannot remember the sound that belongs to the letter or to the letter groups and to associate the sound with the letter symbol (Cosford 1990:23). Such a learner sees the word "spoil", but cannot remember what the "oi" part of the word should sound like. So when he reads 'spoil', he fills in the gap (sp-l) as best as he can, and he may say 'spol' or 'spil'. Cosford (1990) says "there is nothing wrong with the way he sees words and letters". According to Blom (1993: 35) "To be able to read, the child must be able to understand the recognised words; and associate sounds with letters". Cosford (1990:23) further says, "The skill sound/symbol association is important in reading and spelling". The main way in which a learner's reading is affected is that he cannot remember the sound that belongs to the letter or to the letter groups. He cannot associate the sound with the letter symbols (Cosford 1990: 23).

3.5.4 Auditory figure-ground

According to the Free State Education Department (1998:III) auditory figure-ground is “ The ability to hear difference between foreground sounds (e.g. teacher talking while music is playing) and background sounds (e.g. the music)”. This ability refers to the skill of selecting and attending to relevant auditory stimuli. Learners with this difficulty may have problems focusing their attention to the educator’s directions, for example, in a noisy room. The inability to concentrate will lead to inability to concentrate on what he is reading (De Kock 1989: 125). A learner with poor concentration usually experiences problems with spelling, reading and writing. Auditory figure ground discrimination calls for selecting relevant auditory stimuli from the irrelevant. The relevant stimuli become the recognizable auditory figure, while the irrelevant stimuli are tuned out or pushed into the background.

Typical of auditory figure-ground discrimination problem is the inability to differentiate between relevant and irrelevant speech sounds, between speech and non-speech sounds. A learner who has problems in this skill finds it difficult to pay attention to what the educator has to say, as he is easily distracted by background noise. Learners with auditory figure ground problems, attempt to attend to all sounds equally and fail to give meaning to all of them.

3.5.5 Auditory memory

Free State Education Department (1998:III) refers to auditory memory as “The ability to remember what has been heard”. Learners with auditory memory deficits may be unable to remember individual letter-sounds or the sequences of sounds within a word. Learning other sequential activities such as the days of the week, the months of the year, or the alphabet may also be difficult for a learner with auditory memory

deficits. Reynolds and Mann (1987:158) define auditory sequential memory as "the ability to store and recall auditory stimuli in exact order". Williams (1988:19) confirms the above when saying, "it is the ability to recall heard information in its correct order". A learner may be able to discriminate one sound from another but still have difficulty remembering and/or reproducing long sequences or patterns of auditory stimuli. Such abilities are referred to as auditory memory (Williams 1983:138).

Amongst other factors that affect learner's memory is the way their short term and long term memory work. Short-term memory refers to the ability of a learner to retain and recall immediate auditory information. Long-term memory concerns auditory information retained by a learner for a long period and his ability to recall it in detail when necessary. Learners with poor auditory memory become easily confused when all of their classroom assignments are given to them orally without any visual clues as to their intended meaning. They may not complete simple tasks merely because they cannot remember the sequence of the tasks to be completed. According to Ferreira (1990:24) "children with auditory memory and recalling problems tend to get frustrated easily, because they have trouble communicating".

Visual perception and auditory memory play a vital role in the learning process especially in reading, writing and spelling. Learners with poor auditory memory often hear words wrongly, and as a result writing them wrongly. A learner can hear the phrase "left **hand** side" wrongly and write it as "left **ten** side. Poor reading caused by poor auditory perception can lead to poor spelling. Learners can differentiate between sounds but be unable to recall sequences or patterns of auditory stimuli. Williams (1983: 138) refers to such abilities as 'auditory memory'. Auditory memory is one of the important auditory perception

skills because it plays a vital role in recalling stored information. Cosford (1990:22) adds to the above information when saying, "some children have poor comprehension because they cannot hold words long enough in memory to be able to hear the full sentence, phrase or clause". They will read one word at a time and lose the meaning along the way.

The same happens when a learner with weak auditory memory ability is pronouncing a word phonetically, by the time he gets to the end of a word, he does not remember the sound at the beginning of the word. According to Williams (1988:19) "children with limited auditory memory will have learning problems". In reading and spelling a learner may pronounce all syllables of words, but leave out one or two syllables, as a result then he misspells or misreads (Cosford 1990:23).

Auditory memory is of primary importance for language development. Retaining a sequence of sounds within words and a sequence of words within sentences is essential for comprehension and for expressive use of the spoken word.

3.5.6 Sound localization

Williams (1983:136) say "sound localization is believed to be important in the overall development of the young child because it helps him/her to visually link sounds with their sources and thus aids in establishing specific associations between sounds and various environmental objects and events".

3.5.7 Auditory blending

Sound or auditory blending involves the ability to synthesize component sounds into a word. Faas (1981:298) sees sound or auditory blending as “a form of auditory closure in which isolated sounds are synthesized and integrated into whole words”. Learners with difficulty in sound blending often cannot hear and perceive isolated sounds as part of a whole. Many learners who experience this difficulty are able to differentiate individual letter sounds in isolation, but they are unable to blend these sounds together to make a complete word. Reynolds & Mann (1987:159) describe auditory blending as “the ability to synthesize phonemes into words”. Other learners have a problem of blending sounds correctly in a proper sequence. For example the word ‘coat’ might be pronounced as ‘co-awut’ and be written as ‘caot’ and thereafter asking what coawut means

3.5.8 Auditory closure

Faas (1981:297) describes auditory closure as “the ability to identify an auditory stimulus when part of it is missing”. Learners with good auditory closure skills are automatically able to complete partially vocalized words. De Kock (1989:125) agrees with Faas (1981) when describing auditory closure as “the ability to blend sounds (given with time intervals) and to identify the whole word”. Williams (1988:19) echoes the words of Faas (1981) and De Kock (1989) when describing auditory closure as “completing a word, phrase or sound after hearing only a part of it”.

Learners with problems in this area may find it difficult to discriminate between sounds, attend to auditory stimuli, and fill in the gaps when they miss parts of words or conversations. Auditory closure is an important skill for meaningful reading to take place. Auditory closure is

synonymous to auditory synthesis. If a learner sees and hears the word 'po-ta-tos', he should be able to construct the word 'potatoes'. When a learner pronounces a word using phonic clues like li-ght-ning, he is listening to himself in order to synthesize the sounds into a word that he recognises. Auditory closure will be possible once he has managed to discriminate between sounds. Most of the learners in schools do understand their phonics, but fail to use the knowledge they have in reading because of poor auditory closure. They see the word in their reading book, but fail to put the sounds in a meaningful way to form a word correctly. A learner might see the word 'peace' and pronounce the sounds as 'pe-ace', also read the word as 'pice' (Cosford 1990:30).

Auditory closure sometimes can appear as an emotional problem and exists as a handicap for learners who are slow and inaccurate in associating audible sounds with the visual sounds. Auditory closure is a mental and not an organic deficiency.

3.5.9 Auditory analysis and synthesis

This is the ability to discriminate between the elements or parts of a whole (especially in words) and to combine those elements or parts into a meaningful whole. Reynolds & Mann (1987:159) define the term as "the ability to identify phonemes or morphemes within words". For meaningful learning to occur, a learner must have the ability to hear parts of the word inside a word. These parts may be phonemes (single sounds like "t" in "table") or morphemes (larger sound units like "nary" in "stationary"). This helps in reading and spelling. A learner will find it easier to spell a word if he can break up or analyse a word into syllables like "to-ma-toes" or "at-mos-phere". A learner will find it easy to spell a simple word like "put" if he listens to the sound of the word rather than trying to remember how it looks like. Cosford (1990:24) finds it

important that “the child must also remember which letters go with which sounds (sound/symbol association) so as to get the right spelling of the word.

3.6 The effect of poor auditory perception on performance

3.6.1 Auditory discrimination

Typical auditory discrimination problems

A learner with auditory discrimination problems may experience difficulty:

- In distinguishing between similar sounds such as *p, b, d*, etc
- In repeating sounds and parts of words that sound similar.
- In discriminating between sounds in isolation; and
- In breaking down words into syllables.

A learner with a problem in this area is not able to hear with understanding and/or may confuse likenesses and differences in sounds, sounds of letters, blends of sounds, and sounds of words. A learner with inadequate auditory discrimination skills very often confuses certain similar words, such as “bit” and “bet”, “pen” and “pin” and many others of similar sounds. He often finds it difficult to identify rhyming words and cannot hear likenesses and differences in the beginning, medial, and final sounds of words. A learner with deficits in auditory discrimination skills usually has a very difficult time with the phonics approach to reading and has trouble associating sounds with their visual symbols, which is so important in learning to read and spell (Free State Education Department 1998).

3.6.2 Auditory memory: short term and long term

An auditory memory disability is the inability to correctly repeat syllables previously heard.

A learner with auditory memory problems may experience the following difficulties:

- Such a learner cannot recall immediate information when it is necessary.
- He finds it difficult to carry out more than one instruction at a time.
- This learner usually has a poor vocabulary and his language development is correspondingly poor.
- He finds it difficult to take part in verbal communication because of his inability to find the correct words.
- Such a learner cannot cope with all the different steps when new sums are explained.
- A learner may be inclined to daydream.
- Learners with this problem find it difficult to remember and reproduce the correct pitch.
- Echo singing and clapping is also a problem, because this learner cannot remember the pattern or the right sequence.

A learner with weak auditory memory cannot remember what certain words sound like, with the result that a learner reads or spells them incorrectly. He finds it difficult to sound words and to break them up into syllables. Such a learner also finds it difficult to remember the letters or numbers in the correct order. A learner with this type of problem may also not be able to remember non-meaningful stimuli that he hears. Such a learner has a short auditory memory span. In other words, he has difficulty remembering what he hears, particularly sequences of words, sentences and directions.

This learner is often apt not to pay attention to what he hears especially in a classroom situation (Free State Education Department 1998).

3.6.4 Auditory analysis and synthesis

Learners with poor auditory analysis and synthesis ability omit part of words and sounds. Sometimes they sound the words correctly but write the words incorrectly. They cannot break words up into syllables and cannot apply syllables rules. He inserts or omits letters at the end of the words, e.g.:

- Broad instead of board
- Brak instead of bark
- Pertion instead of perception

3.6.5 Auditory figure- ground

According to the Free State Education Department (1998:III) auditory figure-ground is “the ability to hear the differences between foreground sounds and background sounds”. A learner with auditory figure ground problems cannot keep his attention on a fixed point without interference from distracting stimuli. He is unable to focus his attention on a specific item at will. This deficiency is often noticed in clumsy, inconsistent, confused behaviour. In reading, this learner constantly loses his place and has difficulty finding it again without help. It also may be reflected in an inability to hold attention on words.

3.6.6 Auditory association

Auditory association is the ability to draw relationships from what is heard. It is the central process of making the association or of relating

what is heard to what has been stored and of responding in a meaningful way. A learner with a disability in this area probably has problems with abstract reasoning, showing poor concept formation in verbal responses. He may raise his hand and give a foolish answer. Such a learner tends to be very slow to respond.

He may be poor at comprehending questions, directions or instructions. Learners with disabilities in this area may not gain sufficient meaning from what is heard in the first place, and this is what impairs his reasoning about what he hears. Another one may have good auditory input but a marked deficiency in auditory association.

3.7 CONCLUSION

In summary, auditory processing is the system whereby the human organism takes in an auditory signal, transmits it to the brain, then perceives it and interprets it. A number of skills have been associated with auditory processing. Amongst those are auditory discrimination, auditory attention, auditory figure ground, auditory analysis and synthesis, auditory memory, auditory closure, auditory blending, sound localization, and auditory association. Certain behavioural characteristics such as reading problems and difficulty in monitoring one's own voice might be an indication of an auditory processing problem (Reynolds & Mann 1987:159). According to Ferreira (1990:34) "all the auditory perceptual deficits need not be present in one child". Children with visual-motor developmental problems and auditory problems need to be helped in order to actualise their potentialities. This means educators should come with activities or teaching strategies to employ in order to improve learners' visual-motor development and auditory perception. That is why chapter 05 concentrates more on activities to improve visual-motor skills and auditory perceptual skills.

CHAPTER 4

Foundation phase

4.1 Introduction

School entry is seen as one of the main events in the life of a child and therefore it is important that he should be ready for it. His readiness for formal learning, as it figures in the school situation, forms the basis for the way in which the child becomes involved and gives meaning to the formal learning situation and exercises an important influence on the future course of his learning and becoming. The child who is not yet ready for school on school entry is already at a disadvantage in the formal learning situation. This in itself can have far-reaching effects for his total growing up into adulthood (Kapp 1991:185). The first day of the child at school is one of the main events in his life and can lead to jubilation or frustration depending on his school preparedness. The new environment poses certain challenges and demands to this child and the ability to cope with such challenges will determine to some extent his academic progress. Pupil's perception of and attitudes towards their studies are shaped during their first school year, and form the basis of their learning abilities and knowledge. All efforts should thus be geared towards capitalizing on children's first school impressions so that the development of their potential can be optimised (Rantsane: 2001).

4.2 What is the National Qualifications Framework?

The National Qualifications Framework (NQF) is the structure, which helps arrange a learner's progress within Curriculum2005 (Sacred Heart College R&D 1998:04). This framework is used to provide access to

lifelong learning by means of nationally recognized levels on which all learning standards and qualifications will be registered. It allows for the development of a new curriculum framework for all general and further education and training in South Africa. In line with modern international approaches, the curriculum is now designed in terms of learning outcomes.

A simplified model of the NQF showing how schooling is organized in South Africa.

BAND	GRADES	PHASE
General	1	Foundation
	2	
	3	
Education	4	Intermediate
	5	
	6	
and	7	Senior
	8	
	9	
GENERAL EDUCATION AND TRAINING CERTIFICATE		
Further Education and Training	10	Further Education and Training
	11	
	12	
FURTHER EDUCATION AND TRAINING CERTIFICATE		

4.3 The foundation phase

Groups of grades have been divided into organizational and curriculum phases. The first phase is called the **foundation phase** (Grades 0-3). This phase used to be called the Junior Primary section of the school. The foundation phase has its own set of curriculum documents relevant to very young learners. The name 'foundation' tells us that all of a learner's schooling rests on this first phase, just like a building rests on its foundations (Sacred Heart College R&D 1998:05).

4.4. Age entry in the foundation phase

Learners are to be admitted to public schools and placed in different

grades in the school according to the age requirements. In the foundation phase for instance, a learner may be admitted to grade R only if he turns six in the course of that calendar year. Attendance of grade R is not compulsory. In grade I, a learner must be turning seven in the course of that calendar year. A learner who is younger than this age may not be admitted to grade I. These age requirements, and any deviations from the age norm per grade, must be applied in accordance with the Admission Policy for Ordinary Public Schools (Education Labour Relations Council 1999:1-13; 2B-63&2B-64). In grade II a learner must be eight years old and nine years old in grade III. At the time when this study was being conducted, there was a change of the admission age requirements in the foundation phase. An amendment of section 5 of Act 84 of 1996 (admission age) to the foundation phase was made. Now the admission age of a learner to grade R is age four turning five by 30 June in the year of admission. Grade I is age five turning six by 30 June in the year of admission. This is still a bill and not an act yet.

4.5 The content of the foundation phase

The content is organized into learning programmes (syllabi), which are a group of learning areas placed together for schooling, and a vehicle through which the new curriculum (curriculum 2005) will be implemented. Learning programmes in the foundation phase consist of Literacy, Numeracy and Life Skills. Each learning programme has been divided into phase organisers and programme organisers

These are presented in the diagram below.

FOUNDATION PHASE (GRADE 1-3)		
LEARNING PROGRAMME	PHASE ORGANISERS	PROGRAMME ORGANISERS
1. Literacy 2. Numeracy 3. Life Skills (All eight leaning areas are incorporated into these three learning programmes.)	Personal Development	Starting school Myself Games and Movement
	Health and Safety	Personal Health Road safety Food
	Society	My family People that help us Ubuntu
	Environment	Knowing and Taking Care Seasons Animals Important Places for the Learner Pollution
	Entrepreneurship	Shopping
	Communication in our lives	Messages Transport

4.5.1. What are learners doing in each and every learning programme?

4.5.1.1 Literacy

If one walks into a foundation phase class while learners are engaged in literacy activities, one may find them doing some of the following:

- Reading
- Writing
- Listening
- Talking
- Vocabulary
- Acting
- Drawing
- Thinking

4.5.1.2. Numeracy

There are many topics learners can cover during numeracy, some are:

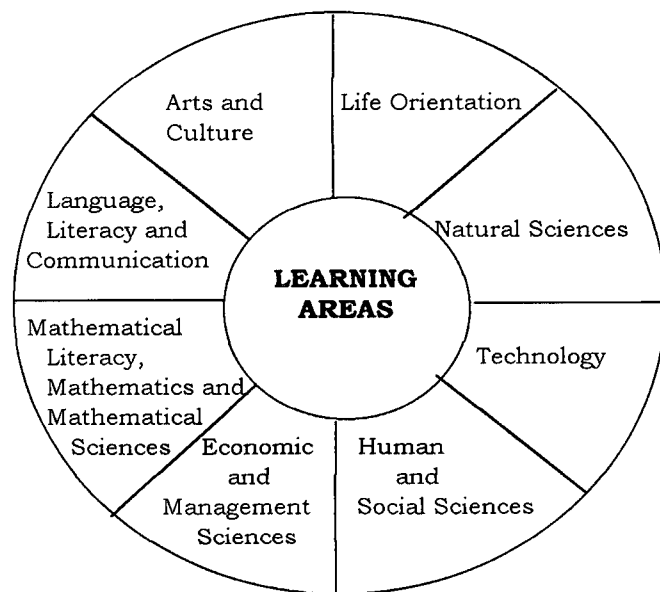
- Money
- Counting
- Matching
- Names of numbers
- Number patterns
- Calculations
- Solving problems
- Measuring
- Learning about shape
- Thinking

4.5.1.3. Life skills

In the life skills lesson, an educator wants to help learners to develop skills that will help them take their eventual place in society and the world of work. His lesson will include:

- Care of self
- Helpfulness
- Senses
- Right of children

Each and every learning programme is given 25% of notional time, which needs to be balanced in the curriculum. All eight learning areas in curriculum 2005 are incorporated into the above-mentioned three learning programmes in the foundation phase. The diagram below illustrates the different school learning areas in curriculum 2005.



School readiness is a stage in a learner's development when he learns easily and effectively, and is without emotional or other disturbances. Van den Aardweg and Van den Aardweg (1993:210) believe that "school readiness is that level of development when a child is cognitively, socially, physically and emotionally ready to undergo formal schooling". It is also important to mention that for a learner to be school ready, he needs to reach a certain level of maturity. That level of maturity is termed 'school maturity'. School maturity is a stage in the learner's development before he enters school when certain aptitudes appear. It implies physical and mental maturity. According to Kapp (1991:186) "school maturity concerns the physical and physiological maturation which the child attains through biological and, more specifically, neurological growth. It develops spontaneously and naturally and cannot be forced or hastened. Although a specific level of development is essential for school entry and school success, it does not guarantee such success".

The above explains that for learners to succeed in formal education, in particular foundation phase, they need to have achieved a certain level of school readiness and maturity. This is so because there are certain

school activities that a learner is expected to accomplish which need a certain level of maturity.

4.6 Criteria for foundation phase

4.6.1 Age criteria

Readiness in the foundation is up to a certain extent determined by the age of a learner. In South Africa, for instance learners start grade I when they are seven years old or when they turn seven years that particular year. Kapp (1991:193) says "In the RSA it is legally stipulated that the child must enter school the year in which he turns seven". The statement made by Kapp (1991) is negated by the amendment of section 5 of Act 84 of 1996, see 4.4. Having said that age plays a vital role in the foundation phase, one should remember that there are other factors that determine readiness in this phase which are discussed in paragraphs to follow. Behr, Cherian, Mwamwenda, Ndaba and Ramphal (1986:123) say when age is used as an entrance criterion "it should be considered that individuals grow, develop and mature at different rates and consequently differ in readiness for formal education and in their capacity to learn when they begin formal lessons". It should therefore be understood that chronological age is not a guarantee that a learner is ready for formal schooling.

4.6.2 Physical criteria

Another factor determining school readiness is physical ability. This means that a learner should be physically ready for school. He must have the physical ability to learn. He must be able to see, hear and be physically strong enough to be able to learn. A physically school ready child should also be able to dress himself and to discuss his physical needs with an educator.

Kapp (1991:193) has the following in as far as physical school readiness is concerned:

The child who goes to school and still experiences the following problems may possibly not be ready for school:

- *Not physically healthy and strong to comply with the demands of a long school day.*
- *Physical and sensory impairments.*
- *Inadequate co-ordination to kick and catch a ball or to hop on one foot relatively easily.*
- *Not toilet trained and still has the appearance of an infant (large head in comparison to the body, large rounded forehead, large body in relation to limbs and rounded abdomen.*
- *Not having the fine motor skills required for cutting with a pair of scissors, handling a pencil or colouring in.*

Van den Aardweg and Van den Aardweg (1993:211) concur with Kapp (1991) by contending that for a child to cope physically with the demands of the formal school he should:

- ❖ Have firm muscular co-ordination as demonstrated in the holding and use of a pencil.
- ❖ Have the necessary manual skills as in using a pair of scissors.
- ❖ Have the necessary stamina to perform certain physical tasks
- ❖ Have a sufficient healthy constitution and
- ❖ Have a normal sensory functioning.

4.6.3 Cognitive criteria

In addition to physical criteria, for a child to be school ready certain cognitive skills should have been attained. A child should have the ability to take in knowledge, absorb it, assimilate it, and later produce

it. He must be able to memorise shapes, numbers and names. He must be ready to learn to read, write and do calculations. Cognitively, this learner must have the ability to think, observe, learn, remember and communicate. He should recognise people, objects and situations. Kapp (1991:194) further says " This child who enters school should have a reasonable understanding of the association between cause and effect, be able to copy figures such as a circle and a square, and begin to show an insight into the symbols systems (language and mathematics)".

4.6.4 Affective criteria

The child should be emotionally ready to start formal schooling. He must be able to control his emotions and his impulses like talking too much or walking around in the class. An emotionally school ready learner must take into consideration other learner's feelings. According to Kapp (1991:194) a child who still shows the following signs is not yet school ready;

- *Inability to share the teacher's attention with a group of other children.*
- *Is still so dependent on his mother that he does not want to be separated from her.*
- *Still prefers to play alone instead of with others.*
- *Lacks self-confidence and self-esteem.*
- *Is unable to make relatively simple decisions by himself.*
- *Is not in a position to, within limits, exercise control over the expression of his emotions.*

4.6.5 Social criteria

Social readiness for school is also of vital importance. Pre-scholars

should also cope with social demands of formal education in the foundation phase.

Children who are socially school ready, must be able to adjust to new situations, classes and new educators. Such a learner must be able to build good personal relationships and be able to learn and play in a group. A socially school ready child must feel the need to be accepted in a group, but must also be able to work on his own. He must be able to compete and at times also accept being second best. This learner must be able to control his social behaviour and be able to accept authority and discipline. Vassiliou (2000:25) says Bandura (1977) in his theory 'The social learning theory' emphasised *the important developmental tasks that a child must master from infancy to adolescence, which must be acquired through the social learning process. The tasks that a child must master are the ability to establish relationships, to acquire appropriate sex roles, to behave morally and ethically, to learn important expectations and develop a self-concept through perceived self-efficacy.*

4.6.6 Moral criteria

Another factor which influences school readiness is moral maturity. A child should have a sense of what is right and what is wrong (Van den Aardweg and Van den Aardweg 1993:212). This learner should be able to make a distinction between what is right and wrong. He should be able to do what is socially and morally accepted irrespective of whether an educator is present or not.

4.6.7 Conative criteria

It is also equally important to say that a child who starts grade I should be prepared to learn and achieve. Such a learner should be prepared to go to school independently. He must have good personal relationships

with his peers. Rantsane (2001:79) says a school ready learner will “ want to go to school independently. He wants to associate with his peer group and can keep his own wishes in abeyance and can even compromise his principles”. This suggests that there is a big possibility that he will succeed in the foundation phase and in his future education. Early childhood educators therefore have a vital role to play to develop his abilities.

4.6.8 Perceptual criteria

A learner who is legally compelled to go to school must have adequate perceptual skills to be able to interpret subject matter meaningfully. This is because perception is regarded as one of the most important factors in the learning process. Children who are not yet ready to go to school usually show perceptual deficits in areas like visual and auditory perception. In line with the above-mentioned, Kapp (1991:193) says " The child who is legally compelled to attend school but is not yet ready for it, sometimes shows one or more of a variety of visual and auditory perceptual disorders. This can include problems with auditory and visual discrimination, foreground-background discrimination, analysis and synthesis, sequence and memory".

4.6.9 Language criteria

The child must be able to recognise the meanings of words and be able to speak clearly and intelligibly, and have the ability to name objects, describe events, repeat information given to him, repeat stories, make requests, and give instructions. An adequate vocabulary and fluent use of language is the foundation of good progress at school.

According to Mohlahle (1993:42) "At this age the child is expected to be able to communicate with other children and form relationships.

A shift from egocentrism to altruism should be made, implying the child's being able to share with others".

4.6.10 Normative criteria

According to Kapp (1991:194) "The child who is still unable to accept discipline, finds it rather difficult to differentiate between the proper and improper and has little knowledge of good manners, is probably not ready for school'. This means that nursery schools must teach learners good manners and guide them on socially acceptable or unacceptable behaviour. A learner must be able to accept authority and learn to use words like thank you, please or excuse me. Such a learner must be able to respect the rights of others and obey rules and regulations.

4.7 CONCLUSION

In this chapter different criterion for foundation phase were discussed. These were; cognitive criteria, language criteria, normative criteria, social criteria, perceptual criteria, conative criteria, moral criteria, affective criteria, physical criteria and age criteria. School readiness can be developed by increasing the learner's field of experience and by educating him to make use of his senses as effectively as possible. The above-mentioned criterion can help an educator to determine a learner's readiness for formal education, maturity, ability, and competence in the foundation phase and in other phases. Parents and pre-school educators need to work very hard in order to prepare learners for formal education in the foundation phase.

Curtis and Nelson (1989:162) say " Parents, primary and pre-primary educators need to work together if they are to meet the best interests of the children in their care". Learners problems must be identified as

early as possible for remediation to take place otherwise they might handicap their schooling. They need to attain a certain level of school readiness in order to succeed in the foundation phase. According to Kapp (1991:198) " School-readiness problems not only make initial schooling problematic for the child, but in many cases have a detrimental effect on the child's general scholastic progress and often negatively influence his total development". It is therefore important that learners need to be school ready in order to succeed in the foundation phase.

CHAPTER 5

GUIDELINES TO IMPROVE VISUAL-MOTOR AND AUDITORY DEVELOPMENT IN THE FOUNDATION PHASE

5.1 Introduction

This chapter focuses on the guidelines to improve visual-motor development and auditory development and the manner in which to assist pupils who experience problems in these areas. It is the educator's responsibility to deal with visual-motor skills and auditory perceptual problems as they manifest themselves. If the problem is not corrected as soon as possible, it may worsen and will become more difficult to correct at a later stage.

The responsibility of forming a firm foundation for good reading, writing, spelling and listening skills lies heavily on the foundation phase educator. It is most important that an educator should use relevant activities to improve learner's visual-motor skills and auditory perceptual skills. When teaching visual-motor skills and auditory perceptual skills to primary school pupils, an educator should progress from the simple to the complex, the largest to the smallest. In the early stages of development, the young child's visual-motor development and auditory perceptual development are not yet refined (Louw, Van Eeden & Louw 1998). It is therefore important to concentrate on improving these skills as early as at grade R level. It is advisable that early childhood educators should view motor skill growth as a cornerstone in child development. It is of vital importance that it should be included in the regular curriculum for pre-school children (Lerner 1997:319). The sections to follow will then provide some guidelines on how to improve

visual-motor development and auditory perceptual development.

5.2 Guidelines to improve visual motor-development

Grove and Hauptfleisch (1982:134) suggest the following activities for body orientation:

5.2.1 Body orientation

Give instructions like these for body exercise;

Touch your toes.

Touch your feet.

Touch your chin with your wrist.

Touch your knee with your foot.

Jump on your right foot.

Look to the left.

Walk around the chair.

Walk forward.

Walk sideways.

Walk over the carpet.

Ask a learner to point out parts of the body of other learners, dolls or animals like;

- Show me Susan's arm.
- Touch your doll's leg.
- Show me teddy's ear.

5.2.2 Educational toys

Educational toys help learners to better understand their environment as they play and also better understand their body parts.

This is essential at pre-school level for school readiness. Louw et al (1998:263) conducted a research study about “cognitive development in the preschool years”. In one of his findings, he says “There was a significant difference in the academic performance of pupils who owned an educational play material before their school entrance and those without it”.

Puzzles: The assembling of parts of the body to form a human figure.

Discuss the action with a learner, e.g.

Which part of the body is this?

Where does this fit on to the body?

- Arrow chart;

Place the chart in front of the learner. A learner must keep his eyes on the chart and stretch his arm in the direction the arrow is pointing. Should the arrow point to the right, for instance, he must say “right” while stretching his right arm to the right.

- Marble board

Give instructions like:

Place two marbles in the top left-hand corner.

Put one green marble to the right of the red marble.

Now put one blue marble below the green marble.

5.2.3 Gross Motor-Body Awareness

Free State Education Department (1998:8) provides the following activities for improvement of gross motor body awareness:

Activities:

An educator demonstrates while giving instructions. He says:

“Listen carefully to what I ask you to do, then do it”.

- Point to your head
- Close your eyes

- Bend your knees
- Open your mouth
- Touch your chin

He further says:

“ Now I want you to touch a learner standing in front of you”.

Learners carry out the instructions alternately.

Examples:

- Point to your friend’s stomach
- Touch your friend’s ear
- Put your hands on your friend’s shoulders
- Hold your friend’s hands
- Turn your back to your friend
- Bend your friend’s arm at the elbow

Sing and point to the different body parts:

“ Eyes and stomach, cheeks and chin, cheeks and chin, cheeks and chin;

Eyes and stomach, cheek and chin, we all clap hands together”.

5.2.4 Visual discrimination

Grove and Hauptfleisch (1982:134) suggest the following activities for visual discrimination;

According to the Free State Education Department (1998: IV) visual discrimination is “ The ability to identify similarities and differences in letters, words or objects that are seen”.

- A learner must indicate which pictures are identical to the picture on the left.
- Let learners point out the letters that are the same as the first one.
- Indicate the picture that does not match the others.

- Cosford (1990:54,55& 56) on the other side suggest the following activities for visual discrimination:

- The cloze method

The method used is that an educator writes down a few sentences but *leaves out* whatever it is that a learner needs to learn.

For example, if a learner confuses 'a' or 'o' e.g. 'pat'/'pot'.

Example with missing word endings: 'The poor horse- were sweat- under their heav- load-.'

Example with similar-looking words (then/they): 'The- had luch, the- the- went to play.'

- Colour similarities or differences

This is an exercise for practising words that are commonly confused in either reading or spelling. Give a learner a list of pairs of words to copy down. Each pair should be made of two words that a learner has confused in previous lessons. For example, use words such as: 'strike/struck', 'snow/sown', 'dawn / down'. When a learner has copied down the words, let him colour over those *parts* of the letters that make the words different. When words are different because of different letters, he must colour over the different letters (e.g. punch **h** punct**u**re).

- Find the matching words

A learner can mark, or read out, the matching words.

Rat: rat tar rag bar rat tan trot tan.

From: from term from from them form farm form.

- Colour the signs

Learners often do the wrong sum because they confuse the mathematical signs. For a week or two, whenever they write down a sum, let them do the sign in a coloured pencil. This will help them to focus their visual discrimination.

Free State Education Department (1998:11) concurs with Grove and Hauptfleisch (1982) and Cosford (1990) about how to improve visual discrimination of learners by providing the following activities.

Activities:

An educator says:

I am going to ask you to look for certain things in the class.

Put up your hand when you have found it and I will ask you to name it.

Examples:

- Look for all the round shapes in the class.
- Look for something that is red.
- Look for something that is yellow.
- Look for something that is green.
- Look for something that is blue.
- Look for objects that have the same colour.
- What do you see that is a square?
- What objects have the same shape?
- Look for two objects that show different shapes.

An educator further says:

Now you are spies and you are going to try to find the objects that I describe.

Learners play "I spy" with similar instructions as above.

5.2.5 Visual memory

According to Free State Education Department (1998: IV) " Visual memory is the ability to remember what has been seen". In a learning situation, a child ought to remember what he/she has seen in order to make meaningful learning. Teachers must come with activities to

improve children's visual memory. Grove and Hauptfleisch (1982: 134) have the following activities to improve visual memory;

- Place a number of objects or toys on the table in front of the child. After he has looked at them for a while, cover them with a cloth. Ask the child to name all the objects he/she can remember. This activity is essential in pre-primary schools for school readiness. Masitsa (1988) in Louw et al (1998:263) confirms the above when saying "Pupils who attended a pre-primary school performed significantly better on the Aptitude Test for School Beginners (ASB) than children who did not attend a pre-primary school".
- Place four objects on the table in front of the child. He closes his eyes while one object is being removed. He has to name the object that has been removed.
- Place four cards on the table in front of the child. After he has had a good look at them, they are moved around. He has to rearrange them in the original order.

Cosford (1990: 48,50,51 & 54) suggest the following activities for visual memory training;

Repetition

In any memory training the most important part of the training is repetition. Louw & Louw and Van Ede (1998:334) refer to repetition as "Memory strategies". Louw et al (1998:334) define a memory strategy as "a process that is applied to enhance remembering and is under the deliberate control of the individual". Many children can remember for a short while (short-term memory) but not over long periods of time (long-term memory).

The aim of memory training is to convert short-term into long-term memory. One does this by *over-learning*. This means that even when a child appears to know something, you teach it again. Keep on revising

and reinforcing that memory and the child will learn the information and will not have forgotten it by tomorrow or next week.

Using other kinds of memory training

When teaching something that involves visual memory, such as tables or spelling, use other kinds of memory training to help the child's poor visual memory. For example, in learning tables let the child say or sing the tables as this helps him/her to remember them by hearing them. Let him/her write the tables as this gives him/her a *motor memory* to aid him/her. Let the child make the tables in sets of pebbles or corks as this gives the child visual imagery or meaning to help him/her remember.

Recognition before recall

Show children something on a large card, i.e. a sum, a reading or spelling word, or a sentence from geography. Tell them to look at it carefully. Then take the card away and show them another card that may, or may not, be the same as the first card. Children must tell you whether the second card is the same as the first or whether it is different. You could write on the chalkboard instead, but cards are better because children are able to compare the two cards to see if they were right.

Once children can recognise the cards easily, use the same cards for teaching visual recall by asking children to write down what they have just seen.

Comprehension

Some children have poor comprehension because they do not seem to change words that they hear or read into pictures or images in their minds. If they do not comprehend, then they will forget very easily.

Give a child experience in making mental images from words.

- Ask the child to close his/her eyes while you say a simple sentence such as, 'The bike was next to the wall'. Ask the child to tell you what his/her mind picture looks like.
- Read a maths problem sum to the child and ask him/her to 'see' the picture. Then ask him/her to draw it.

Train listening skills through visual imagery. When you give instructions to a child, ask him/her to close his/her eyes and see what he should do.

Maps

When a child has to remember a diagram or a map, help him/her to concentrate on what he/she sees by getting him/her to describe it while he/she looks at it. Then let the child shut his/her eyes and describe it again. Free State Education Department (1998:27) provides the following activities to improve visual memory of learners:

Activities:

Learners sit in pairs at their desks. They page through a magazine and choose a picture. They cut it out.

The teacher says; Look at the picture you have cut out. When I tell you to exchange your pictures, you must give your picture to your friend. Take turns to tell each other everything that you remember about your picture. Pictures may be exchange with other pairs of learners and the exercise repeated.

5.2.6 Laterality

Exercises for developing laterality

Cosford (1990:78) highlight the following exercises for developing laterality.

- Identify body parts that are on the right-hand or left-hand side.

For example, 'Touch your left knee', 'Touch your right wrist'.

- For exercises in crossing the midline, give instructions in which the child is asked to touch the opposite side of his/her body. For example, 'Touch your left knee with your right ear'. 'Touch your right shoulder with your left thumb'.
- Practise using parts of the body that are on the left-hand or right-hand side as well as doing exercises involving 'backwards and forwards', and 'up and down'. For example: 'Hop forwards on your left foot'. 'Move your right arm upwards'. 'Walk slowly backwards, starting with your left foot'.
- Arrange obstacles course exercises in which you tell the child to crawl *under a table*, *through a hoop*, *between two chairs*, *over a book* or *across a line*. While he/she is doing this he/she should verbalise (say) what he/she is doing.
- Using a large, firm sheet of paper, trace children's left and right hands and feet all over the paper. The hands and feet should point in different directions. The teacher indicates a particular tracing of a hand or a foot and children must say whether it is right or left. If they are not sure, they should match their own hand or foot to the tracing.
- Play 'find the treasure'. The 'treasure' can be anything from a star for their books to a piece of paper entitling the child to be first out of the classroom at break time! Give instructions such as 'Go right three steps. Forward five steps. Now turn left. Take six steps forward'.

5.2.7 Directionality

Exercises for developing directionality

- A child must identify left-hand and right-hand parts of the body in the teacher or another child by, for example, pointing to the

other person's right ear, left eyebrow or right foot.

- Children must identify left and right on photographs and pictures of people, and then of animals.
- The child must copy another's actions. While *facing* the child, the teacher takes up various positions. The child copies these positions so that if the teacher's *left* arm is pointing upwards, then the child's *left* and not right arm must imitate the action. In order to get the child to understand the concept, you might have to stand in front of him/her with your back towards him/her so that your left arm is on the same side as his/her left arm. Then turn around so that the child can see that your left arm is now on his/her right-hand side.
- Practise finding left, right, top and bottom on a page. Give instructions such as: 'draw a circle on the *left* side of the page. Draw a cross at the *bottom* of the page'. Later on you can make the instructions more complex, for example: 'Draw a triangle at the top left corner of the page' (Cosford 1990:79).

5.2.8 Figure-ground perception

- The child must point out which pictures on the right of the picture match the picture on the left.
- The child must point out which letters are the same as the first one.

5.2.9 Eye-hand co-ordination

Ball-Handling Activities

Stationary bounce. Using both hands, bounce the ball to the surface area and catch it while standing in place. This can be repeated any

number of times.

Walking bounce. Using both hands, bounce the ball to the surface area and catch it while walking.

Partner bounce. Using both hands, bounce the ball with your partner. Cosford (1990: 85-86) suggest the following exercises for eye/ hand co-ordination:

- The child does the exercises with eyes shut. The teacher guides his/her hand. When he/she has finished, let him/her look and see what he/she has done.
- Let the child try to guess what he/she has done *before* he/she looks.
- The child keeps his/her eyes open. He/she must look at what he/she is doing and not let his/her eyes lag behind.
- At first the child moves his/her hand with the teacher's hand guiding him/her, then traces over the teacher's drawing.
- Only when the child is fluent at tracing does he/she start coping.
- Do large circular movements on the chalkboard followed by straight lines and then angles. Let the child get the feel of these movements.
- Draw large circles on the chalkboard with both hands at the same time and using large arm movements. The child draws circles continuously without lifting the chalk until he/she starts to get into a smooth rhythm.

5.2.10 Fine motor skills

Fine motor skills involve the use and co-ordination of the body parts such as eyes, fingers and hands, (Free State Education Department 1998:III).

Exercises to improve fine motor skills

- Any games using the fingers, such as finger puppets are suitable.

- Putting clothes- pegs onto a line or onto the edge of a container will also strengthen the finger muscles. Tearing paper strengthens the fingers. Make sure that the child uses only the tips of his thumbs and forefingers (some children use the sides of their forefingers).
- Cutting is a good exercise. Make sure that children cut at the bottom of the scissors blades and not up near the point, which is much more difficult. Also teach them to keep the scissors-hand still and to move the paper instead. Check that their elbows are resting on the table.
- Children must move their fingers at your command. They spread out both hands on the table. Tell them to move both their thumbs. The other fingers must remain still. You can teach laterality at the same time by giving instructions such as 'Lift your left middle finger'.
- Plasticine is rolled into 'snakes'. Make sure that only the fingertips are used.
- Children usually enjoy colouring-in. Make that they use parallel strokes as this teaches control over the drawing instrument.
- When you teach writing:
 - Use thick, soft pencils for younger children. Thick pencils are easier to hold. Soft pencils are appropriate at any age, as children do not have to press so hard.
 - Mark where the fingers should hold the pencil by placing an elastic band just below the fingers.
 - Stick a piece of sellotape on the side of the hand where it should rest on the paper. This helps the child to *feel* the correct way of placing his/her writing hand on the paper.
 - Slant the paper to the left for right-handers and to the right for left-handers. (Cosford 1990:83-84).

The Free State Education Department (1998 6, 12, 18, 37) provides the following activities for improvement of fine motor skills:

▪ **Catch the ball**

Activities:

- Learners are asked to bring newspaper and old pantyhose to school.

Give each learner two sheets of newspaper and a leg of pantyhose. Teacher says and demonstrates: " We are going to make balls. Take the two pieces of newspaper and crumple them into a small ball. Stuff the ball of newspaper into the toe of the pantyhose to form a round ball". The pantyhose are tied just above the paper to keep it firm and in place. *Allow about five minutes of free play.*

▪ **Lace your shoes and button your shirt**

Activities:

Learners sit in small groups.

- They wear shirts with buttons.

Teacher says: " Undo the top button and the bottom button of your shirts. Do them up again".

" Undo the middle button. Do it up again".

Repeat the exercise several times.

- Learners wear shoes with laces.

Teacher says: " Take the lace out of the shoe. See if you can put the lace back again".

Help those who are not able to do it.

Ask learners to help each other.

Repeat the exercise a few times.

Then teach learners to tie a bow.

▪ **Create patterns and make necklaces**

Activities:

- Teacher says: “ We are going to make necklaces. Listen carefully so that you get the colours in the right order”.

Example:

One red bead (pause), two green beads (pause), one blue bead

Learners do it.

- Teacher says “ Now take the beads off again and let’s make the next necklace”.

Examples: Two red beads (pause), three green beads (pause), one blue bead (pause), one red bead, two blue beads (pause), one red bead (pause), and three green beads. One blue bead, one green bead (pause), three red beads, two red beads, three blue beads (pause), two green beads.

- Teacher says: “ This time I am going to start the pattern.

See if you can complete the necklace”.

One blue, one green, one blue, one green,

Two red, two green, two red, two green,

Two green, one blue, one blue, one red, two green, one blue, one red,

- Teacher says “Make your own pattern now”.

▪

▪ **Make spiders**

Activities:

- Show learners a picture of a spider. Discuss where it is found, what it looks like (eight legs, body, eyes), what its web looks like.

Teach learners the “ Incy Wincy Spider” song:

Incy Wincy Spider, climbing up the spout,

Down came the rain and washed the spider out,

Out came the sun and dried up all the rain,

Incy Wincy Spider climbed up the spout again.

Illustrate the song with finger movements.

- Group the learners in groups of four to six. Give each group has a large sheet of paper (which represents a garden) and each learner has a small sheet of paper. Each learner draws a spider on the small sheet of paper and colours it in.

Cut out your spiders and paste them on your garden picture.

- Display the pictures in the classroom.

5.2.11 Spatial relationships

According to Cosford (1990:81) spatial relationships could be improved through the use of the following exercises:

- The child must learn to judge distances between objects. Give him an exercise in which he must guess how many steps there are between two objects, for example a chair and a table. Later on begin to use meters, centimetres and millimetres. Once you are using units of measurement, the child must check his guess by measuring the distance in meters, centimetres or millimetres. Do not expect exact measurements at first- accept an answer such as 'Five meters and a bit left over'.
- Pegboards are invaluable in teaching maths. Make sure that the pegboard contains ten holes across by ten holes down. This is important because our counting system is based on ten, and ten rows of ten make a hundred. With the help of the pegboard any concept of maths up to a hundred can be taught. You can teach addition, subtraction, division and multiplication.

5.3 Guidelines to improve auditory perception

5.3.1 Auditory discrimination

- Play a tape with different sounds on a tape-recorder. The child must identify the sounds (e.g. a dog barking; a motor car departing, and many others).
- Place three pictures in front of the child, e.g. a sheep, a duck and a lion. Play the sound that each one makes on a tape-recorder. The child must point to the particular animal on the picture.
- Use different rhythmical instruments, such as a bell, a triangle or a drum, and play each instrument while the pupil is watching. He/she then closes his/her eyes and listens to the notes the teacher is playing on a certain instrument. He/she has to identify the instrument.
- The teacher says a number of words and the child must say which word sounds different like;
 School, rest, west, best
 Book, cook, hook, coat
 Wall, fall, door, ball.
- Say two words and the child has to say whether they sound the same or not e.g. like; pat/pet, shake/shape, pork/cork, pin/bin.
- Sound a word and the child has to say it;
 N-e-s-t (child says nest)
 B-a-t (child says bat)
 St-o-p (child says stop).
- The pupil has to name the first sound of the following words;
 Red, rose, rock, romp, rest, rough, roof.
 Car, cat, cap, catch, cook, cry, can, coat, cone.
- Also give exercises where the pupil has to name the last sound or the sound in the middle of the word.

The Free State Education Department (1998: 2, 14, 20 & 34) provide the following activities for the improvement of auditory discrimination:

5.3.1.1 Listen and compare different sounds

Activities:

- A teacher says: “ Sit quietly and close your eyes. I am going to beat the drum/tin. I want you to listen very carefully and tell me if you hear a loud noise or a soft noise”.

Ask several learners to beat softly or loudly and other learners respond.

- A teacher says, “ Now I am going to tap the bottles, you must tell me if you hear a high sound or a low sound”.

He/she then taps the bottles and learners respond.

Ask several learners to tap bottles and other learners respond.

- He/she also says: “ Look at these pictures of animals. Tell me if they are big animals or small animals”.

The teacher shows pictures of animals and learners respond.

- A teacher says, “ When I make the sound of an animal you must tell me if it is a big animal or a small animal”.

He/she shows the picture of the animal and makes the relevant sound and learners respond.

Allow several learners to make the noises and the others respond.

- This exercise is repeated, but this time the learners close their eyes.

5.3.1.2 Listen and find a word that is different

Activities:

The teacher says:

I am going to say some words after each other. I want you to listen

carefully and when you hear a word that is different from the others, I want you to touch your nose.

Examples:

One one eight one.

Learners touch their noses when they hear 'eight'

Six six five six

Pot pot pot dot

Two two two seven

Four four your four

Up one up up

Ten pen ten ten

Dog big dog dog

Seven seven heaven seven

5.3.1.3 Differences between words and numbers

Activities:

Learners sit in a group on the carpet or at their desks.

Write the following on the board:

1 one 2 two 3 three 4 four 5 five 6 six 7 seven

The teacher says " Look at the board while we count from one to seven".

Point to the numbers. Learners repeat three to four times since young children learn better through repeating (see 4.2.4 Visual memory-repetition).

The teacher says: I am going to say some words after each other. I want you to listen carefully and when you hear a number, I want you to put up your hand.

Example: box fox one socks

Learners raise their hands when they hear " one"

More examples:

Dog	big	three	
Mix	fix	six	
Sore	four	your	
Leg	one	beg	
Two	moo	zoo	
Hive	dive	five	
Six	bed	head	
Fun	run	one	
Heaven	seven	heaven	
See	me	three	free

5.3.1.4 Sound of the first letter in a word

Activities:

Write the following on the board man mouse moon

The teacher says the words emphasising the first letter and pointing to it. Learners are to listen to the sound.

The teacher says: " Do you hear the first sound in the word? It is at the beginning of the word. It says "M ".

Listen to these words and tell me what is the first sound you hear".

Ball box boy sun sock six

Fat four fun pot pig pan

Jam jet jug man moon Monday

The teacher further says, " Now I am going to say some words, I want you to say which words start with a " M" sound".

Monday, Tuesday, Wednesday

January, February, March

April, May, June

Which words start with a “J” sound?

January, February, March

April, May, June

December, July, October

Which words start with “ S ” sound?

Six, nine, ten, one, two, seven

August, September, November

5.3.2 Auditory memory

Free State Education Department (1998: III) explains auditory memory as “ The ability to remember what has been heard”.

- ❖ The teacher gives instructions to children. Initially the instructions are short, and they become progressively longer like:
 - Close the door.
 - Bring the book here and then close the door.
 - Put the book in the cupboard, bring the ball here and then close the door.
- ❖ Restaurant game;
Children pretend to be sitting in a restaurant. They place their orders with the waiter. He/she has to go to the kitchen and repeat the order.
- ❖ The teacher says the days of the week, omitting one. The pupil has to say which one has been left out. Months of the year, rhymes and verses can also be used.
- ❖ Say a sentence with 16 syllables and the child has to repeat it exactly as it was said.

I asked my nephew and my niece to come and pay us a visit.

When we have done our homework, we may go outside and play football.

As the child progresses, longer sentences may be given.

- ❖ Tell the child a short story. He/she has to repeat it. The story should not be longer than 10 typed lines. As the child progresses, longer stories may be used.

5.3.3 Analysis and synthesis

De Kock (1989:125) defines auditory analysis as “the ability to hear parts within the whole”. Reynolds and Mann (1987:159) define the term as “the ability to identify phonemes or morphemes within words”.

- Building of patterns according to cards on which the patterns have been drawn. The child can build the patterns on a pegboard or on a marble board.
- Building with blocks according to pattern cards.
- Building with coloured cubic blocks according to pattern cards.

According to Blom (1993: 34) *the child should have the ability to hear parts of the word inside a word. These parts may be phonemes (single sounds such as “d” in “donkey”) or morphemes (larger sound units such as “tion” in “motion”). This skill is closely related to spelling. If a child can break up or analyse a word into syllables, such as “dif-fi-cult” or “motion”, then it is easier for him to spell it.*

5.4 Conclusion

The above-mentioned activities are some of the guidelines educators can use to improve learner’s visual-motor development and auditory perception. It is clear that visual-motor and auditory perception is of

extreme importance in learner's education. It is hoped that educators will find these activities very fruitful in stimulating their learners and minimising occurrences of learning problems. This is supported by the Free State Education Department (1998:1) when saying, activities presented in this booklet aim to:

- Stimulate the perceptual development of learners;
- Assist the learners who did not have access to pre-school stimulation;
- Minimise the occurrence of learning difficulties caused by a lack of perceptual skills of many beginners. It is therefore essential that educators have knowledge of specific activities to improve their children's visual-motor development and auditory perceptual skills. The activities provided in this chapter, are examples of exercises that an educator can use to improve visual-motor development and auditory perceptual skills of their learners. Such activities can be used with individuals or with groups of learners.

Chapter 6 is the concluding chapter and a summary of chapters 1-5. Conclusion recommendations and suggestions for future research will also be provided.

CHAPTER 6

SUMMARY, CONCLUSIONS, RECOMMENDATIONS AND SUGGESTIONS FOR FUTURE RESEARCH.

6.1 INTRODUCTION

This chapter will provide a summary of deliberations made in chapters 1-5. It will also give concluding remarks of this research study, recommendations and suggestions for future research.

6.2 SUMMARY

This study deals with the effect of visual-motor and auditory perception on academic performance of learners in the foundation phase. The researcher as a first education specialist at Bethlehem child guidance clinic has a first hand experience of learners who show deficits in the following areas; visual perception, motor development and auditory perception. It became clear to the researcher that many children in the foundation phase have problems with perception and motor skills and a majority of them are not ready for formal schooling. This therefore necessitated the investigation of the effect of poor visual-motor development and auditory perception on academic performance.

The main objectives of this study are:

- To describe visual perception, visual-motor development and auditory perception on academic performance of learners in the foundation phase.
- To determine the effect of poor visual-motor development and auditory perceptual problems on academic performance of

learners in the foundation phase.

- Explain different modalities of visual-motor and auditory perception. Provide activities through which visual-motor and auditory perception can be developed.

The study reveals that poor visual-motor and poor auditory perception negatively affect academic performance of learners in the foundation phase.

In chapter 02, the researcher described visual perception, motor development and their effect on academic performance.

Chapter 03 dealt with auditory perception and its influence on academic performance.

Chapter 04 describes foundation phase, age entry to the phase, content and different criteria for entry in the foundation phase.

In chapter 05 different activities to improve poor visual-motor development and poor auditory perception especially in the foundation phase were provided. For learners to improve their visual-motor and auditory perceptual skills, educators need to include activities mentioned in chapter 05 on regular basis. It is through these activities that a learner makes meaning out of what he sees or hears. Such activities must be in a play form as learners in the foundation phase learn meaningfully through play.

6.3 CONCLUSIONS

The conclusion arrived at in this study is that visual-motor and auditory perception play vital roles on academic performance of learners in the foundation phase. Many learners start grade 1 when they are not ready to do so hence poor performance at the foundation phase. It is important for learners to go through a school readiness programme like threshold and be thoroughly stimulated for them to stand a good chance

in formal education, refer 4.3. It is also concluded that if educators can plan their lessons accurately and include the activities like those mentioned in chapter 5, learners can improve their academic performance.

6.4 RECOMMENDATIONS

It is recommended that educators should include activities mentioned in chapter 05 to improve visual-motor development and auditory perception in their lessons on regular basis. It will be at the advantage of learners to go through the school readiness programme like 'stepping stones' or 'threshold' before starting grade 01. Learners need to be given enough time to master perceptual skills in the foundation phase in order to improve their academic performance. An educator's task at this level should be the execution and perfection of skills rather than the completion of a syllabus. Educators must also attend workshops on perceptual skills development.

6.5 SUGGESTIONS FOR FUTURE RESEARCH

- An empirical study can be conducted in order to further investigate the effect of poor perceptual skills on academic performance of learners in the foundation phase.
- Investigate whether educators are well equipped with methods and resources in order to improve perceptual skills to learners.
- Investigate other causes of poor perceptual skills at the foundation phase.
- Different research methods (triangulation) must be used for better understanding of perceptual skills and suggestions to improve those skills.

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