SPOKEN / SIGN LANGUAGE AS A CRITERION FOR SCHOOL READINESS AMONG DEAF PRE-SCHOOLERS.

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ABBREVIATIONS:

CEPD: Centre for Early Policy Development

db: decibel

DEAFSA: Deaf Federation of South Africa

Hz: hertz

UNESCO: United Nations Educational Scientific

    and Cultural Organisation

CHAPTER 1

1.1   INTRODUCTION

Although the controversy surrounding the medium of education for deaf individuals rages on, language professionals including educators are now realising that literacy is the single most important factor in determining the successful education of the deaf child. The medium of education selected, should thus ultimately foster literacy skills. Supporters of oralism (referring to the principal that Deaf people should learn to commnicate by speech and lipreading without the use of Sign Language) claim that with recent technological advances eg cochlear implants, the ability of even the profoundly deaf child to obtain spoken language fluency, has never been better. Oralists maintain that because the majority of the population is comprised of hearing individuals, educators are morally obliged to enforce the teaching of society's dominant language as first priority as it is only by acquiring spoken language that the deaf child will be able to fully integrate himself in society (Gregory, Hartley, 1991).

In contrast, supporters of a signed language as a medium of education argue that signed language is the best language model that is within the biological grasp of the deaf child – it is easily and naturally acquired (Lane, Hoffmeister & Bahan 1996). When used as a medium of education a signed language can impart new knowledge to the learner as well as knowledge about other languages. With first language proficiency in signed language the acquisition of second language skills i.e. literacy skills is facilitated. Deaf high school graduates (if they graduate at all) have literacy skills equivalent to roughly a third or fourth grade level. (Holcomb, Peyton & Kreeft 1992). This frightning statistic holds true for the deaf population of South Africa.

Poor literacy skills resulted in the Deaf being trapped in a vicious circle of powerlessness, dependence and marginality, consequently depriving them of their dignity and rightful place in society (Carver, 1990). Recent researchers are of the opinion that the Deaf share similar language backgrounds and literacy challenges to other minority groups and that poor literacy skills can possibly be attributed to linguistic, cultural and educational factors. Hence the importance of determining the best language medium for the deaf child to receive his education. Deaf literacy is an attainable goal. What now needs to be determined is whether a signed language or a spoken language as a medium of pre-school education is the catalyst for initiating and facilitating literacy skills, which will ultimately enable the Deaf to reclaim their power, independence, dignity and rightful place in society, thus enabling them to actively contribute towards the economic and social growth of the country.

1.2 STATEMENT OF THE PROBLEM

One of the most pressing issues confronting the parents of deaf children, in congruence with the United Nations Educational Scientific and Cultural Organisation, concerns the educational placement of their deaf child. The Constitution of South Africa stipulates that every child has the fundamental right to an education and must be given the opportunity to achieve and maintain an acceptable level of learning. Pre-schools are designed to provide the child with the necessary skills to succeed in the formal school setting. The medium of education selected for education purposes has far reaching consequences affecting all spheres of the deaf individuals quality of life. The most important being the success of the medium of education selected in the fostering of literacy skills.

1.3 PURPOSE OF THE RESEARCH

This research attempted to determine whether there was a significant difference between the school readiness skills of deaf pre-school children receiving their education through the medium of spoken language and deaf

pre-school children receiving their education through the medium of a signed language. This research will thereby assist in determining what the best pre-school educational placement for deaf children might be, enabling them to achieve and maintain an acceptable level of learning as stated in the constitution.

1.4 RESEARCH METHODOLOGY

The population targeted in this research consisted of two groups:

5 deaf pre-schoolers between the ages of 6 years 0 months and 7 years 5 months who received their pre-school education in a spoken language and who will be entered grade one in 2003.

7 deaf pre-schoolers between the ages of 6 years 0 months and 7 years 5 months who received their pre-school education in a signed language and who entered grade one in 2003.

Variables such as the test situation, tester/subject interaction, impact of time constraints on the subject and cultural appropriateness of the test items which may have impacted on the assessment procedure and ultimately on the outcome of the research were taken into consideration. Additional variables identified as possibly influencing this particular research were : the intellectual ability of the subject; additional handicaps; the age of onset of the hearing impairment (pre/post lingually deaf); age at which the hearing loss was correctly diagnosed resulting in appropriate amplification and stimulation (language) the subject was exposed to in the home environment.

In order to give the subjects maximum exposure to stimulation, school readiness skills were assessed during the last week of October 2002. School readiness skills were assessed using the University of Pretoria Group Test for School Readiness. This test was standardised by the Human Sciences Research Council in 1993/1994 and is comprised of the following subtests:

(1) visual perception (perception of shapes, foreground/background discrimination, missing parts, incomplete drawing of a person, gestalt perception, visual memory, visual sequencing); (2) spatial orientation (position in space, sense of direction, crossing the midline): (3) number concept (counting of concrete objects, quantities and proportions); (4) language and experience (emotions, abstract thinking, story memory); (5) drawing a person; (6) auditory perception (auditory discrimination,auditory memory, auditory sequencing); (7) fine motoric co-ordination (maze, writing patterns); (8) gross motor co-ordination.

In order to eliminate any possible communication difficulties the class teacher, after receiving extensive training in the test administration administered the test. Subjects were assessed in groups of four. The researcher recorded each assessment session on video. The researcher individually scored each childs performance on the test and the results between the groups were compared and contrasted. As the deaf subjects who received their pre-school education in a signed language do not wear hearing aids and receive no auditory training, subtest 6 namely auditory perception was only assessed in the subjects who received their pre-school education in a spoken language.

1.5 OUTLINE OF THE PROPOSED STUDY

This chapter has briefly identified and outlined the problem and purpose of the research. Further chapters are arranged as follows:

In chapter 2 all facets of school readiness are discussed.

Chapter 3 is concerned with deaf education.

In chapter 4 the research methodology is discussed.

In chapter 5 the data of the research is given, analysed and interpreted.

In chapter 6 the conclusion is followed by a summary.

CHAPTER 2

2.1 SCHOOL READINESS

2.1.1 WHO IS OBLIGED TO GO TO SCHOOL

A child is obliged to go to school in the year that he turns 7-whether it be 1 January or 31 December unless, he obtains school exemption for the year.

In January 2002 the minister of education, Kader Asmal, announced that parents who feel that their children are ready to enter grade 1 prior to the year in which they turn seven could apply for early school admission. Provincial education departments are responsible for ultimately determining whether a child is ready to enter grade 1 or not (Sunday Times 2002).

Experts are of the opinion that between 25% and 30% of all school beginners are not ready for school.

2.1.2 WHAT IS SCHOOL READINESS

To be "school ready" implies that the child has reached a certain stage in his development where formal education will be advantageous to the child.

School readiness is an umbrella term that encompasses different criteria:

Chronological age is no longer the only criteria for assessing school readiness.

School maturation refers to a biological maturation process that differs between children but which has important implications for formal education and schooling. This maturation process cannot be hastened but the appropriate facilitation, comprehension and support thereof can:

Improve the quality of the maturation. This can be achieved by stimulating the effective use of senses, language and co-ordinated muscle control.

The maturation process can be delayed by the lack of sufficient stimulation or neurological dysfunction as a result of a brain injury before, during or after birth.

The maturation process includes physical maturity, as the child needs to be physically fit to enable him to deal with the demands of formal education.

The ability of the child to express himself in his mother tongue and follow instructions is also an indication of maturation.

Although school maturity can be regarded as an important pre-requisite for school readiness it cannot guarantee academic success.

Social maturity refers to the child's ability to adapt to social situations whether in an individual or group context. A child, who is socially immature, irrespective of whether he has the cognitive abilities to cope with formal education, will experience considerable adaptation problems that in turn will hamper scholastic performance.

Emotional maturity implies that the child has a reasonable degree of control over his emotions. Emotional maturity influences important aspects such as self-confidence, which are pre-requisites for learning.

From the above it becomes apparent that school readiness should reflect a balance between physical and psychological maturity. When a child is evaluated for school readiness it may become apparent that he is physically and cognitively ready, but socially and/or emotionally not. It is at this point that individual differences be taken into consideration. Two important factors that play an important role in school readiness are the environment and genetics

❑ **The Child**

Thorndike as cited in Kapp (1991) theorised a pleasurable learning experience results when guidance is offered to a child who is ready to embrace it. If the child is not ready to embrace guidance the learning situation may be interpreted as negative.

According to Loch (1985) school readiness is an all-encompassing term that includes physical, psychological and spiritual aspects. Ilg and Ames (1964) emphasise that school readiness is an indication of the *age he is behaving as a total organism.*

Dryer as cited in Kapp (1991) defines school readiness as a learning and maturation process that may be attributed to the child's actual abilities and educational opportunities.

Children show varying levels of readiness for various aspects of intellectual or learning activities.

Kapp (1991) (pg187) encapsulates school readiness by defining non-school-readiness: *non school readiness indicates that the child has not reached the developmental level at which he can fulfil the demands of the school situation as a whole, without tension and unnecessary effort. It is not necessarily the result of non school maturity nor does it necessarily depend on non school maturity.*

School readiness is not an all or none phenomenon

Edwards (1999) refers to school readiness as the preparedness of children to learn what schools expect or want from them.

It is important to note that academic readiness does not necessarily imply school readiness as school readiness is said to encompass all aspects of the child's development: cognitive, physical, emotional, social and spiritual (Peterson, 2001).

Costello 2002 emphasises that cognitive abilities play an insignificant role in the child's ability to cope with the formal educational setting.

❑ **The School**

The school's readiness to accommodate a learner may be defined by the school's accessibility to the child, the quality of the education offered to the child and the school's sensitivity towards the needs and circumstances of the community (Ackerman, 1998).

According to Roux (1993) as cited in Ackerman (1998), accessibility refers to the availability of schools. In South Africa, particularly in the rural areas, schools are situated far apart and many learners need to cover considerable distances by foot in order to reach their education institution. Parents are required to supply the child with basic stationary equipment as well as school clothes and shoes. If the family is unable to afford this it can be deduced that the school is inaccessible to that learner.

Although the quality of education offered to the pupils is often influenced by the quality of the children attending the school, their attention span, levels of interest, dedication, social and cognitive abilities; the amenities, curriculum and quality of the teachers training are equally as important. In addition it is highly unlikely that a child will receive quality education where classrooms, books and desks are not available to the learner (Myers, 1992; Roux, 1993 as cited in Ackerman, 1998).

A school that does not take the needs of the community into account may for all practical purposes be regarded as inefficient. This implies that although the school may be accessible to its learners and provide them with a quality education by well qualified teachers if it does not adhere to the needs of the community it cannot be said to be ready to accommodate the child. The use of a language other than the child's mother tongue can be viewed as an example where the communities' needs are ignored.

The child's school readiness as well as the schools readiness for the child forms a symbiotic relationship that will undoubtedly influence the child's performance within the school environment (Myers, 1992)

❑ **The family**

A family's socio-economic status, knowledge, attitude and expectations have an impact on decisions pertaining to the child's nutrition, health and psycho-social well being. These decisions may in turn have far reaching effects on the school readiness or lack thereof in the child.

❑ **External societal factors**

Among external societal factors that contribute to school readiness are the nations historical perspective on early learning, reforms to improve education departments and public policy pertaining to government's involvement in pre-school education (Edwards, 1999).

2.2 SCHOOL READINESS IN SOUTH AFRICA

According to Peterson (2001) as cited in the Monday Paper of 5-12 November (2001) school readiness   preparation starts at birth and continues until the child enters grade 1. The abilities mastered in pre-school provide the foundation for successful scholastic development.

2.2.1 CRITERIA FOR SCHOOL READINESS

The Centre for Education Policy Development (CEPD) (1994) has identified the following parameters as indicative of school readiness:

2.2.1.1 Physical development
Gross motoric development
Co-ordination should be well developed. The child should be able to perform a variety of gross motoric acts including climbing, walking, running, skipping,

hopping, catching a ball, standing on one leg and should be able *to* use the playground equipment with eas*e.* The child should also be able to ride a bicycle (de Paravicini, 2001).

Fine motoric development

The child should comfortably be able to use a pair of scissors, pencils, crayons, cutlery and simple implements. The child should be able to manipulate objects in space eg while building blocks, dressing himself

2.2.1.2 Self-care

The basic self-care skills such as dressing oneself, tying shoelaces and buttoning up should be developed as should hygiene routines such as toileting, washing of the hands and face.

2.2.1.3. Social, emotional and behavioural development

- A degree of self control must be evident. The identification and control of emotions should be self evident and the child should be able to respond appropriately to his emotions
- Self gratification should be able to be delayed and the child should be able to wait his turn
- The child can share adult attention with other children.
- Separation anxiety should not be evident.
- The child enjoys companionship and is willing to share (de Paravicini, 2001).
- The child should be confidant enough to explore and eager to learn.
- The child should be able to work independently
- The child should be able to initiate games, topics of conversation
- The child should be able engage himself in activities initiated by an adult
- The child must be able to respond appropriately to requests, instructions and commands.

- In the South African context it is important that the fears and stress resulting from the crime, violence and abuse to which many children are exposed is understood and appropriately dealt with.

- Ability to complete a task is important (Nurss, 1987)

- Rules should be adhered to and the child should have respect for the belongings of others.

- The child should be confident when confronting new situations (Jacobson, 2002).

- The child should exhibit empathy (Jacobson, 2002).

- A degree of trust should be evidenced (Costello, 2002)

- The child should be able to concentrate for between 15 and 20 min

2.2.1.4 Creativity

- The child should be able to use drawings, play and various objects to express himself creatively (Peterson, 2001).

- The child should be able to actively involve himself in role playing, drama and story telling.

- They should be able to creatively express their understanding of the world around them (Ackerman, 1998)

2.2.1.5 Reasoning and thinking

- **Language and thinking**

  The child should be conversant in his mother tongue.

  The child should be able to both comprehend others and express himself fluently and meaningfully (Nurss, 1987).

  Should be able to remember details from stories in a logical sequence (de Paravicini, 2001)

  The child should have an expansive vocabulary and be able to describe the attributes (size, shape, colour) of objects

  The child should be able to recognise letters, particularly those occurring in his name.

  Comprehend concepts of time such as before/after (Jacobson, 2002).

Able to identify the differences and similarities between objects (Jacobson, 2002).

The child should be able to work from left to right

- **Logic and maths**

  Concepts such as shape, size, colour should be established.

  The child should be able to identify and categorise objects.

  The child should be able to sequence

  Number concept from 1-10 should be developed.

2.2.1.6 Physical health

The child should be physically healthy in order to attend and perform within the school environment. The following should be carefully monitored and where applicable the necessary intervention should be implemented by a suitably qualified person:

- Immunisations
- Visual, auditory and dental problems
- Nutrition and growth deficiencies
- Sicknesses such as HIV/AIDS and TB
- Epilepsy
- Allergies
- Blood disorders
- Diabetes
- Attention deficit disorder, with or without hyperactivity
- Treatable common sicknesses eg meningitis, scabies
- Accident
- Burn wounds and fractures commonly occur
- Emotional difficulties such as trauma due to divorce, violence

2.3 SCHOOL READINESS TESTING

School readiness tests are a means of determining whether the child is going to be able to cope within the formal school setting (Peterson as cited in the Monday Paper of 5-12 November 2001) School readiness tests reflect the skills required for academic success. However, decisions concerning school readiness should not solely be based on school readiness testing as normal development can be highly variable during the preschool years (Jacobson, 2002; American Academy of Pediatrics 1995). It is therefore necessary that the child's individual characteristics be taken into consideration and that pre-schools be flexible and adaptable.

2.3.1 WHY IS IT IMPORTANT TO DETERMINE WHETHER A CHILD IS READY FOR SCHOOL OR NOT

The demands placed on the grade 1 child are high. A child who enters the grade 1 classroom without the necessary skills is likely to develop problems emotionally, behaviourally or academically.

Knowledge of the child's strengths and weaknesses when he enters grade 1 may be beneficial for understanding the academic performance of the child throughout his academic career. This knowledge may also be utilised to develop strategies to facilitate effective learning in the child. (Saluja, Scott-Little & Clifford, 2000). Future assessment may be compared with the baseline data obtained from the school readiness assessment, enabling the educator to determine whether initially identified problems have been resolved or whether these problems are ongoing. This may be beneficial in the determining of relevant intervention strategies.

According to Oakland & Hambleton (1995) as cited in Ackerman (1998) school readiness tests are used for the following purposes:

- Identification of children with specific needs
- Provides guidelines with regards to counseling and guidance
- Diagnoses specific developmental delays
- Identifies children for special needs programs

- Determines which children should be held back or permitted school entrance

2.3.2 WHAT ARE THE PROBLEMS ASSOCIATED WITH SCHOOL READINESS TESTING

- Stigmatise children (Jacobson, 2002) Many children who score below average on the school readiness tests are labeled. This label often accompanies them throughout their academic careers (Fair Test, 2002).

- Test situations are unfamiliar and abnormal and often result in anxiety in the child being tested (Jacobson, 2002; Swart, 1973)

- Many school readiness tests in use were not standardised on the population with whom they are being used, consequently the tests are culturally bias. (Jacobson, 2002). Children from lower socio-economic families and minority groups are thus unfairly discriminated against. (Fair test, 2002)

- The child's performance on a school readiness test is often dependent on his educational experience. As pre-school education is not subsidised, those children whose parents cannot afford to send them to private pre-schools are often at a disadvantage when conducting school readiness tests.

- Many school readiness tests currently used are not based on the most recent developments in the area of child development. (Fair test)

- Tests can be incorrectly applied and interpreted (American Academy of Pediatrics, 1995)

- The attention span of the young child is limited, particularly when he is required to perform activities that he did not select himself as is the case with school readiness assessments (Davies, 1984).

- Many school readiness tests are incorrectly administered and open to subjective interpretation of the child's performance

- Many tests are designed to only identify the child that is not ready for school (Ackerman, 1998)

- Children are emotional beings privy to experiencing both good and bad days. It is important that the examiner be aware of any external anxiety that the child may be experiencing eg divorce as this trauma may have a negative impact on his performance.

- School readiness tests are limited in the skills that they can assess (Fair Test, 2002)

  Consequently children are often either incorrectly placed or held back unnecessarily.

2.3.3 FACTORS INFLUENCING THE ASSESSMENT OF PRE-SCHOOLERS

2.3.3.1 Culturally related factors

Van de Vijver and Poortinga (1992) identified the following culturally related factors possibly having an impact on the assessment of pre-schoolers.

❑ *The tester.* This includes personal characteristics such as ethnic identity, intergroup relationships and language use all of which could have an impact on the test results obtained.

❑ *The testee.* The importance of assessment differs between the various cultures, while some cultures regard assessment as frivolous and absurd other cultures are keen to demonstrate their willingness to complete an assessment (Cronbach 1990).

❑ *Time.* In many cultures time is of no importance. In the Western culture the speed with which tasks can be completed is seen as an indication of intelligence.

❑ *Tester-testee relationship.* The relationship between the tester and the child can influence the results of the assessment. It is important that communication is clear as research has indicated that in spite of the fact

that they do not understand what is expected of them many children will not ask for clarification and will most certainly not ask twice. The tester may be bias and may indirectly influence the testee's response.

❑ *Familiarity with regard to assessment procedures.* This pertains to the child's knowledge of how speed and accuracy are an important factor in tests with time limits as well as how incorrect answers influence the testee's score. The child who has previously been subjected to a formal test situation is at a distinct advantage to the child who has never previously been exposed to a similar experience.

❑ *Familiarity of Test items.* Many stimulus items included in formal assessments are culturally biased and unfamiliar to the subject being tested.

2.3.3.2 General factors

Ackerman, 1998 cites the following as factors that could possibly influence test results:

❑ *The testee.* It is the role of the tester to motivate the child, facilitate co-operation and ensure that the child responds to the test stimuli in an appropriate manner. The examiner should bear in mind that a shy and withdrawn child is initially likely to be less responsive. In situations such as the latter it is important that the tester not be intimidating, but rather wait for the child to initiate communication. It is the responsibility of the tester to create a relaxed atmosphere for the child.

❑ *The test situation.* Attention should be given to the environment in which the child is to be tested. It is imperative that the test location be quiet, well lit and ventilated and that there be sufficient workspace for the subject.

❑ *Test feedback.* Feedback to encourage and motivate the child, although positive, may have an influence on the test results. Feedback regarding the correctness of the subject's answers must be avoided.

❑ *Test anxiety.* Anastasi, 1990 as cited in Ackerman, 1998 differentiates between two types of anxiety:

Emotional anxiety results in an increased heart rate and an increase in stress that may negatively impact on the child's performance.

Cognitive anxiety refers to the feelings of inadequacy the child may experience in his ability to satisfactorily answer the test questions. These feelings of inadequacy divert the child's attention from the task and consequently have a negative impact on performance.

2.3.4 STANDARDISED SOUTH AFRICAN DEVELOPED SCHOOL READINESS ASSESSMENT TESTS

2.3.4.1 SCHOOL READINESS BY TRAINED TEACHERS (SETT)

This test which is comprised of three developmental scales, namely language and general, physical motoric and emotional as well as a social development scale was devised to identify potential school beginners that would more than likely require special assistance to cope with the academic demands placed on them within the first school year. The test is administered individually within a period of 30 minutes and has been standardised on white, coloured and asian children. The test includes a parent and teacher questionnaire. A holistic impression of the child is obtained as this test includes facets such as auditory and visual deficits (Ackerman, 1998).

2.3.4.2 THE HERBST DEVELOPMENTAL SCALES

This test was devised in 1988 and measures the cognitive, gross and fine motoric developmental skills in pre-schoolers between the ages of 3 and 6 years. Cognitive skills assessed include body concept, visual discrimination, visual motoric integration, colour-, form-, number-, and spatial concepts as

well as analysis/synthesis, picture interpretation and picture perception (Ackerman, 1998).

2.3.4.3 THE GROUP TEST FOR SCHOOL READINESS

This test is comprised of eight subtests namely visual perception, spatial orientation, number concept, language and experience, auditory perception, fine motor co-ordination and gross motor co-ordination. The test can be administered in a group and includes a parent questionnaire.

2.4 CURRICULUM 2005

In 1998 Curriculum 2005 was implemented

2.4.1 BACKGROUND

The CEPD constructed the following general principles to serve as guidelines in the development of a more accessible curriculum:

- The curriculum be student orientated and facilitate co-operation and involvement of the student.
- Facilitate critical and pensive reasoning.
- Foster problem-solving and decision-making skills.
- Encourage self discipline
- Aim to utilise local traditional materials, games and customs.
- Prepare students to be economically active in a globally changing economy.
- Tolerate diversity through flexibility.

To meet the specific education requirements of the child, the CEPD (1994) made the following suggestions:

- The developmental and learning needs of children of various ages should be taken into consideration and incorporated in the curriculum.

- The curriculum be adapted appropriately for children with specific educational needs.
- The curriculum should not only address the child's educational needs, but also his nutritional, health and psycho-social status.
- School and lifelong learning should be encouraged by the curriculum.
- The curriculum should be sensitive to the diversity of the South African population and facilitate tolerance of diversity in the young child.
- Current political, media and technological trends should be addressed by the curriculum.

Macdonald (1993) stipulates that the aims of primary education must encompass the following:

- First language/mother tongue mastery
- Master linguistic skills
- Facilitate learning skills.
- Development of concepts and processing skills in mathematics.
- Development of concepts and processing skills in environment studies and science.
- Development of concepts and processing skills in social studies, history and geography.
- Development of knowledge and experience in design and technology.
- Acquire second language proficiency.
- Stimulate interest and understanding of diverse cultures and environments.
- Social interaction and tolerance of the rights and abilities of diverse cultures.
- Development of talent, leadership and self confidence.
- The stimulation and facilitation of participation in recreational activities within the cultural context.

O'Hagan and Smith (1993) highlight the following as important characteristics to be contained within the curriculum for the early years:

- The child's needs and interests should first be addressed.
- The curriculum should acknowledge the importance of the early years in the life of the child.
- The curriculum should be balanced and incorporate a broad spectrum of learning opportunities.
- The curriculum should consider the manner of learning and developmental needs of the child.
- The curriculum should emphasise the importance of play.
- Focus should be placed on the learning process.
- Subjects should be integrated within the curriculum.
- All children, regardless of social, cultural- ethnic and language background, gender or disability should be provided with equal opportunity for learning.
- Continuity between different academic phases is important.
- Children should be respected as individuals within their own social context.

2.4.2 AIMS OF CURRICULUM 2005

Ackerman (1998) states that the primary aim of curriculum 2005 is to provide the child with an opportunity to realise his full potential. It is believed that the development of the child in totality results in a well-balanced individual equipped with the necessary life skills.

According to the Department of Education (1997), the basic principles that underlie the curriculum are:

- Integration
- Holistic development
- Relevance
- Participation and ownership
- Responsibility and perseverance
- Child centred approach
- Flexibility

- Critical and creative thoughts
- Progress
- Unbiased approach
- Inclusion of children with disabilities.

Curriculum 2005 is flexible and within each phase it allows the child to develop according to his own tempo. Outcomes based education emphasises progress according to the child's unique potential (Ackerman, 1998). Three phases, namely the foundation phase (grade 1 to grade 3), the intermediate phase (grade 4 to grade 6) and the senior phase (grade 7 to grade 9) can be differentiated. The following eight learning areas can be identified:

- Human and social science
- Language, literacy and communication
- Technology
- Mathematical literacy and mathematical science
- Natural sciences
- Economics and Management sciences
- Arts and culture
- Life orientation

At the end of each phase the child is expected to have mastered certain outcomes i.e. knowledge, experience and values.

2.4.3 SPECIFIC LEARNING OUTCOMES

Within the foundation phase the following learning outcomes have been identified within the different areas of learning (Curriculum 2005 A Users Guide):

2.4.3.1 Human and social sciences

The changing and developing South African society is studied, incorporating aspects such as the identification of social development patterns, the promotion of a democratic and equal society, decisions concerning

development and the management of resources as well as the relationship between society and nature.

2.4.3.2 Technology

The field of technology has as its outcome to develop the following: solving technological problems through investigation, design, development and assessment; effective communication in mother tongue as well as in other languages; the ability to understand and apply technological knowledge; the ability to work either individually or within a team; an understanding of the interrelationship between technology, society the economy and the environment.

2.4.3.3 Mathematical literacy and mathematical science

Mathematics provides the child with an opportunity to develop numerical, spatial, temporal and symbolic concepts enabling him to analyse, make decisions and use numbers to achieve a variety of goals. Logical reasoning and problem solving are facilitated.

Mathematics is regarded as a human activity. Within this field the concept of temperature and time, importance of measurement and the impact of mathematics within the economic sector are investigated. The position of an object in space, the relationship between form, space and time is demonstrated, as is the use of mathematical terminology and symbols.

2.4.3.4 Natural sciences

A phenomenon is identified and the learner is encouraged to formulate investigative questions. Data is collected analysed and interpreted. Natural science focuses on the relationship between culture and science, creates an awareness of the ethics at stake in science and emphasises the relationship between science and socio-economic development.

2.4.3.5 Arts and Culture

Art and culture encourages the child to utilise his creativity to develop his social interaction skills. Self confidence is addressed. Different art forms and

their origin are studied. Diverse cultures and their unique traditions are studied. Different forms of communication and expressions are studied, as is the economic contribution of art and culture.

2.4.3.6 Economics and Management Science

Entrepreneurship is emphasised, with the child given the opportunity to demonstrate his entrepreneurial skills. The role of the child within the economy is investigated. Concepts such as demand and supply are investigated as administrative business skills. The use of financial data to make decisions is studied. The growth and development of the South African economy is highlighted and compared with other economic systems.

2.4.3.7 Language, literacy and communication

The importance of language and language use is addressed. Grammatical knowledge and convention is applied to a variety of texts. The rules of a language and their generalisations are identified, explained and applied. Pragmatics is also addressed. The following skills can be identified:

Listening

Informative listening where the child is required to listen for detail

Evaluative listening where the child needs to judge and, interpret

Critical listening where the child listens to the sequence of events, makes conclusions and predicts outcomes

Social listening where the child is actively involved in communicative interaction by for example asking questions.

Speech.

Content: refers to the relevance of the task

Organisation: the logical sequencing of events is emphasised.

Language: the fluency, vocabulary, idiomatic expressions and sentence construction is emphasised.

Communication strategies are an important aspect of both speech and listening skills.

Reading

Literal comprehension that incorporates the ability to understand the text.

Deductive comprehension refers to the ability to make deductions concerning the outcome of the text.

Evaluative comprehension refers to the ability of the reader to determine the reliability and accuracy of the facts presented in the text.

Reference comprehension is indicative of the child's ability to make use of resources such as dictionaries.

Applied comprehension refers to the child's ability to apply the knowledge acquired in the text.

Writing

Content refers to the originality, creativity and purpose of the proposed writing.

Organisation refers to the logical sequencing of ideas and paragraphs.

Language refers to grammatical aspects such as tense, sentence construction, punctuation and word order.

2.4.3.8 Life orientation

The uniqueness of the individual is addressed. Relationships are discussed. Basic human rights are addressed and skills for making life altering decisions are practised. Aspects facilitating the development of the child's potential and talents are identified. Values underlying healthy relationships are investigated.

2.5 GOAL OF GRADE 0

In order to incorporate the social, emotional, perceptual, physical and intellectual areas of development that are pre-requisites if the child is to achieve success with curriculum 2005 as described above, it is necessary that the pre-school curriculum be balanced and harmonious.

The specific goals of pre-school education should consequently be to:

- Address the individual needs and development of the child.
- Develop gross and fine motor co-ordination through sufficient exercise.
- Facilitate social interaction in unfamiliar environments by reinforcing the Child's social strengths during peer interaction.
- Stimulate critical and lateral thinking by providing the child with cognitive challenges in the fields of language and numeracy.
- Encourage concentration and perseverance.
- Continually assess the child's development and work towards school readiness.
- Nurture self-esteem and confidence.
- Make the child positive about entering grade 1.
- Assist the child in reaching his optimal potential.
- Stimulate creative thoughts through fantasies.
- Allow the child to attain school readiness at his own pace.
- Provide the child with opportunities to experience his world, by arranging outings, visitors and working in themes.
- Allow the child to experience success as this facilitates confidence and motivation that are required within the formal educational setting.

CHAPTER 3

3.1 HEARING

The ear consists of three parts:

❑ **The outer ear**

Consists of the fleshy curved part on the outside of the head (pinna) and the tunnel like opening in the ear (external ear canal). At the end of the external auditory canal is the eardrum, a thin membrane which is stretched tightly over the canal.

❑ **The middle ear**

The middle ear is a small chamber containing three tiny bones:

The hammer (malleus)

The anvil (incus)

The stirrup (stapes)

These bones which are linked, connect the eardrum to the inner ear. The bottom of the middle ear opens into a narrow passage called the Eustachian tube, which leads to the back of the throat. Usually the Eustachian tube is collapsed. It opens when you swallow, sneeze, yawn or blow your nose. It also opens when the air pressure changes rapidly, such as when you take off or land in an aeroplane. When the tube opens, air passes between the middle ear and the throat, equalising the pressure on the inner and outer sides of the eardrum, preventing the ear drum from rupturing.

❑ **The inner ear**

The inner ear has three principle parts, the most important of which is the cochlea. This is a structure which is shaped like a snail's shell. The vestibule is a small, round chamber which forms the central part of the inner ear. The vestibule has two small membranes that face the middle ear. One is the oval window which is attached to the footplate of the stirrup. The other is the round window which lies just below the oval window.

The three semi circular canals are behind the vestibule. These canals contain fluid filled tubes and are responsible for balance.

The cochlea is in front of the vestibule. It resembles a snail's shell. Three fluid filled ducts wind through the cochlea. One duct begins at the oval window and the other at the round window. These two ducts join at the helicotrema (tip of the spiral). The third duct, the cohlear duct, lies between the two other ducts. One wall of the cochlear duct consists of the basilar membrane. The basilar membrane has thousands of hair cells which make up the organ of Corti, which is the actual organ of hearing.

The nerve of the inner ear is known as the auditory nerve. It has two branches-the cochlear nerve and the vestibular nerve. The auditory nerve is attached to the hair cells. The nerve extends from the inner ear to the brain.

Sound waves enter the ear through the external ear canal and they strike the eardrum, causing it to vibrate. The vibrations are amplified and transmitted by the tiny bones in the middle ear. When the stirrup vibrates, it causes pressure changes in the middle ear. These pressure changes create waves that travel along the organ of Corti. The waves cause filaments on the hair cells to bend. The bending of the filaments causes the release of a chemical that creates electric impulses that travel via the auditory nerve to the brain, where they are interpreted as sound. A loud noise causes the movement of a greater number of filaments and causes them to bend further than soft noise does. When sound is relayed to the inner ear via the outer and middle ear, it is known as air conduction.

Sound waves can also be conducted to the inner ear through the bones of the skull. Sound waves may cause the skull bones to vibrate. This vibration may be transmitted to the cochlear and from the organ of Corti to the auditory nerve and then to the brain. In this way, the sound waves do not travel through the mechanism of the outer and middle ear. This type of sound transmission is known as bone conduction.

3.1.1 Hearing and Communication

Until recently, it was believed that all babies were born deaf and that after birth they gradually learned how to listen. However, research has indicated that the ears develop at a gestational age of approximately 4 months and that the fetus is capable of listening to sounds within the womb. Consequently a child is born with a functional hearing system.

After birth the baby is capable of hearing and discriminating a variety of sounds although he has a preference for speech sounds which facilitates the natural acquisition of language.

The quality of the newborns hearing ability changes and ranges from being able to identify his mothers voice among numerous female voices, to being able to discriminate intonation patterns and interpret friendly versus unfriendly voices.

The infants hearing progresses from listening to auditory input in general to being able to listen to finer auditory detail.

At approximately ten months of age the infant is able to respond appropriately to a variety of speech commands. At age 12 months the infant starts using single words which he expands to form two word sentences by the age of 2 years.

Although the child is born with the ability to acquire language it is paramount that he is repeatedly exposed to and experiences sound, in the absence of which, language acquisition will not develop.

During the first 4 years of his life the child is very receptive to the sounds of language. If during this stage the child was not exposed to or did not experience sound it is highly unlikely that he will acquire language skills.

Initially the childs experiences with sound form the foundation of the language learning process. Meaning is attached to the sound experience as the child is exposed to language by hearing the speaker and in so doing

develops an innate concept of language, which is stored in the brain. The child uses this innate language ability to speak, read and write.

Hearing facilitates listening which in turn is a pre-requisite for the acquisition of spoken language. When the child becomes a speaker the hearing system serves to monitor his voice and language use (Hugo, 1987).

3.1.2 Types of hearing loss

3.1.2.1 Conductive hearing loss

Loss of sound sensitivity as a result of abnormalities of the external and middle ear. The conduction of the sound by means of air conduction through the external or middle ear mechanism is weakened by an abnormality. The conduction of sound by means of bone conduction is not affected.

3.1.2.2 Sensory-Neural hearing loss

Loss of sound sensitivity as a result of abnormalities in the inner ear (eg cochlea) or nerve pathways (eg eighth nerve).

3.1.2.3 Mixed hearing loss

Loss of sound sensitivity as a result of abnormalities in both the conductive and sensory-neural mechanisms.

3.1.3 Causes of hearing loss

Hugo, 1987 lists the following as possible causes of hearing loss:

3.1.3.1 Congenital

The majority of people have the ability to hear. This ability is a generic trait. Some people do not have this trait. Instead, they have a trait for deafness or hearing impairment. The cause of deafness may be traced to either parent.

Congenital hearing impairment is transmitted either by ordinary, paired chromosomes (autosomal) or by the sex chromosomes (x-linked).

❑ **Autosomal dominant inheritance**

In this condition there is at least one dominant gene for hearing loss in one of the ordinary chromosomes. Possession of a single dominant gene is enough to cause the trait. A hearing impaired parent in this instance will have one normal gene and one gene for hearing loss and will transmit either a gene for hearing loss or a gene for normal hearing to his child. Typically for each pregnancy the chances for the child to have the trait are about 50%. Males and females are equally affected. The trait is carried vertically from one generation to the next.

❑ **Autosomal recessive inheritance**

In recessive hearing impairment the gene for hearing loss is recessive to the gene for normal hearing. Parents of children with autosomal inheritance usually have normal hearing. Parents of children with autosomal inheritance usually have one gene for normal hearing and one gene for hearing loss. If both parents are carriers the probability is only 25% that the child will receive the defective gene from each parent and exhibit a hearing loss..

❑ **X-linked inheritance**

X-linked inheritance is a special type of recessive inheritance. In its most common form, the mother carries the gene for x-linked hearing loss on one of her chromosomes. Because x-linked traits are often recessive the matching gene on the x-chromosome usually allows for normal hearing. The mother would have normal hearing but each son would have a 50% possibility of inheritance of a hearing loss. Each daughter has a 50% chance of inheriting the affected chromosome if the mother is a carrier. She also has a 50% chance of being a carrier of the x-linked trait. In other words she is

capable of tansmitting the trait to her sons. An affected male will transmit the x-linked trait for hearing loss to all his daughters, making them carriers, but to none of his sons, since he can conribute only y-chromosomes to them.

3.1.3.2 Acquired

The first 28 days of fetal life form a crucial time of very rapid fetal growth and development during which more than 70% of long term neurological handicaps originate. A significant portion of these handicaps appear to begin with fetal infection acquired during pregnancy or in the period immediately before or after birth.

❑ **Pre-natal**

Fetal infection occurs by one of the following routes:

Transplacental passage of virus

Extension of the birth canal with infection of the membranes

Direct contact or contamination during the birth process

- Rubella

- Cytomegalovirus

- Kernicterus

- Rh incompatibility

❑ **Perinatal**

- Prematrity

- Anoxia

- Birth injury

❑ **Post natal**

• Meningitis

• Measles

• Mumps

• Other viral infections including chicken pox

• Ototoxity

• Otitis media

3.1.3.2 Trauma

❑ head injury

❑ noise induced

3.1.4 Implications of a hearing loss

The ear is the primary sensory channel through which speech and language skills are normally acquired. Hearing loss in an infant or young child is associated with a broad spectrum of problems:

3.1.4.1 Effects on speech development

Speech is a complex signal, with most of the speech information carried in the frequency range between 400 – 3000 Hz (Skinner, 1988; Davis & Hardick, 1986; Calvert and Silverman, 1975). In order to perceive speech adequately the frequencies between 800 –2000 Hz should be audible (Ross, 1991). The process of speech perception is primarily an auditory one and limited in the child with a profound hearing impairment.

Speech sounds usually occur in continuous speech. This complicates the speech perception process and necessitates the utilization of a variety of skills to adequately perceive the speech signal (Ross et al, 1991; Schow and

Nerbonne, 1989; Borden et al, 1988; Eiler as cited in Lehman, 1988; Hanin et al, 1988; Hochberg et al, 1983; Flanagan, 1972).

Firstly the child needs to detect the presence or absence of the speech signal. Both voicing and vowel information is confined to the lower frequency regions (100 Hz to 250 Hz). This suggests that most hearing impaired children will be able to detect the speech signal since individuals with profound hearing loss tend to have better hearing in the lower frequencies (Davis and Hardick, 1986; Erber, 1982). Detection therefore involves a very limited analysis of the acoustic cues present in the speech signal (Weisenberger, 1989).

Secondly adequate speech perception depends on the ability to discriminate between speech signals of different temporal and spectral cues (Schow and Nerbonne, 1989). If the profoundly hearing impaired child has better hearing sensitivity in the lower frequencies it is predicted that he will be able to differentiate between speech signals differing in duration and stress, for example monosyllabic vs multisyllabic words and spondees vs trochees, as the supra segmental aspects of speech are provided in the lower frequencies. The availability of spectral cues is usually limited in a profoundly hearing impaired child. Therefore phonemes dependent largely on audibility of the second and third formants (high frequencies) may not be easily discriminated, for example, the vowels /i/ and /u/ have similar F1 and F2 formants but different third formants (Davis and Hardick,1986; Calvert and Silverman, 1983). The vowels /i/ and /u/ are therefore only distinguishable if the individual is able to hear the formant transitions of the first three formants (Ross et al 1991; Davis and Hardick, 1986; Hochberg et al, 1983; Calvert and Silverman, 1983).

Thirdly the normal hearing child is able to perceive speech because he is capable of identifying specific phonemes by attaching a linguistic label to what was heard (Schow and Nerbonne, 1989). This skill is often difficult for a profoundly hearing impaired child to acquire as it is dependent on the correct perception of spectral cues in the speech signal. This information is often

reduced in a profoundly hearing impaired child who has little if any residual hearing in the high frequencies (Erber, 1982).

Integration of the above mentioned skills, as well as adequate attention and memory, facilitate the total comprehension of the oral message (Erber, 1982). As the hearing impaired child receives only inadequate acoustic information which may be distorted (Skinner, 1988), he is primarily dependent on linguistic information available in the spoken message comprehension.

Good speech perception skills are not only a pre-requisite for comprehension of a spoken message but are also essential for the development of good speech production skills (Ohde et al, 1988). The normal hearing infant utilizes the above mentioned skills for adequate perception of the speech signal. He then attempts to imitate the sound and is able to monitor his own productions. In this way he is able to modify his speech production continually and gradually develop intelligible speech (Ross et al, 1991; Hochberg et al, 1983).

The profoundly hearing impaired child's speech perception of the oral message is, however, restricted, in addition his auditory feedback mechanism is impaired or absent. This results in an inability to monitor his own speech production. Consequently the acquisition of speech production skills, particularly segmental aspects and to a lesser extent suprasegmental aspects, is very difficult (Dawson et al, 1982).

3.1.4.2 Effects on spoken language acquisition

According to Saunders (1982) the comprehension and use of verbal language are the two developmental aspects that are most severley effected by hearing impairment. Effective communication is dependent on the knowledge and use of the rules of a spoken language (Thompson, 1987).

Davis and Hardick (1986) identified the following language characteristics in children with a hearing impairment:

❑ **Vocabulary**

- Reduced vocabulary. The deficit appears to be proportional to the degree of the hearing loss

- The nature and use of vocabulary by hearing impaired children differs from that of normally hearing children

- Hearing impaired children struggle to understand words that have more than one meaning. They are inclined to attach one meaning to a specific word and if that word is used in another context, the meaning is lost to the hearing impaired child.

- Although general knowledge increases with age, the difference in word usage between the hearing and the deaf child becomes greater.

❑ **Syntax**

- The acquisition of grammatical rules for the purpose of communication either verbally or in writing is negatively affected.

- The use of appropriate syntax appears to be related to the degree of the hearing loss. Children with a moderate hearing loss appear to be able to construct syntactically correct sentences more easily than the deaf child.

- Hearing impaired children struggle with the comprehension of complex sentences such as active/passive and subject/verb agreement.

- Syntactic skills do improve with age although this improvement is slow. There appears to be a plateau for language learning which is not only proportionate to the degree of the hearing loss, but also to the language the child was exposed to during the critical periods of language acquisition (first 3-5 years).

❑ **Pragmatics**

- Schirmer (1985) indicated that although the use of pragmatic strategies in the Deaf appeared to be delayed they exibited the same pragmatic strategies as hearing children.

- Kolzak (1983) indicated that the Deaf exhibit difficulties with the initiation of conversation as well as turn taking

3.1.4.3 Effect on the family

❑ **Marriage**

When a deaf child is born to hearing parents, the stress caused by the birth of a deaf child can cause an unhappy marriage to crumble even further or it may bring a couple closer together because the shared heartache and worry leads to greater dependence and suport. The presence of a deaf child in the family will, however, lead to additional problems such as emotional strain, social tension and enormous financial burden. Hearing parents of a deaf child face a fear of the unknown. Initially they may be dissappointed about giving birth to a child with an affliction. This dissappointment may translate into rejection and later overprotection and unrealistic expectations (Quigley and Kretschemer, 1982). Strain is placed on the marriage by decisions that need to be taken in the absence of adequate knowledge eg decisions about the child's future or the mode of communication to be used.

Because of the communication barrier experienced between the deaf child and his hearing parents discipline is difficult and frustration builds as communication fails (Marshark, 1997).

As previously mentioned one of the most important impacts of hearing loss is on the communicative skills of the child. As a result of limited communication skills, interaction with brothers and sisters is often difficult. Parents, when receiving the diagnoses of their child's deafness are often ignorant and they too need to learn how to adapt to their new family dynamics. This often places an enormous amount of strain on the

family and especially the parents, who may often disagree with each other when decisions concerning their deaf child need to be made.

Of importance is the fact that it is often the mother who is subjected to helping the deaf child. In most instances it is the mother who is responsible for teaching the child communication strategies. Consequently the father feels that he does not know how to communicate with his child. As a result he often feels isolated and like a stranger within his own home (Hugo, 1987).

The above scenario is in stark contrast with the birth of a deaf child to deaf parents who celebrate the fact that their offspring is like them. Their home is already functioning as an environment conducive to using vision as the main means of learning and development. Deaf parents bring their child home to a nurturing environment in which communication is naturally dependent on visual and not auditory cues. Sign language is used and is passed along naturally to the infant.

❑ **Siblings**

The hearing impaired child's relationship with siblings may result in serious emotional tension and can result in serious family crises.

The deaf child may require so much attention that siblings feel neglected and consequently they may engage in undesirable behaviour eg poor academic performance.

A considerable amount of pressure may be placed on siblings at a stage when such responsibility is not normally required.

During the adolescent years the hearing sibling may be embarrassed by the deaf sibling (Hugo, 1987).

Once again this scenario is averted when the deaf child is born within a family in which there is already a deaf child.

❑ **Grandparents**

The hearing grandparents of a deaf grandchild often do not receive councelling and may consequently not be given the opportunity to work through the predicted emotional stages. They often stagnate in the denial stage and might:

Encourage the parents to seek a second opinion.

Blame the daughter or son in law for their grandchild's affliction.

Ignore other grandchildren in favour of the deaf grandchild.

Ignore the deaf grandchild as a result of the inability to communicate.

3.1.4.4 Effects on cognition

Thought is made possible through language. Knowledge of a language makes it possible to acquire knowledge about the world. Language makes it possible to acquire knowledge through books and acquire knowledge about the abstract.

The child with limited language proficiency is directly dependent on his senses for learning. Consequently his knowledge is limited to the concreteness of the world around him. This in turn leads especially to a reduced verbal intellectual ability easily creating the false impression that the deaf child is stupid (Hugo, 1988)

3.1.4.5 Effects on social contacts

Deafness is often described as a problem of isolation. Successful communication forms the basis of social interaction. Since deafness has a negative impact on verbal communication, the Deaf and hearing impaired are often excluded from social interaction.

As the deaf infant is unable to hear his mothers voice, his first social contact, and respond as desired, the parent-infant bonding is often strained. This

portrays a negative image to the child of how normal social relationships function.

Although social etiquette can be learned through observing the behaviour of others, much of how we respond appropriately in different social environments is learned through communication either directly through being taught appropriate social behaviour or by listening to the world around you. Unfortunately the latter is not an option to the deaf child, making it difficult to acquire appropriate social skills, particularly those that are based on successfully being able to interpret your surroundings (Hugo, 1988; Reed,1984)

Successful social interaction is often dependent on successfully being able to interpret communicative nuances, sarcasm, innuendo, intonation patterns and pitch of the voice. For the deaf child it is virtually impossible to understand these subtleties of spoken language, consequently social relationships are often superficial (Hugo, 1988).

Research conducted by Myklebust (1960) as cited in Quigley et al (1982) indicated that during the pre-school years both Deaf and hearing children exibited similar social maturity, However the social maturity of older hearing children exceeded the social maturity skills of similarly aged older deaf children.

3.1.4.6 Effects on educational placement

According to Boothroyd (1982) as cited in Hugo (1988) minimal benefit is obtained from educational experiences in children who have no language. As education is dependent on language, one of the factors influencing the educational placement of the deaf child is the language i.e spoken vs sign language which the child acquired or was exposed to during the pre-school years (Marschark, 1997). Educational placement of the deaf child will be discussed at a later stage.

3.1.4.7 Effects on career

Because the deaf child has limited spoken language proficiency, reduced social skills, poor general knowledge and generally a poor academic record it is understandable that the deaf adults are confronted with a very limited career choice. The Deaf, when employed, are often offered menial employment with a negligeable salary, placing financial strain on the deaf adult and his family (Hugo, 1988).

3.1.5 Degree of hearing loss

Katz (1985) classifies hearing loss according to the following scale:

Table 3.1.5.1 Degree of Hearing Loss

AVERAGE THREHHOLD IN DB	DESCRIPTION
-10 TO 15	NORMAL HEARING
16 TO 25	SLIGHT HEARING LOSS
26 TO 40	MILD HEARING LOSS
41 TO 55	MODERATE HEARING LOSS
56 TO 70	MODERATE SEVERE HEARING LOSS
71 TO 90	SEVERE HEARING LOSS
91 PLUS	PROFOUND HEARING LOSS

3.1.6 The audiogram

An audiogram is a graph that depicts a person's hearing level. Different sounds are presented and the results are plotted on an audiogram.

Sounds vary in intensity and frequency. The intensity or loudness of a sound is measured in decibels (db). On the audiogram intensity is represented on the y-axis. The intensity ranges from minus 10 db to 120 db. People with normal hearing can just barely hear a sound of 0 db while sounds above 130 db can be painful and may seriously damage the ears.

The frequency or pitch of sound is measured in hertz (Hz). A high frequency sound has a high pitch and a low frequency sound has a low pitch. On the audiogram, frequency is represented on the x-axis. The full range of normal human hearing extends from 20 to 20 000Hz, but the frequencies on the audiogram range from 250 to 8000Hz.

3.1.7 Assisted listening devices

3.1.7.1 Hearing aids

The basic principle of fitting children with hearing aids is to provide as much useful amplification as possible taking the best advantage of the residual hearing that exists. A hearing aid is an electronic device which amplifies all speech and environmental sounds. No hearing aid will enable a hearing impaired child to hear normally in all situations. Instead, the primary reason for recommending the use of hearing aids is to facilitate the acquisition of speech and spoken language is acquired by listening to others in the environment and enable the child to communicate better with the hearing aids than without them.

❑ **Parts of a hearing aid**

Earmould

This holds the hearing aid in position and is made to fit each individuals ear. The earmould should fit snuggly into the childs ear and should not be blocked by wax. Because the ear grows in size until the child is about 9 years old, earmoulds may have to be made every 3-6 months until the age of 5 and once a year after that in order to ensure an adequate fit.

Hearing aid

The major parts are a microphone, an amplifier, a volume control wheel, an on-off switch and a battery case. To switch the hearing aid on the switch must be moved to M (microphone).

❑ **Types of hearing aids**

Body type hearing aids

Body aids have large microphones, amplifiers and power supplies which are encased in a box. This case is attached to the clothing, placed in a pocket or carried in a harness around the chest. An external receiver attaches directly to the earmould and is driven by the power supplied through a thin flexible wire from the instrument case. Body aids usually provide more amplification than other hearing aids. They are more durable and less likely to be broken than ear level aids. Also, the external controls make it easier to adjust.

Behind the ear hearing aids

All the components of these hearing aids are housed in a curved case which fits neatly behind the ear and rests against the head. A short plastic tube connects the earmould to the hearing aid. This type of aid is less conspicuous than the body aid. It does not amplify clothing noise and hearing reception is at a more natural position on the head.

Monaural hearing aid systems are those which provide amplification for one ear only. A binaural system consists of two complete hearing aids. The binaural system increases the directional sense and helps separate wanted sounds from unwanted background noise.

In the ear hearing aids

These hearing aids are virtually inconspicuous as they fit inside the ear canal. Their amplification is ,however, not as strong as either body aids or behind the ear aids. In the ear hearing aids are not recommended for children.

3.1.7.2..Cochlear implants

This is a surgical procedure whereby electrodes are implanted into the cochlea.

Dr William House conducted the first cochlear implant in 1961. This procedure was not favourably received by the medical fraternity.

In 1979 the first children in France received cochlear implants. There was an outcry from both the French scientific community as well as the French Association for parents of deaf children.

Soon after the first French implants were initiated, Australia and Austria followed suite.

The Nucleus 22 implant was approved for experimental implanting in two year olds in 1985. This was met with large resistance from Deaf assocoations as well as parent associations (World Federation of the Deaf).

A cochlear implant cannot cure deafness. It is a means for enhancing hearing and ultimately enabling the deaf child to acquire oral language, although scientific evidence to support this assumption is limited. A specially designed hearing aid is attached to the electrodes, which stimulate the cochlea when sound is received (Hugo, 1987). Cochlear implant surgery has as its main aim oral communication (Lane, Hoffmeister, Bahan 1996). By stimulating the auditory nerve, cochear implants attempt to ensure that the nerve develops and that the child will be able to hear sounds, ultimately enabling him to acquire spoken language. Once the child has received a cochlear implant he needs extensive training in deriving meaning from sound, as cochlear implants only enhance certain aspects of sound. Not all

children are candidates for cochlear implants: the child is to have a profound sensory neural hearing loss with the site of damage being in the cochlea. As the hair cells and auditory nerve are vital for the functioning of the cochlear implant it is necessary that they are in tact and normal.

Cochlear implants have been a source of major controversy between the Deaf and hearing communities. In 1995 The World Federation of the Deaf at its World Congress in Vienna, Austria stipulated that *"the congress does not recommend cochlear implant operations for deaf children because cochlear implants will not help the language acquisition of a deaf child and can harm the emotional psychological personality development and physical development"* (World Federation of the Deaf 1995).

The Deaf argue that cochlear implants reiterate the patholoical view of deafness. The Deaf community questions the ethics of a surgical procedure to remove the deaf child from a linguistic and cultural minority to a hearing majority.

Since the onset of cochlear implant surgery, the medical fraternity has been trying to reach consensus on critical issues amongst others the ideal implant candidate. Unfortunately it is not possible to predicate whether the recipient will benefit from the implant surgery or not. It has been suggested that children only be implanted once they have undergone a 6 month trial period of hearing aid use. At present children under the age of two years are not considered for cochlear implant surgery. Despite the uncertainty surrounding cochlear implant surgery, professionals are in agreement that the recipients of cochlear implants remain hearing impaired and will continue to receive extensive educational, audiological , speech and language intervention.

 As it is a surgical procedure cochlear implants have associated risks. The procedure is non reversible and destroys any residual hearing (Marschark, 1997).

Apart from the medical risks, Lane, Hoffmeister & Bahan (1996) have identified several ethical issues that need to be addressed:

- Following implant surgery, the child may be without spoken language for several years while he undergoes post surgical speech and auditory training.

- As cochlear implant surgery is still in its infancy the long term consequences on the childs social, emotional and psychological well being is unknown.

- The child may find himself unable to function in either the Deaf culture with its sign language or the hearing culture with its spoken language.

- It is regarded as unethical to operate on healthy children. The deaf child is generally a healthy child.

Because the child is still regarded as a minor the decision to commence with cochlear implant surgery is made by the parents. As cochlear implant surgery is not a medically life saving procedure, the parents decision for implants may ultimately turn out to be the incorrect choice for their child, depriving him of the right and opportunity to acquire the language and values of the culture into which he was born.

3.2 LANGUAGE

According to Noam Chomsky as cited in Fromkin and Rodman (1988) (pg 1) language may be called the *human essence, the distinctive qualities of mind that are as far we know unique to man"*

"The system of language represented by intricate mental grammars, which are not stimulus bound and which generate infinite messages, is unique to the human species" (Fromkin and Rodman, 1988 pg 24)

Language may be divided into *linguistic competence* which is what we unconciously know about a language and *linguistic performance* which is how we use a language.

Chomsky postulated that the similarities between languages were more apparent than their differences and that their appears to be a universal

grammar enabling the child to unconciously acquire linguistic principles (Zapien, 1998).

Language differs from communication or speech

❑ **Language**

Language is comprised of phonology, semantics, morphology, syntax and pragmatics. Language is productive. An infinite number of sentences can be generated. Language is arbitrary. The word or sign does not necessarily reflect its meaning. Languages can refer to the past, present and future. Language has grammar which dictates the rules for combining words/signs to form sentences. Languages are not static. Language can be conveyed through different modalities eg speech, signing, writing (Valli and Lucas, ?19; Zapien, 1998)

❑ **Speech**

Speech refers to the production of voice and the articulation of the speech sounds. It is possible to have language in the absence of speech eg users of signs in Sign Language cannot be disputed to have language although speech is not part of their repportoire. It is possible to have excellent spoken language skills but poor speech skills as would be the case if an individual were able to express himself in the communicative language, however, exhibiting poor voice quality and articulation. Conversely it is possible to ennounciate words elegantly and yet be unable to use the grammar of a language

❑ **Communication**

Communication refers to the ability to successfully convey ones needs. The cry of a baby to alert his mother of discomfort is a communicative attempt. Communication is not dependant on the correct use of grammar.

3.2.1 Language acquisition

The innate theory, as proposed by Noam Chomsky as cited in Beyer (2000) appears to be the most feasible theory for language acquisition for:

- deaf children of deaf adults

- deaf children of hearing adults

- hearing children of hearing parents

In fact ,the innate theory explains how all children the world over, irrespective of race, culture location, economic status and language (spoken or signed) acquire language.

It is, however, important to remember that there exists a critical period for language acquisition. This critical period is also known as the "critical period hypothesis" and hypothesises that there is a time frame in which language acquisition occurs swiftly, easily and without external instruction. Evidence for this critical period abounds in the literature:

Support for the critical period of language acquisition in spoken language

Genie, as reported in Zero to Three Months, 2001 was discovered at the age of 13 years after she had been tied up for 11 years in a small dark room, deprived of any social contact. Vocalisation attempts resulted in her being beaten. Consequently at the time of her discovery, she was completely silent. After being discovered she was nurtured and educated in natural surroundings. Although her cognitive and social skills improved dramatically, her language, after 5 years of stimulation, remained abnormal , characterised by the absence of certain grammatical structures, grammatical inconsistencies and a significant gap between her receptive and expressive skills.

Support for the critical period of language acquisition for signed languages*.*

A study conducted by Mayberry (2001) as cited in The Acquisition of ASL Vocabulary and Morphology (2001) revealed the following. She compared 3 groups of signers

- native signers who acquired sign language during childhood

- late signers who acquired sign language as a second language

- signers who acquired sign language as a first language after childhood

Mayberry (2001) tested the three groups using imitation tasks and sentence recall exercises. The results indicated that the native signers performed considerably better than the non native signers. The signers acquiring sign language as a first language after childhood appeared unable to advance beyond the surface level of the structure. Mayberry's results compare favourably with those of Galvin (2001) as cited in The Acquisition of ASL Vocabulary and Morphology (2001) who found that although both native and late signers used complex sentences, morphemes were used as the unit of analysis by native signers whereas the late signers treated signs as gestalts, which later impairs morphological developments. Galvin (2001) claims that late signers show intellectual development without morphological development. Newport and Supella as cited in Volterra (1985) indicated that non native learners of sign language do not reach the same levels of fluency as the native signers. Research by Galvin also indicated that there was a difference between native signers and late signers with regards to the acquisition of facial morphology. He concluded that because late signers were unable to analyse facial morphology into morphemes, they were unable to learn and use facial morphology for linguistic purposes.

3.2.1.1 Normal language acquisition

Before launching into a discussion on the language acquisition of the deaf child, it is necessary to briefly discuss the speech and language acquisition of the hearing child.

Language development can be divided into :

- receptive (understanding)

- expressive

Receptive language skills precede expressive language skills. A child thus understands far more language than he is able to express.

According to NIDCD Health Information 2001, the first three years constitute the critical period for speech and language development. During this period the brain is developing and maturing. Speech and language skills apear to develop optimally in an environment rich with sounds, sights and continual exposure to the speech and language of others.

During the first few days after birth the infant learns that crying will result in him being fed and/or comforted . This is the first form of communication. The infant begins to differentiate between important sounds in his environment and learns to recognise the parents voice. The infant begins to discriminate between the spech sounds of which their language is composed. Research has indicated that an infant can recognise the speech sounds of his mother tongue by the age of 6 months.

Controlled 'cooing' begins with the maturation of the speech mechanism. Cooing is followed by babbling, which is a repetitive production of syllables. Babbling is followed by jargon or nonsense speech which imitates the tone of human speech but no true words can be identified. At approximately 12 months the infant produces his first word, although he is initially unaware of the meaning of the word. By 18 months of age the chold has an expressive vocabulary of approximately 10 words. By age two children begin stringing word together to form crude sentences. It is at this stage that the child learns that words symbolise objects, actions and thought. The child also engages in pretend play at this stage. Between the ages of 3 and 5 the childs vocabulary increases dramatically and he begins to master the rules of his language.

Van Riper and Emerick, 1984 identify the following stages of speech acquisition:

❑ **Undifferentiated vocalization**

During this stage the children listen to the patterns and intonation of language. They watch the speakers face and learn to distinguish friendly from angry voices. Children at this stage make small throaty sounds when

they are relaxed and may express pleasure by laughing aloud. The child learns that his voclizations produce results because the parent responds.

❑ **Reflexive Uterances**

During this stage the infant will produce either comfort or crying sounds. The crying sounds contributes to essential motor coordinations required for speech as well as consolidation of the feedback system between the larynx and the ear.

The comfort sounds refer to gurgles, grunts and sighs. It sounds as if they are experimenting with their voices. They vocalise to gain attention and can express displeasure and satisfaction. Children develop an awareness of the fact that people take turns talking during a conversation and they learn that different vocalizations produce different results.

❑ **Babbling**

During this stage children begin to vocalize extensively and babble using 4 or more syllables. They attempt to imitate gestures, facial expressions and sounds. The babbling enlarges to include new sound combinations such as 'mama' and 'dada'. These words are ,however, just strings of sounds and have no meaning to the child. Children begin to understand a few words such as 'no', 'bye-bye' and their names. They can also give a toy on request when accompanied by a gesture. They enjoy playing games like peek-a-boo and repeat sounds or actions.

❑ **First words**

During this stage children begin to name different objects. This is called labeling. As their vocabulary grows children become able to use language in many ways such as asking, greeting and requesting. Children at this stage often playfully imitate the intonation of adults speech. They begin to understand simple commands and questions such as 'where'. They know and respond to their names well and understand short simple sentences. During this stage children learn that specific combinations of sounds can be used to attain certain outcomes.

3.2.1.2 Language acquisition in deaf children of hearing parents

The language acquisition of the deaf child of hearing parents is dependant on the following:

❑ **The age at which the child was diagnosed**

❑ **The communication mode used by the parents after diagnosis**

- parents using sign language

  Taking into consideration the critical period hypothesis, the language acquisition of this group of children appears to mirror the acquisition process of both hearing children of hearing adults and deaf children of deaf adults.

- parents using spoken language

  children present with both limited and delayed communicative function.

  The use of symbolic gestures is reduced.

  By approximately age 30 months , these children were still not able to meaningfully join 2 gestures.

- parents simultaneously using sign and spoken language

  Communicative competence is attained earler than those children exposed to oral input only.

  Gestural vocabulary similar in content, range and decontextualisation to both hearing children of hearing adults and deaf children of deaf adults.

  Emergence of two sign combinations at similar age as both hearing children of hearing adults and deaf children of deaf adults.

  Do not produce the complex sentences and grammatical aspects of both hearing children of hearing adults and deaf children of deaf adults.

  Slower morphological and syntactic development than hearing children exposed to spoken language of deaf children exposed to sign language.

Slower development is noticeable in both the spoken and signed language

(Lane, Grosjean 1980; Marchesi, Alonso and Paniagua 1986; Lane, Hoffmeister and Bahan 1996)

❑ **Use of assisted listening devices:**

- Hearing aids
- Cochlear implants

3.2.1.3 Language acquisition in deaf children of deaf adults

Scientific evidence indicates that the deaf child exposed to sign language from birth will acquire that language at the same speed and with the same ease as the hearing child acquires spoken language. The stages of signed language acquisition parallel the stages of spoken language acquisition. Consequently the language acquisition milestones pertaining to deaf children of deaf adults and hearing children of hearing adults are similar.

Deaf children of deaf parents in a signing environment utter their first sign much earlier than hearing children of hearing parents utter their first spoken word.

It has widely been documented that the first signs of a signed language emerge considerably earlier than the first words in a spoken language (The Acqisition of ASL Vocabulary and Morphology, 2001; Sign Language Acquisition, 2001; Beyer, 2000).The average age of onset for the production of the first sign appears to be at approximately 8 months, in comparison to the production of the first word which appears to be at approximately 12 months.

Linguists have postulated on the possible reasons for this phenomenon.

❑ iconicity of signs

It was postulated that the earlier age of onset for the production of the first sign could possibly be attributed to the iconicity of Sign. This theory, however, is not supported as research has indicated that only one third of the signs used in the early vocabularies of children are iconic. In addition

signs that may appear to be iconic to adults may not appear to be iconic to children eg. The sign MILK which imitates the action of milking a cow. Although the iconicity is apparent to the adult, it is improbable that the young child or infant is able to relate the movement and handshape and the drink. (Volterra, 1985).

❏ earlier maturation of motor systems

It is hypothesised that the motor system upon which sign language is dependant, may mature earlier than the motor system upon which spoken language is dependant. In addition it is possible for adults to manipulate the infants handfoms but it is impossible for parents to manipulate the vocal tract (Volterra, 1985).

❏ greater perceivability

It has been hypothesised that it may be easier for the young child to perceive a visual-manual langage than an auditory-verbal language.

❏ greater recognisability

Researches have postulated that because it is easier for adults to identify inaccurate handforms made by infants than to identify inaccurate speech made by infants, first signs may be more recognisable than first words.

❏ labelling babbling as sign by mistake

It is possible that first signs are documented as appearing earlier than first words because parents of deaf children mistake sign babbling for their first sign.

❏ Optic radiations mature earlier (10 months) than auditory radiations (18 months) ,consequently it is possible that a visually orientated language system i.e sign language, is more accessible than the auditory orientated language system i.e spoken language. Because a mature visual system is available earlier than a mature auditory system the emergence of first signs before the emergence of spoken words may be accounted for.

❑ Availability of direct visual feedback when signing is possibly beneficial (Bonvillian, Orlansky and Novak as reported in Kyle and Woll,1983).

Although the literature seems to be divided on whether first signs emerge prior to first words the more recent research on "Baby Signs" - although it is used by hearing parents of hearing children - can be used to support the notion that first signs emerge earlier than first words (Berke, 2001; Beyer, 2000; Grabmeier, 1999).

Take the following case as an example : Matthew as cited in Grabmeier, 1999 was nine months old when his mother started using baby signs with him. One month later he used his first baby sign - light. Matthew used a meaningful sign before using a meaningful spoken word. Research has indicated that the use of these baby signs with infants reduces frustrations as it provides them with a means of making their needs and wants understood. In addition the use of baby signs has not been found to hamper the development of spoken language, but rather facilitates the acquisition process and results in a bigger vocabulary.

3.3 DEAFNESS

Two views of deafness may be differentiated:

❑ **The medical or pathological view of deaf people**

As a result of their medical training the medical fraternity tend to view deafness as a pathology often referring the child to other professionals such as speech therapists in an attempt to remediate what they consider to be a handicap.

The medical/pathological view defines deafness as a disability or medical condition that needs to be rectified. Vast sums of money are invested in finding a cure. Sign language is shunned in favour of spoken language and assistive listening devices such as hearing aids and cochlear implants to capitilise on auditory perception are prescribed. Supporters of this view are

against the socialisation between the deaf and do not condone marriages between deaf individuals.

Unfortunately the medical doctor is often the first person with whom the parent has contact when a diagnoses of deafness is suspected and consequently the parent who at that moment may be very vulnerable and ignorant with matters pertaining to deafness, may easily accept this view unconditionally. The result being that the child is treated as being disabled.

❑ **The social or cultural view of deaf people**

The social/cultural view defines the Deaf as members of a cultural linguistic minority, whose language, culture and right to be different are to be respected. Sign language is embraced and the visual channel of communication is regarded as an alternative to the auditory channel. The inability to hear is regarded as an aspect that differentiates between normal hearing people and normal deaf people. Social interaction between the Deaf is encouraged as are marriages and deaf adults are believed to be the best role models for the deaf child. This model views the Deaf as different and not as disabled.

3.3.1 STATISTICS

According to the Deaf Federation of South Africa there are approximately 1.6 million users of a signed language in South Africa. The number of users of signed language out numbers the users of four of the country's official languages namely Swazi, Tsonga, Ndebele and Venda. Research has indicated that 33.3% of deaf South African adults are functionally illiterate and have never received formal education. The average deaf South African school leaver has the literacy skills of an eight-year-old hearing child. Because of their lack of communicative abilities, deaf school leavers had general knowledge skills-as rated on the Skye-Norval scale- equivalent to that of 6-year-old hearing children.

Further it is estimated that only 14% of the teachers for the deaf can sign.

The waiting list at each of the 42 schools for the Deaf in South Africa exceeds the number of pupils in each school.

Only one University in South Africa offers assistance to Deaf students. In 1995 there were only 31 Deaf graduates in South Africa.

3.3.2 DEAF EDUCATION

One of the most pressing issues confronting the parents of deaf children concerns the educational placement of their deaf child. The Constitution of South Africa stipulates that every child has the fundamental right to an education and must be given the opportunity to achieve and maintain an acceptable level of learning. Pre-schools are designed to provide the child with the necessary skills to succeed in the formal school setting

Although the controversy surrounding the medium of education for deaf individuals rages on, language professionals including educators are now realising that literacy is the single most important factor in determining the successful education of the deaf child. The medium of education selected, should thus ultimately foster literacy skills

3.3.2.1 Historical perspective of deaf education –globally

During the sixteenth century Pedro Ponce de Leon, a Spanish monk, taught deaf children of the Spanish nobility to read and write. It was believed that pure thought was only possibly through acquiring a spoken language.

In the 1760's Charles Michel de l'Epee established the first school for the Deaf. He is regarded as the founder of sign language. De l'Epee noticed that prior to receiving any instruction, deaf children were inclined to make use of gestures and pantomime for communicative purposes. He was convinced that the use of signs as initiated by the Deaf themselves would prove to be invaluable in their education (Zapien, 1998). He taught two deaf sisters in a manual language. At the time of his death in 1789 a dozen residential school for the Deaf had been founded across Europe

Abbe Sicard succeeded Abbe de l'Epee and many schools for the Deaf were established. During the 1800's an American, Thomas Gallaudet, was sent to England to study the education of the Deaf. At the time, the education of the Deaf in England, was largely controlled by the Braidwood family. Oralism was employed as a means of education. The Braidwoods, however, denied Gallaudet access to their schools. As it happened, Gallaudet's visit to England co-incided with Sicard's visit to England to demonstrate his successes with sign language. Gallaudet was so impressed with the methods employed that he returned with Sicard to France to learn his methods of educating the Deaf. Gallaudet then returned to America with one of Sicard's students, Laurent Clere and they established the first public school for the Deaf in America, at Hartfield. The method of education employed was manual french adapted to english.

Samuel Heinicke, a German, established a school for the Deaf in Leipsig in 1778. Heinicke was known as the father of the German method of educating the deaf i.e. by means of spoken language. He was opposed to the teaching of methodical signs emphasising that this was in contrast with the natural order of learning.

In 1860 due to the influence of oral schools in Europe, an oral school for the Deaf was established in Massachusetts. Shortly thereafter, oral schools were founded in New York, London and Paris.

Professor E A Fay as cited in Moeller (2002) differentiated between the following methods of instruction in use in schools for the Deaf:

❑ The Manual Method

The primary objective of the manual method was to facilitate cognitive development and receptive and expressive writing skills. The manual method employed signs, the manual alphabet and writing.

❑ The Manual Alphabet Method

The main objective of this method of instruction was to facilitate cognitive development as well as receptive and expressive writing skills. The

manual alphabet and writing were the primary components utilised with this method.

❑   The Oral Method

The facilitation of speech skills and the development of cognition and writing skills were the primary focus of the oral method. Speech and speech reading were employed as means of instruction

❑   The Auricular Method

The residual hearing of learners was stimulated. These learners received their education through the use of speech, hearing and writing. The primary goal of this method of instruction was to eliminate the stigma of the deaf pupil as being mute.

❑   The Combined System

Cognitive development and language acquisition were regarded as the primary purpose of education. The manual or the manual alphabet method were employed as were speech and speechreading

In 1880 a resolution was passed in Milan, Italy banning sign language in favour of oralism. Prior to the Conference of Milan deaf teachers were involved in the education of the Deaf. However, only hearing educators were invited to attend the conference and cast their vote. As a result of the outcome of the Conference of Milan, deaf teachers could no longer be employed in the education of the Deaf. Sign language, however, did not cease to exist. It was merely forced underground. Oralism was viewed as the more prestigious form of communication. The Conference of Milan had dire consequences for the education of the Deaf

3.3.2.2 Historical perspective of deaf education - South Africa

In South Africa the Dominican Catholics and the Dutch Reformed Church were largely responsible for the development of schools for the Deaf. Under the influence of apartheid, oralism was the medium of education in white schools for the deaf, whereas sign language was permitted as a medium of education at the deaf schools for the other races. The reason for the insistance on spoken language in white schools for the deaf was the fact that it was thought of as being superior to sign language.

The Irish Dominican nuns established the first school for the Deaf in Cape Town in 1863. The medium of instruction was sign language and the school was open to all racial groups.

In the 1920's oralism was implemented as the medium of education for the majority of the children. The Dominican Grimley school for the deaf relocated to Hout Bay in the 1960's where a strict policy of oralism was implemented.

In 1881 the Dutch reformed church established a school for the white deaf. Both oralism and spoken language were implemented as a medium of education.

A school for the white deaf was established in King Williamstown in 1884. The medium of instruction was restricted to oralism.

Nuwe Hoop, a school catering for the so-called coloured population was established by the Dutch reformed church in 1933. A policy of oralism was implemented.

In 1937 the Irish dominicans established a school for non europeans at Witteboom. Due to the government's apartheid policy, this school was restricted to the coloured deaf.

In 1941 the first school for deaf black South Africans was established at Khutlwanong by the Johannesburg Deaf and Dumb Society. The school implemented the Piaget signing system as an instruction medium.

In the 1950's the Dutch reformed church established schools for the Afrikaans white deaf in Pretoria and the Free State. Oralism was implemented.

In 1958 Fulton School for the Deaf was established for the English white deaf by Anglican Church. A policy of oralism was implemented as the language of instruction.

In 1959 the Dutch reformed church established the Efafa school in the Transkei for the Xhosa deaf.

A school for the black deaf population was established at Hammanskraal in 1962 by the Irish Dominican nuns.

Bartimea school for the deaf was established by the Dutch reformed church in 1962. In 1965 a school for the Zulu deaf was established.

The government's policy of apartheid and insistance on mother tongue as the medium of education complicated the language policies at the schools for the non european deaf as it was difficult to ascertain the 'mother tongue' of the deaf child.

English and Afrikaans in combination with the Piaget signing system were eventually introduced as the language of instruction in the non european schools for the deaf. This rendered education virtually inaccessible to the black deaf. In order to communicate with one another sign language began to flourish.

3.3.2.3 Language of instruction

3.3.2.3.1 Oralism

Oralism refers to the principal that profoundly deaf people should learn to communicate by speech and lipreading without the use of sign language. Supporters of oralism maintain that rather than circumventing the problems of deafness and communication, attempts should be made to overcome the communication barrier caused by deafness by making maximum use of residual hearing.

Supporters of oralism claim that with recent technological advances eg. cochlear implants, the ability of even the profoundly deaf child to obtain spoken language fluency, has never been better.

Oralists maintain that because the majority of the population is comprised of hearing individuals, educators are morally obliged to enforce the teaching of society's dominant language as a first priority as it is only by acquiring spoken language that the deaf child will be able to fully integrate himself in society

Although oralists do not question the effectiveness of sign language in certain situations, they do question the capability of sign language to perform identical educational functions as conventional spoken language (Gregory, Hartley 1991).

The oral method of educating the hearing impaired may be defined as the training of the hearing impaired to speak. They receive input through speech reading, kinesthesis and amplification of sound and express themselves through speech. In order to acquire spoken language effectively, it is imperative that the deaf child's residual hearing be maximally exploited. Consequently powerful hearing aids should be fitted as soon as possible. Gestures and signs are forbidden (Ling, 1984).

The oral method has its roots in the work of Ponce de Leon in Spain in the 16th century, Heinecke in the 18th century and the Clarke School for the Deaf in the United States in the 19th century. The goal of oral communication as suggested by Sims et al (1982) is thus to enable the hearing impaired person to become fully integrated into the hearing society. Normal activities of the hearing world are conducted through speech communication. Consequently if the hearing-impaired child is to participate fully in that world he too must be able to speak and comprehend spoken language. Oralists maintain that because our auditory and language systems evolved simultaneously and because the auditory system carries the information that triggers the acquisition of speech and language in the normal hearing young child's environment the biological connection between the ear and speech and

language acquisition should be optimally exploited to provide the severely hearing impaired child with these skills (Strong, 1988).

Numerous studies are cited in the literature in support of the oral mode of communication. A study conducted by Quigley and Paul (1984) suggests that hearing-impaired individuals who receive oral education develop superior language and academic skills a view, which is further, supported by Jensena and Trybus (1978) as cited in Ling (1984). However, generalisation of these results to the hearing impaired population, as a whole should be restricted since individuals selected for the oral method of communication initially tended to have a more superior IQ, more motivated and well educated parents as well as a higher socio economic status.

Ling (1989) and Traux (1978) as cited in Ling (1989) are of the opinion that the acquisition of speech plays a vital role in both learning to read and memory processes.

Furthermore Ling (1984) maintains that the ability to speak and understand speech provides the hearing impaired individual with the opportunity to gain independence and permits them a wide range of social, educational and career choices, a goal for which the majority of the population strives.

However, despite the numerous advantages of the oral method of communication there exists in the literature several objections to the approach, the most obvious being that the oral method depends too heavily on lipreading as the primary mode of communication (Northern and Downs, 1984; Mykelbust, 1971). Lipreading appears to be too ambiguous since only a small percentage of the speech sounds are visible on the lips. The person dependent on vision for receptive language can only communicate with one person at a time. Wier (1977) as cited in Hixon et al (1980) maintains that too many children go through years of oral training without acquiring either adequate speech or language skills. Consequently these children are deprived of adequate communication skills that might have been obtained had another mode of communication been used. In addition it appears as if the oral method may psychologically harm the child since he is consistently

being subjected to failure and frustration (Northern and Downs, 1984; Wier 1977 as cited in Hixon et al 1980).

It appears that evidence in support of the theory of oral communication is patchy and inconclusive. While many children regardless of hearing loss achieve high levels of speech indelibility and learn effectively through the use of spoken language, some acquire so few oral skills that alternative methods of instruction become essential.

3.3.2.3.2 Signed Language

In 1960 William Stokoe's report on sign language was published. His work was published at a time when the notion of sign language as a natural human language was literally unimaginable. His report, however, unequivocally proved that not only was sign language one of the natural human languages, but that it could be analysed at the same phonological, semantic, morphological and syntactical levels as any spoken language. He reinforced that sign language was not dependant on any spoken language. His work provided the impetus for further research into the linguistics of sign language. Penn and Reagan (1995) state that despite the diverse vocabulary and absence of standardised teaching material for signed language, education through the medium of a signed language is possible particularly since the morphology and syntax of signed language is universal.

Employing deaf teachers and involving the Deaf community in deaf education may facilitate the implementation of a signed language in education.

Abbe de l 'Epee was responsible for establishing the first public school for the deaf in Paris in 1755. The teaching method employed by de l'Epee was influenced by the sign language used by the deaf in France. He was convinced that sign language was the most attainable language for the deaf to acquire. In conjunction with sign language, de l'Epee invented methodical signs in an attempt to represent French morphology and syntax on the hands. Abbe Sicard who also took over de l'Epee's school in Paris continued de l'Epee's work.

Sign language is regarded as the language of the Deaf community. Supporters of a signed language as a medium of education, argue that a signed language is the best language model that is within the biological grasp of the deaf child – it is easily and naturally acquired, as the Deaf tend to gravitate towards a language that is perceived through the visual and not the auditory channel. (Lane, Hoffmeister, Bahan 1996). Sign language is a visual gestural language that utilises the medium of space to realise its grammar. Non grammatical markers such as facial expression, body movement are an important aspect of sign language. When used as a medium of education, a signed language can impart new knowledge to the learner as well as knowledge about other languages. Language acquisition researches mean that if mother tongue is not acquired the acquisition of a second language is questionable (Zapien, 1998). With a first language proficiency in a signed language the acquisition of second language skills i.e. literacy skills, is facilitated. Deaf high school graduates (if they graduate at all) have literacy skills equivalent to roughly a third or fourth grade level (Holcomb, Peyton & Kreeft, 1992). As stated previously poor literacy skills resulted in the Deaf being trapped in a vicious circle of powerlessness, dependence and marginality, consequently depriving them of their dignity and rightful place in society (Carver, 1990). Recent researchers are of the opinion that the Deaf share similar language backgrounds and literacy challenges to other minority groups and that poor literacy skill can possibly be attributed to linguistic, cultural and educational factors. Hence the importance of determining the best language medium for the deaf child to receive his education. Research suggests that the deaf child of deaf parents performs better linguistically than the deaf child born of hearing parents. This may possibly be attributed to the fact that deaf parents are more in tune with their deaf children, consequently facilitating early language acquisition. However, it is important to remember that the majority of deaf children are born to hearing parents and are not native sign language users. If hearing parents decide to sign to their deaf children, it should be taken into consideration that it requires years of practice to obtain fluency in a language (many researches suggest 5 years), consequently these children are often exposed to less than perfect language models (Zapien, 1998).

When fluent in sign language the deaf child must be taught literacy skills as this is a vehicle to access a world of knowledge. The acquisition of literacy skills should be taught through the medium of a signed language.

Johnson et al (1989) as cited in Penn and Reagan (1995) emphasise that although Sign language as a medium of instruction can be defended pedagogically, it is of paramount importance that the spoken language of the surrounding hearing community not be ignored as it is vital for the deaf child to acquire skills enabling him to function within this hearing world. .

When a child is suspected of being deaf it is indispensable that his hearing status be assessed as early as possible, preferably before the acquisition of language. Intervention should commence soon after deafness has been diagnosed.

Initially, optimal intervention would imply home intervention, allowing deaf children of deaf adults the opportunity to acquire sign language naturally by interaction with their parents. In the instance of deaf children of hearing adults it appears as if legislation aimed at protecting the rights of the deaf child is necessary. Legislation in Sweden may serve as a possible example: When a deaf child is born to hearing parents, the parents are granted leave from work, for the explicit purpose of acquiring sign language, so that they may model this language to their deaf child.

It has been suggested that where this legislation is not yet in place, as is the case in South Africa, pre-school education be made compulsory and available to all deaf children. Although deaf education is compulsory for school aged children in South Africa, pre-school education has not achieved the same status. The main focus of the deaf child's pre-school education should then be on the acquisition and development of sign language skills, fostering fluency in sign language by the time he is required to enter grade 1 and not on literacy and numeracy skills.

In addition to the focus on achieving sign language fluency, pre-school education for the deaf child should be concerned with providing the child with a socio-cultural education to reverse the negative impact of cultural deprivation associated with communication difficulties within the hearing world (Okombo, 1999).

3.3.2.3.3 Total Communication

During the 1960s and 1970s numerous studies investigated the academic achievement of deaf children of deaf adults with the academic performance of deaf children of hearing adults. It was found that the academic performance of deaf children of deaf adults was superior to that of deaf children of hearing parents. It was postulated that the use of signing contributed towards this academic superiority of the deaf child of deaf adults (Lane, Hoffmeister and Bahn, 1991). Consequently signs were introduced into the classroom situation that had previously primarily relied on oralism. This practice became known as total communication.

Total communication was officially defined in 1976 at the Conference of Executives of the American School for the Deaf (Strong, 1988). Total communication may be defined as the philosophy of utilising any or all communication methods [finger spelling, signs, speech, speech reading and writing] to enhance receptive and expressive communication (Martin, 1991).

The advantages of total communication lie in the fact that it opens all avenues and methods of communication for the deaf child. The child is therefore not forced to rely on only one mode for communicative purposes.

In a comprehensive study Moores (1982) as cited in Nelson (1985) compared sixty hearing impaired children who were subjected to various modes of communication eg oralism, sign language, total communication over a four year period. All subjects were 2 years 6 months at the onset of the investigation, all had a sensory neural hearing loss of 70db or more in the better ear across the speech range which was acquired at age 2 years and younger and all subjects had an IQ of 80 or better and no additional handicaps. This study demonstrated the beneficial effects of total communication in all areas of deaf children's development-psychosocial, linguistic and academic achievement. Similar results were obtained from studies conducted by Quigley (1968) and Grove et al (1984) as cited in Vernon et al (1990).

Sims et al (1982) are of the opinion that total communication is advantageous in that it re-enforces spoken language instruction to have that spoken

language represented on the hands. Furthermore it permits flexibility of approaches to the learning of different skills.

Total communication may, however, be disadvantageous since it has been suggested by both Vernon et al (1990) and Hixon et al (1980) that materials presented simultaneously in more than one sensory modality are learned slower than when presented in only one modality. Literature cited in Northern and Downs (1984) suggests that total communication is too much of a shotgun approach and that overstimulation of the deaf child is actually detrimental to communication.

In spite of the disadvantages, total communication was used in a majority of programmes for the deaf by 1975 (Jordon et al 1976 as cited in Schow and Nerbonne 1989). Between 1968 and 1975, 302 programmes had changed from oralism only to total communication, whilst only 5 had reverted from total communication to oralism (Jordon et al 1976 as cited in Schow and Nerbonne 1989). Similar reports are reported in both Northern and Downs (1984) and Davies and Hardick (1986).

3.3.2.4 Additional Visual Language, codes and signing systems in use with deaf people

❑ **Manually coded english (mce) systems**

These are systems for representing spoken language on the hands.

Manually coded systems are artificial systems for visually representing a spoken language. Manually coded systems have literacy development in the deaf child as their primary objective, although research suggests that deaf children in spite of using manually coded systems are still leaving school with the literacy skills equivalent to a grade three or four level. All manually coded systems simultaneously use signed and a spoken language. The word order of the spoken language is followed. Although manually coded systems are time consuming, they are often easier for parents and teachers to learn

Three mce systems can be identified:

- signed english: uses invented signs to represent morphological markers of the spoken language (Lane, Hoffmeister & Bahan, 1996).

- signing exact english: combination of signs from a sign language and invented signs. If 2 of the following criteria are identical for two or more of the words in the spoken language, those words are assigned the same sign: spelling, pronounciation and meaning (Lane, Hoffmeister & Bahan, 1996). eg the english words 'bat' (meaning nocturnal animal) and 'bat' (meaning a piece of sports equipment) will be assigned the same sign as they are both spelled and pronounced identically in spite of the difference in meaning.

- Seeing essential english: spoken words are divided into their meaningful syllabic components and assigned signs accordingly (Lane, Hoffmeister & Bahan 1996). eg the sign for the english word butterfly word be comprised of the sign for the word *butter* and *fly*

❑ **Finger spelling**

a means of manually representing the letters of the alphabet.

❑ **Simulataneous communication**

A method of communicating whereby speech and sign language are used simultaneously. Neither the rules of sign or spoken language are adhered to.

❑ **Pidgin sign**

This is a contact language that arises between sign language and spoken language out of necessity to communicate

❑ **Cued Speech**

Dr Orin Cornett invented cued speech in 1966. Cued speech utilises eight different handshapes in four different locations near the mouth. Cued speech visually encodes speech sounds and patterns. Although cued speech is not a language it provides access to a language and has as its primary objective language development, although speech development may also be facilitated. The literature suggests that cued speech can facilitate the development of literacy skills as it assists the child in

internalising the target language, which appears to be critical to the acquisition of literacy skills (Zapien, 1998).

3.3.2.5 Educational placement of the deaf child

In 1996 the Constitution of South Africa declared education compulsory for deaf children. Prior to 1994 the majority of deaf children did not attend school. The constitution further stipulates that every child has the fundamental right to education and must be given the opportunity to achieve and maintain an acceptable level of learning

The following educational placement options are available to the parents of a deaf child:

❑ Residential schools for the Deaf

These are schools for the Deaf that often provide education from pre-school to secondary school. Both academic and vocational subjects are offered. As a result of the educational history of the Deaf, as previously discussed, the academic standards at schools for the Deaf are often not in a par with the educational standards of hearing schools (Lane, Hoffmeister & Bahan, 1998).

However, sign language medium residential schools for the Deaf do provide an excellent opportunity for the Deaf to socialise with other Deaf, acquire sign language-particularly those children from hearing families, be exposed to deaf adults as role models and learn about Deaf culture and History (Zapien, 1998; Lane, Hoffmeister & Bahan, 1998) .

Apart from the quality of the education, one of the major disadvantages of residential schooling is that the child is separated from his family. This separation often occurs when the young deaf child is still dependent on his parents for emotional support. Residential schools are often considered the focal point of the Deaf world as it is often where the deaf child, more specifically, the deaf child of hearing parents comes into contact with sign language for the first time. The residential school offers the child the opportunity to learn about Deaf culture.

It is at residential schools that deaf children are exposed to Deaf role models and begin to formulate an understanding of the world i.e. the Deaf world with its unique culture and language in which they find themselves in contrast with the hearing world in which they are expected to function.

❑ Day schools for the Deaf

Both oral and sign language day schools exist. One of the advantages of day schools for the Deaf is that it affords the child the opportunity to remain with the family and simultaneously receive his education from teachers who have received training in the education of children with special needs.

❑ Mainstreaming

Mainstreaming may be defined as the educational option of placing the child with special needs within the regular school environment (Marschark, 1997). Two types of mainstreaming can be identified:

The first option entails the academic education of deaf children within a separate class. They may join their hearing peers for non academic subjects

The second option involves both the academic and non academic education of the deaf child within the class of normal hearing students. For this to partially succeed a qualified interpreter becomes a necessity. The word partially was used in the previous sentence, as interpreters are seldom educators. When the child experiences difficulties with academic subjects all attempts at explaining concepts will need to conducted via an interpreter. Although providing a means of communication with the deaf child's hearing peers the presence of an interpreter does not facilitate social interaction (Zapien, 1998). Inclusion can have severe consequences for both the child and the school. At present neither mainstreaming nor inclusion appears to be viable options for the education of the deaf child. The quality of the education that the deaf child receives either through mainstreaming or inclusion is questionable

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3.3.2.6 Bilingual/Bicultural

According to Zapien (1996) (pg25) bilingual/bicultural education is based on the premise that *"Auditory/oral and Total communication approaches do not meet the linguistic and cultural needs of deaf children; [that] natural sign language is the biologically preferred mode of communication for deaf individuals and [that] deaf children can acquire verbal language in the written form through the language base of natural sign language."*

Bilingualism implies the use of two languages. In the instance of deaf people, this would be sign language as mother tongue or first language and a second language in a written not spoken form. Within the formal education setting, sign language would be used for interpersonal communication and a second language as the language for written communication and literacy skills.

Edward Miner Gallaudet exposed bilingual education of deaf students: signed language and written language with spoken language for those who were capable of it.

Bilingualism provides the deaf child with the opportunity of succeeding at school as it facilitates literacy skills by using the deaf child's mother tongue i.e. sign language to teach reading and writing. Bilingual education provides the Deaf child with an accessible education level in which he can achieve success that is favourably comparable with that of hearing children. Success within the academic environment ultimately leads to successful life after school. Bilingual education is beneficial in that it provides the deaf child with a language that is within his biological grasp (Zapien, 1998).

Bilingualism appears to be gaining credit in South Africa as one of the best means of educating the deaf child. Because sign language and spoken language are two separate languages each with their own internal structure these two languages are separated in the curriculum. In bilingual education sign language is acknowledged as the first language of the deaf child and it is consequently used for instructional purposes. The spoken/written language is regarded as the second language and is taught employing methods appropriate for second language learning. Teachers and parents competent

in sign language would represent the ideal, however, research has shown that even signing on a small scale is perceived as better than the absence of signing. Apart from the implementation of bilingual education, Deaf education appears to be dependent on the positive attitude conveyed by parents and teachers towards sign language and deaf people in general.

As sign language is regarded as the deaf child's first language in this approach, every opportunity is provided for the child to acquire the language in a similar fashion to the hearing child acquiring his first language i.e. naturally and at the earliest age by exposure and stimulation in that language. It is of the utmost importance that the child has a good command of his mother tongue, as second language learning requires the student to constantly refer to his first language as a point of reference.

Once the child has mastered his first language, which in the instance of the deaf child is sign language, he is gradually introduced to the second language. Literacy skills in the second language are taught first as this affords the child with the opportunity to acquire knowledge through the printed word (DEAFSA).

According to DEAFSA *"research has shown that Sign Language does not prevent the Deaf child from learning to speak. If the child has a normal Sign Language ability and is then taught to read and write a spoken/written language, they master the ability to speak much better. Therefore no bilingual programme is against speech training but embraces it"*

Biculturalism is more difficult to define than deaf bilingualism.

When deaf people yearn for meaning in sociocultural, historical, educational and economic contexts, Deaf culture emerges. Sign language constitutes the main characteristic of Deaf culture as culture is primarily expressed through language (Mason, 1995).

Deaf bilingual/bicultural education aims to legitimise sign language as a medium of instruction in an educational setting where spoken language is equally important. Deaf bilingualism/biculturalism produces bilingual deaf learners by simultaneously implementing sign language, the natural language of the Deaf and facilitating knowledge (literacy knowledge) of a spoken

language. By obtaining a greater understanding of the similarities and differences between hearing and deaf people, bilingualism nurtures mutual respect and results in biculturalism as mutual respect translates into a greater comprehension and involvement between the hearing and the deaf culture (Mason, 1995).

CHAPTER 4

4.1 INTRODUCTION

As stated in the introduction, one of the most pressing issues confronting the parents of deaf children, concerns the educational placement of their deaf child. In an attempt to address this issue a study to investigate the school readiness skills of deaf children receiving their education in a signed language versus the school readiness skills of deaf children receiving their education in a spoken language was undertaken.

4.2 THE GROUP TEST FOR SCHOOL READINESS

The Group Test for School Readiness developed in 1993/1994 is a screening test designed to assist the pre-school teacher in ascertaining the school readiness of the children in her class. It is able to differentiate between children who are ready for school, those who are not ready for school and those who require therapeutic intervention as a result of developmental delays.

The Group Test for School Readiness consists of 8 sections, namely:

Test 1 (8 subtests):   visual perception

Test 2 (3 subtests):   spatial orientation

Test 3 (2 subtests):   number concept

Test 4 (3 subtests):   language and experience

Test 5   :   draw a person

Test 6 (3 subtests):   auditory perception

Test 7 (2 subtests):   fine motor coordination

Test 8   :   gross motor coordination

The subtests in Tests 1,2,4,6 and 8 have practice items.

The children are tested in groups of four and no time limit is given for the subtests.

4.3 COMPOSITION OF THE TEST

4.3.1 VISUAL PERCEPTION

4.3.1.1 Visual discrimination

The child is required to identify the picture in the row that is exactly the same as the first picture in the row.

4.3.1.2 Perception of shapes

In this subtest the child looks at the geometric shapes in their books and copies each one. The shapes the child is required to copy include a square, triangle and a flag. The subtest is aimed at determining whether the child possibly presents with a visual perception; motoric; visual motoric intergration difficulties or merely lack of experience.

4.3.1.3 Foreground/background perception

The child is required to outline (1) the shape of the animal caught in a net

(2) the rabbit which has been drawn so that it partly overlaps with a tortoise.

4.3.1.4 Perception of missing parts

This test consists of 4 pictures of human figures of which some parts are missing. The child is required to fill in the missing body parts. This subtest evaluates the child's concept of the body.

4.3.1.5 Incomplete picture of a person

The child is required to draw the absent body parts of an incomplete person.

4.3.1.6 Perception of gestalt

The child copies the shapes/signs/symbols with which he is confronted.

4.3.1.7 Visual memory

The child is given one minute to observe fifteen everyday objects placed on a tray. The objects are taken away. The child looks at the pictures in his answer book and is required to draw a line through all the objects he saw on the tray.

4.3.1.8 Visual sequence

Geometrical shapes are drawn in the top left hand corner of the child's workbook. The child is required to complete this sequence all around the frame. This subtest allows the examiner to determine whether the child is able to move his wrist joint when he moves around the corner or whether he is still inclined to move his whole arm or body.

4.3.2 SPATIAL ORIENTATION

4.3.2.1 Position in space

This test comprises the drawing of a fish around which the child must indicate various positions with different colour crayons. This subtest not only tests position in space but is also indicative of the child's concept of colour.

4.3.2.2 Sense of direction

The child is required to draw a line through the picture facing exactly the same direction as the first picture in the row.

4.3.2.3 Crossing the midline

The child is required to trace a figure of eight which has been placed directly opposite the child's own midline.

4.3.3 NUMBER CONCEPT

4.2.3.1 Counting of concrete objects

Containers with counters are provided. The child is required to remove all the counters from the container and then count out the required number of counters.

4.3.3.2 Quantities and relations

The child is required to indicate relations such as first/last and quantity.

4.3.4 LANGUAGE

4.3.4.1 Language and experience

The child is presented with 5 human figures whose postures and facial expressions depict everyday emotions. The child is required to indicate the appropriate emotion.

4.3.4.2 Abstract thinking

The child is expected to identify the odd word in a sequence of four words.

4.3.4.3 Story memory

The child listens to the story read by the examiner and is then asked to retell the story. This subtest not only examines the language used by the child but also the child's retention skills.

4.3.5 DRAWING OF A PERSON

The child is asked to draw a picture of himself and marks are allocated for the quality of the drawing as well as the attention to detail.

4.3.6 AUDITORY PERCEPTION

4.3.6.1 Auditory discrimination

The child is required to differentiate between words which sound very similar, but that are not the same.

4.3.6.2 Auditory memory

Rhythm sticks are tapped together while the child's eyes are closed and the child must indicate how many times he heard the rhythm sticks being clapped together.

4.3.6.3 Auditory sequence

While the child's eyes are closed the examiner plays two sounds. The child must indicate which sound he heard first.

4.3.7 FINE MOTOR CONTROL

4.3.7.1 Coordination

The child is required to use his pencil to stay between the lines of a set of mazes. The examiner can also use this subtest to observe any hand tremors as well as whether the child presses too hard or soft with the pencil point.

4.3.7.2 Writing patterns

The child is required to complete patterns which have been partially started.

4.3.8 GROSS MOTOR CONTROL

The child is required to stand on one foot for at least 10 seconds

The child is required to stand on one foot with his eyes closed for 3 seconds.

The child is required to skip. The rhythm with which the action is performed is noted.

The child is required to walk heel to toe on a straight line of 3 meters. The examiner observes whether the child is able to perform this action without losing his balance.

4.3.9 General observations

According to Herbst (1996) as cited in Ackerman (1998), the following behaviour is noted as it forms an intergral part of school readiness:

- Hand dominance: has dominance been established? What hand is the dominant hand?

- Speed with which instructions are carried out: is the childs tempo with which he completes his work slow, average or hurried.

- Pencil grip: is the child able to manipulate the pencil? Is he able to grasp the pencil satisfactorily.

- Body posture: Doe the child present with any obvious abnormalities with regard to his posture?

- Comprehension of instructions: How does the child comprehend instructions, with ease or with difficulty.

- Attention deficit: Attention should be paid to whether the childs attention span was low, average or high.

- The childs behaviour during the test administration: was he able to sit still, was he quiet, shy, spontaneous, scared, hiperactive, confident inquisitive.

4.4 THE SCORING

With the exception of the following subtests: incomplete drawing of a person; visual memory; visual sequencing; story memory; drawing of a person, all items in the subtests have a scoring value of either 0, or 1 point.

The incomplete drawing of a person requires the child to draw at least 7 absent body parts in order to obtain one point. In the visual memory subtest, the subject is required to correctly mark between 6-9 objects in order to obtain one point and between 13-15 objects in order to obtain a maximum of 3 points. Subjects must correctly be able to complete a pattern along each border of the diagram in order to obtain a maximum of three points for the visual sequencing subtest. With the story memory subtest, subjects are required to recall at least five facts in order to obtain a score of one point. The subjects drawing of a person is marked qualitatively: one point is awarded for a stick figure, whereas three points are awarded for a two dimensional drawing of a person who is wearing clothes.

4.5 SUBJECTS

4.5.1 METHOD OF SUBJECT SELECTION

In order to eliminate the effects of different teaching styles, it was decided to select one deaf pre-school class using signed language as a medium of instruction and one deaf pre-school class using spoken language as a medium of instruction. As a result of the relatively small percentage of Deaf, 7 deaf children reciving their pre-school education in spoken language and 8 deaf children receiving their education in a signed language were available for the purpose of this research. It should be noted that the parents of one deaf child in the spoken language environment did not grant permission for their child to be included in the research. Another child in the spoken language environment was to undergo an extensive battery of testing including school readiness in the week following the researches school readiness assessment and it was consequently deemed in the best interest

of the child not to include him in the research. One deaf child in the signed language environment was absent on the day of testing. Therefor, a total number of 5 deaf subjects receiving their pre-school education in a spoken language and a total number of 7 deaf subjects receiving their pre-school education in a signed language were included in the research.

A total of 12 children was selected. These subjects were divided into two groups:

GROUP A

5 profundly hearing impaired childen (3 females and 2 males; 4 Afrikaans and 1 English) attending an oral preschool for hearing impaired children in the Western Cape.

GROUP B

7 profoundly hearing impaired children (3 females and 4 males) attending a signed language preschool in the Western Cape.

4.5.2 SELECTION CRITERIA FOR GROUP A (DEAF SUBJECTS ATTENDING AN ORAL PRE-SCHOOL):

The principal of an oral pre-school for hearing impaired children in the Western Cape was requested to identify the children that met the following criteria:

I   AGE

Subjects were required to be between the ages of 6 years 0 months and 7 years 5 months and entering grade one in 2003.

II   HOME LANGUAGE

The Group Test for School Readiness was designed and standardised on both English and Afrikaans speaking South African children. For this

reason the present study included first language English and Afrikaans speaking South African subjects.

III HEARING

Subjects were required to have a severe-profound pre-lingual hearing loss with better ear pure tone averages being 75db or greater. Prelingual deafness affects language development differently to post lingual deafness (Calvert et al, 1983). Subjects were required to be appropriately amplified i.e either binaural fitting of hearing aids or monaural fitting if appropriate.

IV SEX

Subjects from both sexes were selected.

V INTELLIGENCE QUOTIENT

Subjects were required to have normal intelligence to eliminate a general development delay that may influence school readiness.

4.5.3 SELECTION CRITERIA FOR GROUP B (DEAF SUBJECTS ATTENDING A SIGNED LANGUAGE PRE-SCHOOL):

The principal of a signed language pre-school was requested to identify the children that met the following criteria: age and intelligence quotient as for group A (deaf subjects attending an oral pre-school). Additional selection criteria included:

I   LANGUAGE

The subjects were reqired to have as home language sign language. It should be noted that for all the subjects in Group B sign langage as a home language was only implemented after the enrolment of the child in the pre-school.

II   HEARING

Subjects were required to have a severe-profound pre-lingual hearing loss with better ear pure tone averages being 75db or greater. Prelingual deafness effects language development differently to post lingual deafness (Calvert et al, 1983). Subjects were NOT required to be appropriately amplified as these children were not dependent on their auditory skills.

Once subjects were identified permission was obtained from parents.

Table 4.5.2.1 and table 4.5.3.1 summarize the description of the subjects.

table 4.5.2.1 Oral Medium Preschool Class (Group A)

	SUBJECT 1	SUBJECT 2	SUBJECT 3	SUBJECT 4	SUBJECT 5
SEX	FEMALE	MALE	MALE	FEMALE	FEMALE
AGE	6 YEARS 9 MONTHS	6 YEARS 3 MONTHS	7 YEARS 5 MONTHS	7 YEARS 5 MONTHS	7YEARS 3 MONTHS
HOME LANGUAGE	AFRIKAANS	AFRIKAANS	AFRIKAANS	AFRIKAANS	ENGLISH
ONSET OF HEARING LOSS	PRELINGUAL	PRELINGUAL	PRELINGUAL	PRELINGUAL	PRELINGUAL
DEGREE OF HEARING LOSS HL	BINAURAL MODERATE SEVERE	RIGHT EAR MODERATE HL LEFT EAR SLIGHT HL	BINAURAL PROFOUND HL	RIGHT EAR PROFOUND HEARING LOSS LEFT EAR SEVERE HEARING LOSS	BINAURAL MODERATE SEVERE HEARING LOSS
POSSIBLE CAUSE OF HEARING LOSS	POSSIBLY HEREDITARY	UNKNOWN	POSSIBLY HEREDITARY	UNKNOWN	POSSIBLY SEVERE YELOW JAUNDICE AT BIRTH
AMPLIFICATION	BINAURALLY FITTED HEARING AIDS	HEARING AID FITTED IN RIGHT EAR	BINAURALLY FITTED HEARING AIDS	BINAURALLY FITTED HEARING AIDS	BINAURALLY FITTED HEARING AIDS
THRESHHOLD WITH AMPLIFICATION	RIGHT EAR APPROX 25DB; LEFT EAR APPROX 30DB	RIGHT EAR APPROX 20DB	BINAURAL THRESHHOLDS OF APPROXIMATELY 50DB ACROSS THE SPEECH FREQUENCIES	100% SPEECH DISCRIMINATION AT APPPROXIMATELY 55DB	100% SPEECH DISCRIMINATION AT 40DB
ADMISSION TO PRE-SCHOOL PROGRAM	MARCH 1997	JANUARY 2000	AUGUST 1999	FEBRUARY 2000	OCTOBER 2000

table 4.5.3.1 Sign Language Medium Preschool Class (Group B)

	SUBJECT 1	SUBJECT 2	SUBJECT 3	SUBJECT 4	SUBJECT 5	SUBJECT 6	SUBJECT 7
SEX	MALE	FEMALE	MALE	MALE	FEMALE	MALE	FEMALE
AGE	6 YEARS 7 MONTHS	6 YEARS 5 MONTHS	6 YEARS 8 MONTHS	6 YEARS 5 MONTHS	6 YEARS 2 MONTHS	6 YEARS 3 MONTHS	7 YEARS 1 MONTH
HOME LANGUAGE	SIGN LANGUAGE AND ENGLISH	SIGN LANGUAGE	SIGN LANGUAGE	SIGN LANGUAGE AND XHOSA	SIGN LANGUAGE AND XHOSA	SIGN LANGUAGE	SIGN AND SPOKEN LANGUAGE
ONSET OF HEARING LOSS	18 MONTHS	18 MONTHS	APPROX 2 YEARS	**APPROX 2 YEARS**	APPROX 2 YEARS	**APPROX 2 YEARS**	APPROX 3 YEARS
DEGREE OF HEARING LOSS (HL)	PROFUND BILATERAL HL	PROFOUND BILATERAL HL	PROFOUND BILATERAL HL	RIGHT EAR-SEVERE PROFOUND HL LEFT EAR-PROFOUND HL	PROFOUND BILATERAL HL	PROFOUND BILATERAL HL	PROFOUND BILATERAL HL
POSSIBLE CAUSE OF HEARING LOSS	POSSIBLY HEREDITARY	UNKNOWN	WARDENBER SYNDROME	UNKNOWN	UNKNOWN	UNKNOWN	POSSIBLE EIGHTH NERVE DAMAGE
AMPLIFICATION	NONE	NONE	NONE	NONE	NONE	NONE	NONE
ADMISSION TO PRE SCHOOL PROGRAM	1997	2000	2001	**2000**	1998	**2000**	2000

4.6 QUESTIONNAIRES

With regard to each subject a questionnaire was completed by either the parent or the researcher aided by the teacher and school records. The information obtained in this manner was beneficial in the interpretation of the results.

4.7 PROCEDURES

4.7.1 TEACHER TRAINING

In order to eliminate variables which may have influenced the subjects response it was decided that the class teacher would administer the test. In the case of the subjects attending the signed language pre-school (group B) it was decided that the teacher assistant who is deaf and fluent in signed language would administer the test.

Preceding the administration of the test, each teacher received extensive training in the test adminstration procedures and general instructions for the implementation of the test.

4.7.2 TESTING PROCEDURES FOR DEAF SUBJECTS ATTENDING AN ORAL MEDIUM PRE-SCHOOL (GROUP A)

Before commencing with the test the teacher performed objective hearing aid performance tests on those children fitted with hearing aids. The subjects remained in their classroom and those children not involved in the research were removed from the classroom. The children were tested in groups of 4. Each child was seated at a low table one metre apart from each other to ensure that they did not copy from one another. Each child indicated his answers in an individual answer book with the aid of coloured crayons. The tester stood in front of the class so as to allow for easy communication. The session was video taped to faciltiate analysis and interpretation.

The teacher gave the instructions orally and where applicable completed the test example with the subjects. Before commencing with the test items the

teacher ensured that each child understood what was expected of him. No time limit for the completion of a subtest was set. However, for qualitative evaluation a note was made of those subjects who were either very rushed or who worked at a considerably slower tempo. The tester was permitted to repeat test instructions more than once. For purposes of qualitative assessment a note was made of those subjects requiring repetition of instructions.

4.7.3 TESTING PROCEDURES FOR SUBJECTS ATTENDING A SIGNED LANGUAGE MEDIUM PRE-SCHOOL (GROUP B)

The subjects were removed from their classroom and tested in groups of 4 in a secluded class room. With the exception of the language in which the test was administered, testing procedures for group B were identical to the testing procedures described for group A. For subjects attending a signed language pre-school (group B) the test was administered in sign language by the teacher assistant who is deaf and fluent in sign language.

Subtest 6, namely auditory perception was not administered with this group of subjects as being a sig language medium class they do not wear hearing aids and receive no auditory training.

After completion of the Group Test for School Readiness each childs answer book was marked and scored accordingly. The video tape was analysed for further qualitative information.

CHAPTER 5

THE ANALYSIS AND INTERPRETATION OF THE RESULTS

5.1 THE DATA

TABLE 5.1.1 GROUP TEST FOR SCHOOL READINESS RESULTS FOR SUBJECTS ATTENDING AN ORAL MEDIUM CLASS

(GROUP A)

	SUBTEST	MAX POINTS	SUBJECT 1	SUBJECT 2	SUBJECT 3	SUBJECT4	SUBJECT 5
1	VISUAL PERCEPTION						
1.1	VISUAL DISCRIMINATION	**4**	4	4	4	4	4
1.2	PERCEPTION OF SHAPES	**3**	3	3	2	3	3
1.3	FOREFROUND/BACKGROUND DISCRIMINATION	**2**	2	2	2	2	2
1.4	SHARP VISUAL PERCEPTION (MISSING PARTS)	**4**	1	4	2	4	4
1.5	INCOMPLETE DRAWING OF A PERSON	**2**	2	2	0	1	0
1.6	GESTALT PERCEPTION	**5**	5	5	4	4	5
1.7	VISUAL MEMORY	**3**	0	2	1	2	2
1.8	VISUAL SEQUENCING	**3**	3	1	0	3	1.5
2	**SPATIAL ORIENTATION**						
2.1	POSITION IN SPACE	**4**	4	4	0	4	4
2.2	SENSE OF DIRECTION	**4**	4	4	2	2	3
2.3	CROSSING THE MIDLINE	**1**	1	1	1	1	1
3	**NUMBER CONCEPT**						
3.1	COUNTING OF CONCRETE OBJECTS	**3**	3	3	1	3	3
3.2	QUANTITIES AND PROPORTIONS	**3**	2	3	2	2	3
4	**LANGUAGE AND EXPERIENCE**						
4.1	EMOTIONS	**4**	1	4	4	4	3
4.2	ABSTRACT THINKING	**2**	1	2	2	1	2
4.3	STORY MEMORY	**5**	1	2	2	3	2
5	**DRAW A MAN**	**3**	**2**	**2**	1	**3**	**3**
6	**AUDITORY PERCEPTION**						
6.1	AUDITORY DISCRIMINATION (WORDS)	**4**	0	0	0	0	
6.2	AUDITORY DISCRIMINATION	**3**	0	3	0	2	3
6.3	AUDITORY SEQUENCING	**2**	1	1	2	1	1
7	**FINE MOTORIC CO-ORDINATION**						
7.1	MAZE	**3**	2	3	1	2	3
7.2	WRITING PATTERNS	**4**	2	1	2	4	2
8	**GROSS MOTOR CO-ORDINATION**						
	STAND ON ONE FOOT:10SEC	**1**	1	1	1	1	1
	STAND ON ONE FOOT WITH EYES CLOSED: 3 SEC	**1**	1	1	1	1	0
	SKIP 4 METRES	**1**	1	1	0	1	0
	WALK HEEL TO TOE 4 METRES	**1**	0	0	1	1	0
	TOTAL	**75**	**47**	**59**	**38**	**59**	**55.5**
	STA NINE	**9**	**4**	**5**	**3**	**5**	**5**

TABLE 5.1.2 GROUP TEST FOR SCHOOL READINESS RESULTS FOR SUBJECTS ATTENDING A SIGN LANGUAGE MEDIUM CLASS

(GROUP B)

	SUBTEST	MAX POINTS	SUBJ 1	SUBJ 2	SUBJ 3	SUBJ4	SUBJ 5	SUBJ 6	SUBJ 7
1	**VISUAL PERCEPTION**								
1.1	VISUAL DISCRIMINATION	**4**	3	2	4	4	4	4	4
1.2	PERCEPTION OF SHAPES	**3**	2	2	3	3	2	2	2
1.3	FOREFROUND/BACKGROUND DISCRIMINATION	**2**	2	1	2	0	1	0	0
1.4	SHARP VISUAL PERCEPTION (MISSING PARTS)	**4**	4	4	4	3	3	3	4
1.5	INCOMPLETE DRAWING OF A PERSON	**2**	0	0	2	2	1	2	0
1.6	GESTALT PERCEPTION	**5**	4	3	5	4	4	4	0
1.7	VISUAL MEMORY	**3**	3	3	2	3	1	2	3
1.8	VISUAL SEQUENCING	**3**	0	0	3	2	2	0	2
2	**SPATIAL ORIENTATION**								
2.1	POSITION IN SPACE	**4**	3	1	4	3	2	0	1
2.2	SENSE OF DIRECTION	4	2	2	4	2	4	3	2
2.3	CROSSING THE MIDLNE	**1**	1	1	1	1	1	1	1
3	**NUMBER CONCEPT**								
3.1	COUNTING OF CONCRETE OBJECTS	**3**	3	2	3	3	3	1	3
3.2	QUANTITIES AND PROPORTIONS	**3**	2	2	1	1	3	1	2
4	**LANGUAGE AND EXPERIENCE**								
4.1	EMOTIONS	**4**	0	2	4	4	1	0	1
4.2	ABSTRACT THINKING	**2**	0	2	0	1	0	1	1
4.3	STORY MEMORY	**5**	2	2	1	1	2	2	1
5	**DRAW A MAN**	**3**	**3**	**3**	**3**	**3**	**3**	**2**	**3**
6	**AUDITORY PERCEPTION**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**
6.1	AUDITORY DISCRIMINATION (WORDS)	**4**							
6.2	AUDITORY DISCRIMINATION	**3**							
6.3	AUDITORY SEQUENCING	**2**							
7	**FINE MOTORIC CO-ORDINATION**								
7.1	MAZE	**3**	2	0	3	3	2	1	2
7.2	WRITING PATTERNS	**4**	2	3	4	4	2	3	3
8	**GROSS MOTOR CO-ORDINATION**								
	STAND ON ONE FOOT: 10SEC	**1**	1	1	1	1	0	1	0
	STAND ON ONE FOOT WITH EYES CLOSED: 3 SEC	**1**	1	0	1	1	0	1	0
	SKIP 4 METRES	**1**	1	0	1	1	1	0	1
	WALK HEEL TO TOE 4 METRES	**1**	1	0	0	1	0	0	0
	TOTAL	**75**							
	STA NINE	**9**							

TABLES

5.2 ANALYSIS OF THE DATA. Visual Perception

Table 5.2.1.1 Visual Discrimination

|	1.1 Visual Discrimination				
Score	0	1	2	3	4
Group A	0%	0%	0%	0%	100%
Group B	0%	0%	14%	14%	71%

1.1 Visual Discrimination
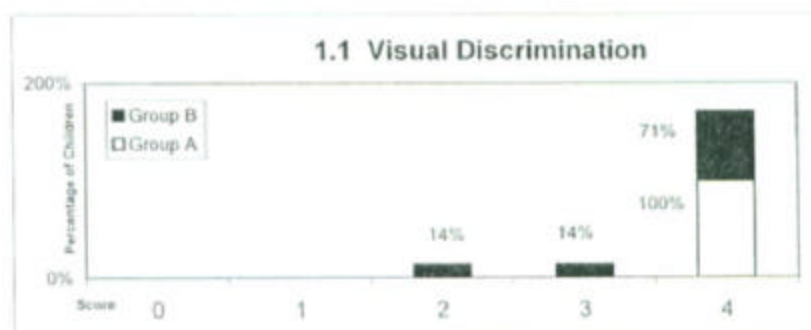
From this graph it is apparent that 100% of group A (deaf children receiving their pre-school education in a spoken language) achieved the maximum score of 4.

In comparison 71% of the children in group B (deaf children receiving their pre-school education in sign language) achieved the maximum score of 4

Table 5.2.1.2 Perception of shapes

	1.2 Perception of Shapes			
Score	0	1	2	3
Group A			20%	80%
Group B			71%	29%

1.2 Perception of Shapes
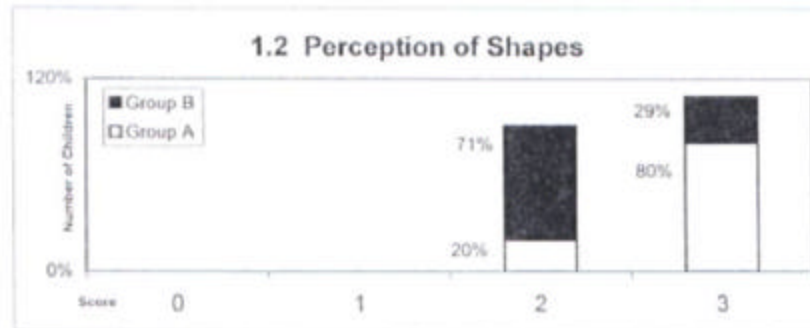
80% of the subjects in group A achieved the maximum score of 3 in comparison with 71% of the subjects in Group B who achieved a maximum score of 2.

Table 5.2.1.3 Foreground/background discrimination

	1.3 Foreground/Background Discrimination		
Score	0	1	2
Group A			100%
Group B	43%	29%	29%

1.3 Foreground/Background Discrimination
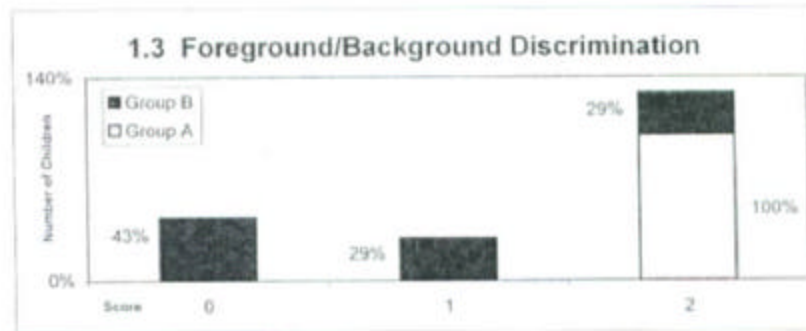
100% of the subjects in group A received the maximum score of 2. In comparison, 29% of the subjects in group B achieved the maximum score of 2. The majority of the subjects in group B (43%) achieved a score of 0.

Table 5.2.1.4 Sharp Visual Perception (missing parts)

|	1.4 Sharp Visual Perception (Missing Parts)				
Score	0	1	2	3	4
Group A		20%	20%		60%
Group B				43%	57%
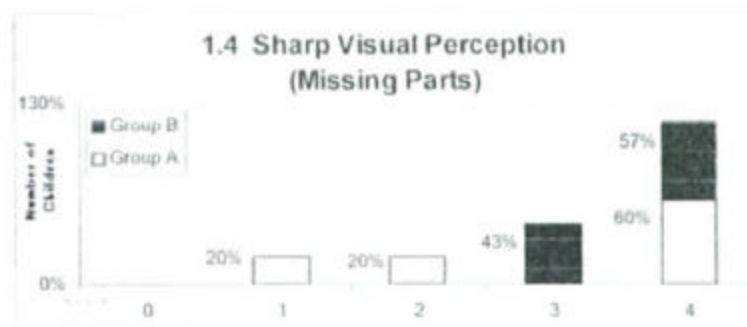
1.4 Sharp Visual Perception (Missing Parts)

60% of the subjects in group A achieved the maximum score of 4. 20% of the subjects in group A achieved scores of 1and 2 respectively.

In comparison 57% of the subjects in group B achieved the maximum score of 4. 43% of the subjects in group B achieved a score of 3.

Table 5.2.1.5 Incomplete drawing of a person

	1.5 Incomplete Drawing of a Person		
Score	0	1	2
Group A	40%	20%	40%
Group B	43%	14%	43%

1.5 Incomplete Drawing of a Person
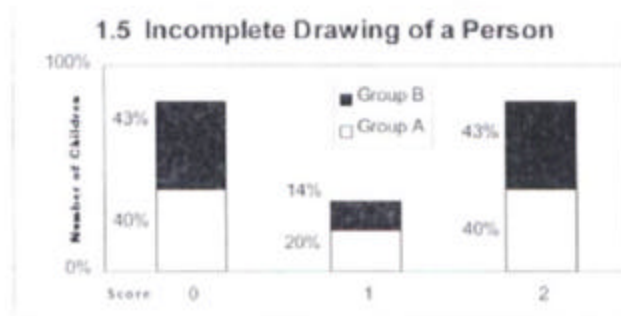
40% of the subjects in group A achieved a score of 0 and 2. A score of 1 was achieved by 20% of the subjects in group A.

In group B, 43% of the subjects achieved the maximum score of 2. A score of 0 was achieved by 43% of the subjects, with 14 % of the subjects obtaining a score of 1.

Table 5.2.1.6 Gestalt Perception

Score	0	1	2	3	4	5
		1.6 Gestalt Perception				
Group A					40%	60%
Group B	14%			14%	57%	14%
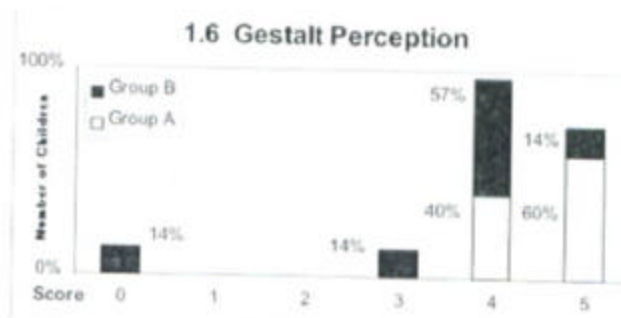
60% of the subjects in group A achieved a maximum score of 5, with 40 % of the subjects in this group achieving a score of 4.

The majority of the subjects in group B (57%) achieved a score of 4. 14% of the subjects in group B achieved a score of 0, 3 and 5 respectively.

Table 5.2.1.7 Visual Memory

	1.7 Visual Memory			
Score	0	1	2	3
Group A	20%	20%	60%	
Group B		14%	29%	57%

1.7 Visual Memory
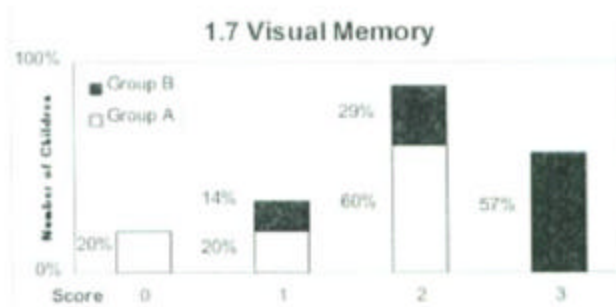
60% of the subjects in group A achieved score of 2. 20% of the subjects within this group achieved a score of 0 and 1 respectively.

In group B 57% of the subjects achieved the maximum score of 3, with 14% achieving a score of 1 and 29% achieving a score of 2.

Table 5.2.1.8 Visual sequencing

	1.8 Visual Sequencing			
Score	0	1	2	3
Group A	20%	40%		40%
Group B	43%	43%	14%	

1.8 Visual Sequencing
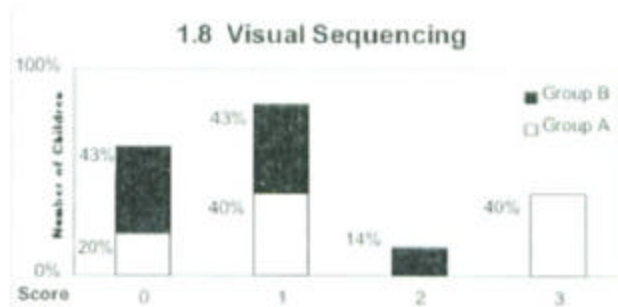
A maximum score of 3 was obtained by 60% of the subjects in group A. A further 40% obtained a score of 1, with 20% of the subjects in this group achieving a score of 0.

43% of the subjects in group B achieved a score of 0 and 1 respectively. 14% of the subjects within this group achieved a score of 2.

2 Spatial Orientation

Table 5.2.2.1 Position in Space

Score	2.1 Position in Space				
	0	1	2	3	4
Group A	20%				80%
Group B	14%	29%	14%	29%	14%
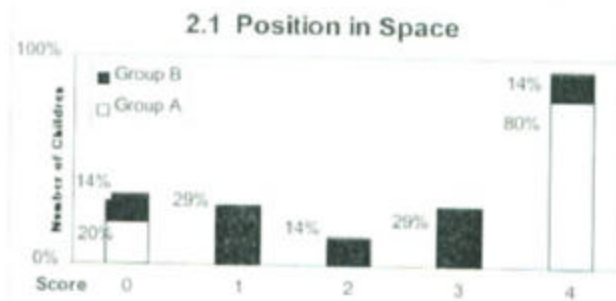
2.1 Position in Space

80% of the subjects in group A achieved the maximum score of 4. 20% of the subjects within this group achieved a score of 0.

29% of the subjects in group B achieved a score of 1 and 3 respectively, with 14% of the subjects receiving a score of 0 and 2 respectively.

Table 5.2.2.2 Sense of Direction

Score	0	1	2	3	4
2.2 Sense of Direction					
Group A			40%	20%	40%
Group B			57%	14%	29%

2.2 Sense of Direction

Within group A, 40% of the subjects received the maximum score of 4 with a further 40% obtaining a score of 2. 20% of the subjects within this group achieved a score of 3.

Within group B the majority of the subjects (57%)achieved a score of 2, with 29% achieving a score of 4 and 14% achieving a score of 3.

Table 5.2.2.3 Crossing the Midline

	2.3 Crossing the Midline	
Score	0	1
Group A	100%	
Group B	100%	

2.3 Crossing the Midline
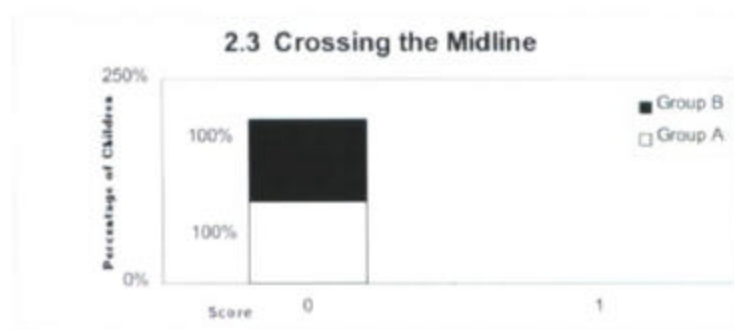
100% of the subjects in both Group A and B achieved the maximum score of 1.

3. Number Concept

Table 5.2.3.1 Counting of concrete numbers

	3.1 Counting of Concrete Objects			
Score	0	1	2	3
Group A		20%		80%
Group B		14%	14%	71%

3.1 Counting of Concrete Objects
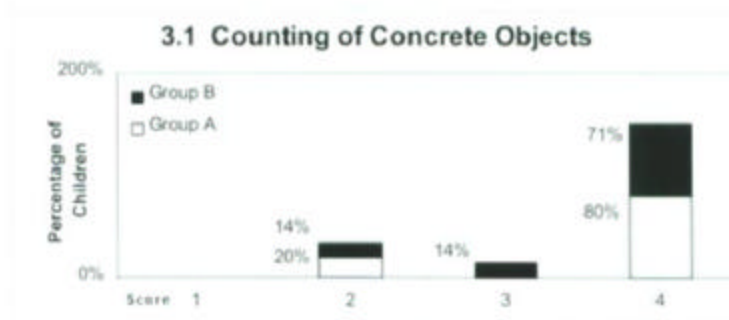
80 % of the subjects in group A achieved the maximum score of 3. In comparison 71% of the subjects in group B achieved the maximum score of 3. 20% of the subjects within group A achieved a score of 1. 14% of the subjects within group B achieved a score of 1 and 2 respectively.

Table 5.2.3.2 Quantities and proportions

3.2 Quantities and Proportions			
Score	0	1	2	3
Group A			60%	40%
Group B		43%	43%	14%

3.2 Quantities and Proportions
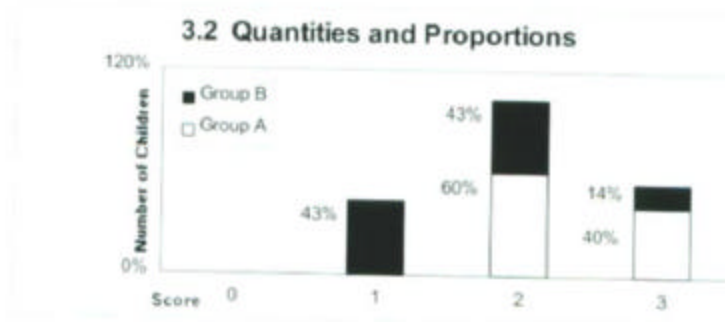
60% of the subjects in group A achieved a score of 2 with 40% of the subjects achieving the maximum score of 3.

43% of the subjects in group B achieved a score of 1 and 2 respectively. 14% of the subjects within this group achieved a score of 3.

4. Language and Experience

Table 5.2.4.1 Emotions

	4.1 Emotions				
Score	0	1	2	3	4
Group A		20%		20%	60%
Group B	29%	29%	14%		29%

4.1 Emotions

Within group A 60% of the subjects received the maximum score of 4. A further 20% each achieved a score of 1 and 3.

29% of the subjects within group B achieved the maximum score of 4, with a further 29% of the subjects each obtaining a score of 0 and 1. 14% of the subjects within this group achieved a score of 2.

Table 5.2.4.2 Abstract Thinking

	4.2 Abstract Thinking		
Score	0	1	2
Group A		40%	60%
Group B	43%	43%	14%

4.2 Abstract Thinking
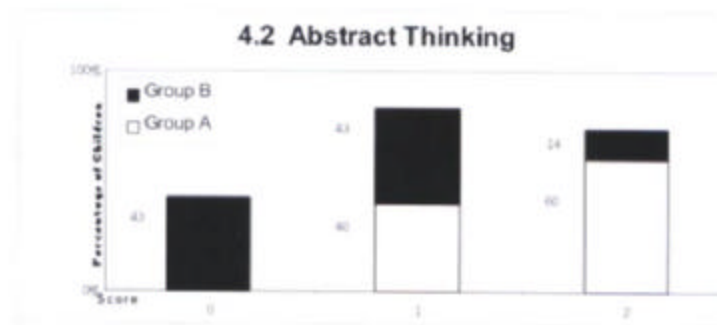
60% of the subjects in group A achieved the maximum score of 2, with 40% of the subjects within this group obtaining a score of 1.

43% of the subjects in group B each achieved a score of 0 and 1. 14% of the subjects within this group achieved a score of 2.

Table 5.2.4.3 Story Memory

	4.3 Story Memory					
Score	0	1	2	3	4	5
Group A		20%	60%	20%		
Group B	43%	43%	14%			

4.3 Story Memory
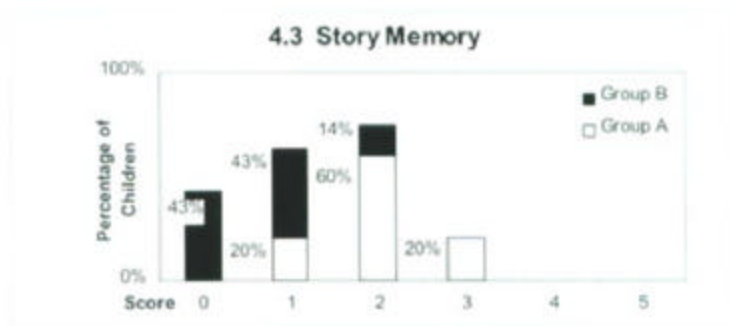
60 % of the subjects in group A achieved a score of 2, with 20% of the subjects within this group each receiving a score of 1 and 3.

Within group B 57% of the children obtained a score of 2 with 43% obtaining a score of 1.

5. Draw a Man

Table 5.2.5.1 Draw a Man

	5 Draw a Man			
Score	0	1	2	3
Group A		20%	40%	40%
Group B			14%	86%

5 Draw a Man
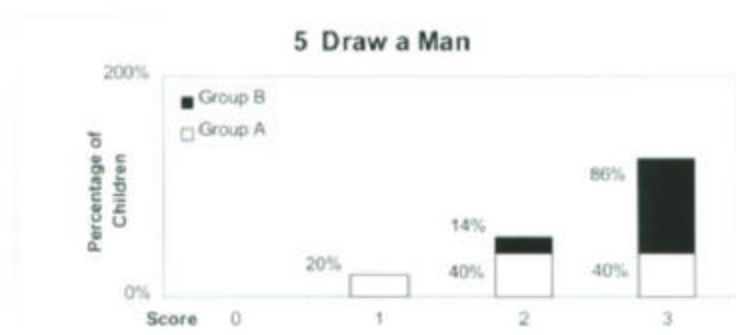
In group A 40% of the subjects each achieved a score of 2 and 3. 20% of the subjects within this group achieved a score of 1.

In comparison, 86% of the subjects withingroup B achieved the maximum score of 3 with 14% achieving a score of 2.

Auditory Perception

Subtest 6.1 Auditory Discrimination (words)

100% of the subjects in group A obtained a score of 0 for this subtest.

Subtest 6.2 Auditory discrimination (sounds)

40% of the subjects each achieved a score of 3 and 0. 20% of the subjects obtained a score of 2.

Subtest 6.3 Auditory Sequencing

80% of the subjects in group A achieved a score of 1, with 20% obtaining a score of 2.

7. Fine Motoric co-ordination

Table 5.2.7.1 Maze

	7.1 Maze			
Score	0	1	2	3
Group A		20%	40%	40%
Group B	14%	14%	43%	29%

7.1 Maze
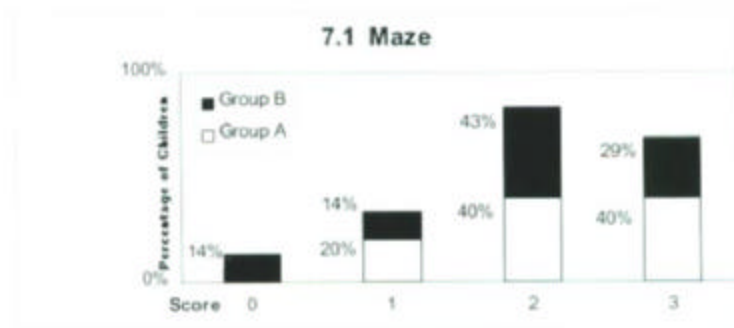
40% of the subjects in group A achieved the maximum score of 3, with a further 40% obtaining a score of 2. 20% of the subjects within this group achieved a score of 1.

Within group B the majority of the subjects (43%) obtained a score of 2. 29% of the subjects within this group achieved a score of 3, with 14% of the subjects each obtaining a score of 0 and 1.

Table 5.2.7.2 Writing Patterns

	7.2 Writing Patterns				
Score	0	1	2	3	4
Group A		20%	60%		20%
Group B			29%	43%	29%

7.2 Writing Patterns

60% of the subjects in group A achieved a score of 2. 0% of the subjects in this group achieved the maximum score of 4, with a further 20% of the subjects obtaining a score of 1.

43% of the subjects in group B achieved a score of 3, with 29% of the subjects each achieving a score of 2 and 4.

8. Gross Motor Co-ordination

Table 5.2.8.1 Stand on one foot

	8.1 Stand On One Foot - 10 sec	
Score	0	1
Group A		100%
Group B	29%	71%

8.1 Stand On One Foot - 10 sec

100% of the subjects in group A achieved the maximum score of 1.

71% of the subjects in group B achieved the maximum score of 1, with 29% achieving a score of 0.

Table 5.2.8.2 Stand on one foot with eyes closed

8.2	Stand on one foot with eyes closed 3 sec	
Score	0	1
Group A	20%	80%
Group B	43%	57%

8.2 Stand on one foot with eyes closed - 3 sec

80% of the subjects in group A achieved the maximum scoe of 1. In comparison 57% of the subjects in group B achieved the maximum score of 1. 20% of the subjects in group A achieved a score of 0, with 43% of the subjects in group B achieving a score of 0.

Table 5.2.8.3 Skip 4 metres

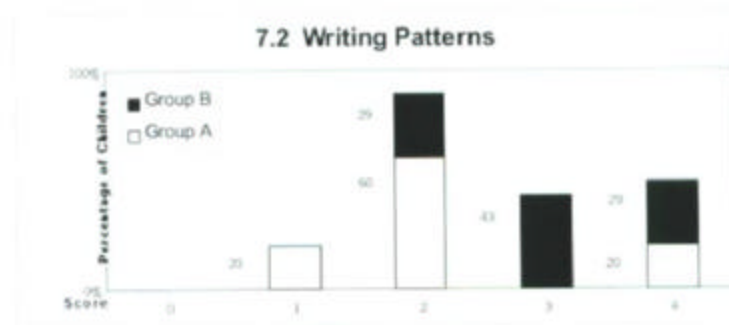|	8.3 Skip 4 Meters	
Score	0	1
Group A	40%	60%
Group B	29%	71%

8.3 Skip 4 Metres

60% of the subjects in group A achieved the maximum score of 1, with 40% of the subjects obtaining a score of 0.

71% of the subjects in group B achieved the maximum score of 1, with 29% of the subjects obtaining a score of 0.

Table 5.2.8.4 Walk heel to toe 4 metres

	8.4 Walk heel to toe 4 metres	
Score	0	1
Group A	60%	40%
Group B	71%	29%

8.4 Walk heel to toe 4 metres
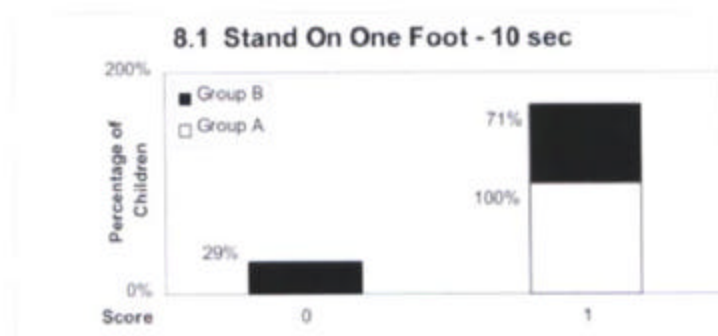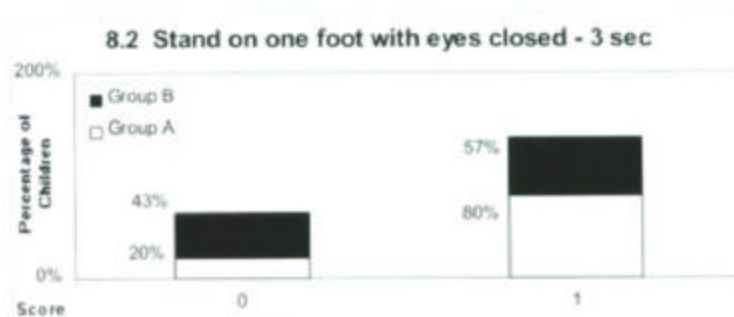
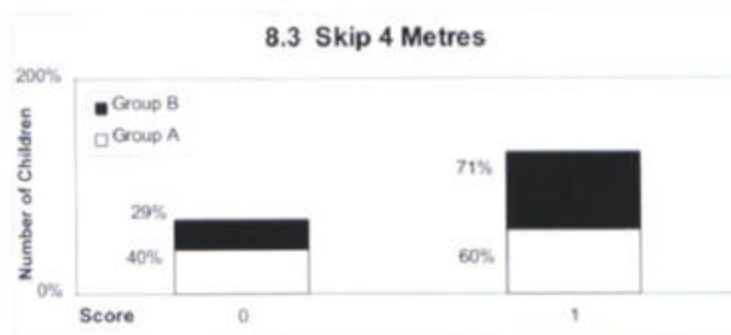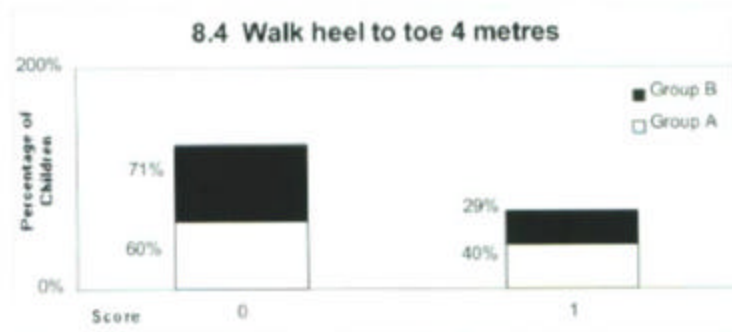60% of the subjects in group A achieved a score d 0. 40% of the subjects in this group achieved the maximum score of 1.

71% of the subjects in group B achieved a score of 0. 29% of the subjects in this group achieved the maximum score of 1.

5.3 INTERPRETATION OF THE DATA

5.3.1 GROUP A : SUBJECTS ATTENDING AN ORAL MEDIUM PRE-SCHOOL CLASS.

5.3.1.1 Visual Perception

5.3.1.1.1 Visual Discrimination (table 5.2.1.1)

The subjects within this group did not appear to present with difficulties in the identification of two identical pictures.

5.3.1.1.2 Perception of Shapes (table 5.2.1.2)

80% of the subjects within this group were correctly able to replicate all geometrical shapes. The remaining 20% of the subjects experienced difficulties with the duplication of the flag, which may be indicative of visual motoric intergration difficulties which in turn may negatively impact on scholastic skills such as copying numbers and/or letters from the blackboard.

5.3.1.1.3 Foreground/Background Perception (table 5.2.1.3)

The ability to identify an object from a lesser defined background did not appear to present this group of subjects with any difficulties.

5.3.1.1.4 Sharp Visual Perception (Missing Parts) (table 5.2.1.4)

Only 60% of the subjects within this group were correctly able to fill in the missing body parts. The concept of the body appeared to be problematic to at least 40% of the subjects.

5.3.1.1.5 Incomplete drawing of a person (table 5.2.1.5)

Only 40% of the subjects were able to accurately draw the body parts of an incomplete person.

5.3.1.1.6 Perception of Gestalt (table 5.2.1.6)

60% of the subjects within this group were able to correctly copy signs/symbols and shapes.

5.3.1.1.7 Visual Memory (table 5.2.1.7)

Only 60% of the subjects were able to recall between 10 and 12 objects placed on a tray.

5.3.1.1.8 Visual Sequencing (table 5.2.1.8)

This subtest proved very difficult for the subjects within this group with only 40% of the subjects being able to complete the pattern around the frame.

5.3.1.2 Spatial Orientation

5.3.1.2.1 Position in Space (table 5.2.2.1)

80% of the subjects were correctly able to indicate positions in space, with 20% of the subjects being unable to perform this subtest.

5.3.1.2.2 Sense of Direction (table 5.2.2.2)

With only 40% of the subjects being able to correctly identify 2 pictures facing the same direction, this skill appears to be problematic.

5.3.1.2.3 Crossing the Midline (table 5.2.2.3)

All subjects within this group were able to perform this subtest, which would imply that the subjects should not experience difficulties when they are required to write from left to right.

5.3.1.3 Number concept

5.3.1.3.1 Counting of concrete objects (table 5.2.3.1)

80% of the subjects within this group were able to count out 13 concrete objects, a skill which is indispensible in the acquisition of more complex mathematical skills.

20% of the subjects were able to count only 3 concrete objects an indication of potential difficulties with the acquisition of mathematical skills in grade 1.

5.3.1.3.2 Quantities and proportions (table 5.2.3.2)

40% of the subjects were correctly able to comprehend mathematical concepts such as 'last', 'equal/same' and 'least'.

The remaining 60% of subjects within this group struggled with the concept of 'equal/same' and 'least'.

5.3.1.4 Language and Experience

5.3.1.4.1 emotions (table 5.2.4.1)

60% of the subjects experienced no difficulty recognising the emotions of 'happy', 'sad', 'scared' and 'angry'.

20% of the subjects experienced difficulty in identifying the emotions 'sad', 'scared' and 'angry'. A further 20% struggled with the correct identification of 'happy'.

5.3.1.4.2 Abstract thinking (table 5.2.4.2)

60% of the subjects were able to identify 'house' as being the word that does not belong with the group 'sweets, cake, icecream, house' and 'ball' as being the word that does not belong with the group 'shirt, dress, pants, ball'.

40% of the subjects were correctly able to identify the word 'ball' as not belonging with the group 'shirt, dress, pants, ball' but were unable to correctly identify 'house' as the word not belonging with the group 'sweets, cake, icecream, house'. These subjects may experience difficulties in formal education with the categorisation of objects that share a number of similar attributes or the identification of the object that does not share similar attributes to the rest of the group.

5.3.1.4.3 Story Memory (table 5.2.4.3)

This subtest proved to be considerably difficult for the subjects, with no subjects being able to recall all the facts in the story. Only 20% of the subjects were able to spontaneously retell the story recalling most of the facts. 60% of the subjects were able to recall parts of the story, but only when being questioned about events in the story. A further 20% could only recall a couple of individual facts and were unable to retell the story. Results obtained in this subtest would indicate that subjects may experience difficulty in formal education with memory. As the child is unable to read upon entering grade 1 he is dependant on his memory to remember explanations teacher has given so that he may be able to interpret and understand new concepts.

5.3.1.5 Draw a man/person (table 5.2.5.1)

Only 40% of the subjects were successfully able to draw a clothed person with two dimensional arms and legs. 40% of the subjects drew an unclothed person with one dimensional arms and legs, with a further 20% of subjects drawing only a stick man. In grade 1 this skill is indicative of the attention the

child pays to detail and his worldy knowledge of the attributes of objects in his environment.

5.3.1.6 Auditory perception

5.3.1.6.1 Auditory discrimination

In grade 1 this skill is vital for discriminating between sounds that sound similar but that are not the same. The ability to discriminate between sounds is a pre-requisite for the acquisition of spelling skills. None of the subjects within this group correctly discriminated between similarly sounding but different words. All the subjects appeared to determine whether the words were similarly sounding or not on the basis of whether the words rhymed with each other or not. If this subtest is analysed according to the rhyming abilities of the subjects, all subjects would have scored full marks for this subtest. Although rhyming was not assessed, mention should be made of the fact that rhyming is an equally important skill in the acquisition of spelling.

5.3.1.6.2 Auditory memory

40% of the subjects were correctly able to indicate how many times rhythm sticks were clapped together on three separate occassions [2;4;3]. 20% of the subjects were correctly able to identify two and three claps, but experienced difficulty recalling 4 claps. A further 40% of the subjects were unable to recall how many times the rhythm sticks were clapped together on the three separate occasions.

5.3.1.6.3 Auditory sequencing

Only 20% of the subjects were correctly able to identify the set of keys as being the first sound they heard when a set of keys and a bell was used. 80% of the subjects were unable to distinguish the sound that they had heard first. On being presented with sounds made by a whistle and rhythm sticks

respectively, 100% of the subjects were able to identify the whistle as being the first sound they heard. Auditory sequencing is an important skill in grade 1 as the child is dependent on his auditory sequencing skills to follow instructions. Auditory sequencing also plays an important role in the acquisition of spelling as the sounds in a word have a specific sequence.

5.3.1.7 Fine motoric co-ordination

5.3.1.7.1 Maze (table 5.2.7.1)

40% of the subjects were able to draw a line in the middle of the maze, without touching the boundaries of the maze.

The remaining 60 % of the subjects achieved varying degrees of success with this subtest, indicative of possible difficulties when required to write between or on the line in grade 1.

5.3.1.7.2 Writing patterns (table 5.2.7.2)

Only 20% of the subjects managed to complete each of the 4 patterns accurately. The remaining 80% of the subjects experienced difficulty with accuracy and precision.

5.3.1.8 Gross motor co-ordination

5.3.1.8.1 Standing on one foot for 10 seconds (table 5.2.8.1)

100% of the subjects were able to perform this activity

5.3.1.8.2 Standing on one foot with eyes closed for 3 seconds (table 5.2.8.2)

80% of the subjects achieved sucess with this subtest with only 20% being unable to simultaneusly close their eyes and maintain their balance.

5.3.1.8.3 Skip 4 metres (table 5.2.8.3)

60% of the subjects achieved success while 40% were unable to skip.

5.3.1.8.4 Walk heel to toe for 4 metres (table 5.2.8.4)

The subjects within this group experienced difficulty, with this subtest. Although being able to walk heel to toe the majority i.e 60% of the subjects lost their balance before completing the 4 metres.

5.3.2 GROUP B : SUBJECTS ATTENDING A SIGN LANGUAGE MEDIUM PRE-SCHOOL CLASS.

5.3.2.1 Visual Perception

5.3.2.1.1 Visual Discrimination (table 5.2.1.1)

The majority of the subjects within this group did not appear to present with difficulties in the identification of two identical pictures.

5.3.2.1.2 Perception of Shapes (table 5.2.1.2)

Only 29% of the subjects within this group were correctly able to replicate all geometrical shapes. The remaining 71% of the subjects experienced difficulties with the duplication of the flag, which may be indicative of visual motoric intergration difficulties which in turn may negatively impact on scholastic skills such as copying numbers and/or letters from the blackboard.

5.3.2.1.3 Foreground/Background Perception (table 5.2.1.3)

43% of the subjects within this group were unable to identify an object from a lesser defined background, indicative of possible scholastic difficulties with the comprehension of concepts such as under,over, on top of, in front of etc as in order to understand these concepts the child must be able to

satisfactorily differentiate the foreground from the background (Kephart, 1971 as cited in Grove 1978). Only 29% of the subjects experienced no difficulties with the perception of foreground/background.

5.3.2.1.4 Sharp Visual Perception (Missing Parts) (table 5.2.1.4)

Only 57% of the subjects within this group were correctly able to fill in the missing body parts. The concept of the body appears to be problematic to at least 43% of the subjects, which could possibly attribute to difficulty within the formal academic setting to differentiate between numbers, letters and words

5.3.2.1.5 Incomplete drawing of a person (table 5.2.1.5)

Only 43% of the subjects were able to accurately draw the body parts of an incomplete person.

5.3.2.1.6 Perception of Gestalt (table 5.2.1.6)

Only 14% of the subjects within this group were able to correctly copy signs/symbols and shapes. The poor perception of signs/symbols and shapes may contribute to difficulties with the recognition of numbers and letters.

5.3.2.1.7 Visual Memory (table 5.2.1.7)

57% of the subjects were able to recall between 13 and 15 objects placed on a tray.

Visual memory appears to be of paramount importance in the learning process as visual memory integrates information from all the sensory modalites and increases the problem solving abilities of the child (Getman, Kane and Halgren 1968, as cited in Grove, 1978).

5.3.2.1.8 Visual Sequencing (table 5.2.1.8)

This subtest proved very difficult for the subjects within this group with only 14% of the subjects being able to complete the pattern around the frame, which may be indicative of possible difficulties with sound sequencing in grade one.

5.3.2.2 Spatial Orientation

5.3.2.2.1 Position in Space (table 5.2.2.1)

14% of the subjects were correctly able to indicate all the positions in space, with 14% of the subjects being unable to perform this subtest.

As the perception of objects in space is very visually illustrated in sign language the fact that only 14% of the subjects were capable of correctly illustrating the desired positions is noteworthy for further investigation and could possibly be related to the child's onset of deafness, motoric maturity for sign production and comprehension of instructions in sign language.

5.3.2.2.2 Sense of Direction (table 5.2.2.2)

With only 29% of the subjects being able to correctly identify 2 pictures facing the same direction, this skill appears to be problematic.

5.3.2.2.3 Crossing the Midline (table 5.2.2.3)

All subjects within this group were able to perform this subtest, which would imply that the subjects should not experience difficulties when they are required to write from left to right.

5.3.2.3 Number concept

5.3.1.3.1 Counting of concrete objects (table 5.2.3.1)

71% of the subjects within this group were able to count out 13 concrete objects, a skill which is indispensible in the acquisition of more complex mathematical skills.

14% of the subjects were each able to count 7 and 3 concrete objects respectively, an indication of potential difficulties with the acquisition of mathematical skills in grade 1.

5.3.2.3.2 Quantities and proportions (table 5.2.3.2)

Only 14% of the subjects were correctly able to comprehend mathematical concepts such as 'last', 'equal/same' and 'least'.

The remaining 86% of subjects within this group struggled with the concept of 'equal/same' and 'least', concepts which are indispensable in the acquisition of mathematical skills.

5.3.2.4 Language and Experience

5.3.2.4.1 emotions (table 5.2.4.1)

With only 29% of the subjects experiencing no difficulty with the recognition of the emotions of 'happy', 'sad', 'scared' and 'angry', the results can be regarded as surprising as the portrayal of emotions in sign language is visually orientated and can usually be easily interpreted from the facial expression.

29% of the subjects were unable to correctly identify any of the portrayed emotions.

5.3.2.4.2 Abstract thinking (table 5.2.4.2)

14% of the subjects were able to identify 'house' as being the word that does not belong with the group 'sweets, cake, icecream, house' and 'ball' as being the word that does not belong with the group 'shirt, dress, pants, ball'.

43% of the subjects were correctly able to identify the word 'ball' as not belonging with the group 'shirt, dress, pants, ball' but were unable to correctly identify 'house' as the word not belonging with the group 'sweets, cake, icecream, house'. 43% of the subjects were incapable of correctly identifying either word. These subjects may experience difficulties in formal education with the categorisation of objects that share a number of similar attributes or the identification of the obect that does not share similar attributes to the rest of the group.

5.3.2.4.3 Story Memory (table 5.2.4.3)

This subtest proved to be considerably difficult for the subjects, with no subjects being able to recall all the facts in the story. None of the subjects were able to spontaneously retell the story recalling most of the facts. 57% of the subjects were able to recall parts of the story, but only when being questioned about events in the story. A further 43% could only recall a couple of individual facts and were unable to retell the story. Results obtained in this subtest would indicate that subjects may experience difficulty in formal education with memory. As the child is unable to read upon entering grade 1 he is dependant on his memory to remember explanations teacher has given so that he may be able to interpret and understand new concepts.

5.3.2.5 Draw a man/person (table 5.2.5.1)

Only 86% of the subjects were successfully able to draw a clothed person with two dimensional arms and legs. 14% of the subjects drew an unclothed person with one dimensional arms and legs, In grade 1 this skill is indicative of the attention the child pays to detail and his worldy knowledge of the attributes of objects in his environment.

5.3.2.7 Fine motoric co-ordination

5.3.2.7.1 Maze (table 5.2.7.1)

29% of the subjects were able to draw a line in the middle of the maze, without touching the boundaries of the maze.

57 % of the subjects achieved varying degrees of success with this subtest, with 14% unable to complete this subtest successfully, indicative of possible difficulties when required to write between or on the line in grade 1.

5.3.2.7.2 Writing patterns (table 5.2.7.2)

Only 29% of the subjects managed to complete each of the 4 patterns accurately. The remaining 71% of the subjects experienced difficulty with accuracy and precision.

5.3.2.8 Gross motor co-ordination

5.3.1.8.1 Standing on one foot for 10 seconds (table 5.2.8.1)

71% of the subjects were able to perform this activity

5.3.2.8.2 Standing on one foot with eyes closed for 3 seconds (table 5.2.8.2)

57% of the subjects achieved sucess with this subtest with only 43% being unable to simultaneusly close their eyes and maintain their balance.

5.3.2.8.3 Skip 4 metres (table 5.2.8.3)

71% of the subjects achieved success while 29% were unable to skip.

5.3.2.8.4 Walk heel to toe for 4 metres (table 5.2.8.4)

The subjects within this group experienced difficulty, with this subtest. Although being able to walk heel to toe the majority i.e 71% of the subjects lost their balance before completing the 4 metres.

5.4 DISCUSSION OF THE RESULTS

In this study the medium of instruction as an underlying factor in determining school readiness was assessed in deaf subjects receiving their pre-school education in a spoken language and deaf children receiving their pre-school education in a signed language.

Subjects receiving their pre-school education in a spoken language (group A) faired considerably better on all excepting two subtests than did the subjects receiving their pre-school education in a signed language (group B). What needs to be ascertained is whether the medium of instruction to which each group was exposed can solely account for the outcome of the research. In order to achieve this it is necessary to discuss variations between the two groups with regard to the average age of the group of subjects; the average age at which the hearing impairment was diagnosed; the average length of time spent in either the oral medium program or the sign language medium program and the influence of the home language.

When calculating the average age of each group it was determined that the average age for group A (pre-schoolers receiving their pre-school education in a spoken languge) was 7 years 0 months in comparison with the average age for group B (pre-schoolers receiving their pre-school education in a signed language) which was 6 years 5 months. Group A subjects were consequently on average 7 months older than the subjects in group B. An age difference of 7 months between the subjects could possibly attribute to the better performance of Group A subjects as this would imply that subjects within this group were generally more mature physically, emotionally, socially and would have had more opportunity for acquiring worldly knowledge and experience which would have assisted them in the test situation.

The average age at which Group A was diagnosed with a hearing loss was 2 years 7 months in contrast with Group B whose average age of diagnoses was 3 years 4 months. The average earlier diagnosis in Group A would have afforded this group of subjects earlier intervention, which is key to language acquisition. The fact that Group A subjects in general were diagnosed with a hearing loss 9 months earlier than Group B subjects may have influenced the outcome of the research as earlier intervention would have provided these subjects with greater opportunity for language experience and learning.

It is difficult to determine the role played by the average length of time each group has been exposed to a particular education program as the parents of Group B (pre-schoolers receiving their education in a signed language) did not specify the month in which their child was admitted to the pre-school program (with the exception of one parent) only the year, in contrast with the parents of group A who specified both a month and year. From the information given by the latter group it can be ascertained that on average the subjects in Group A had at the time of conducting the school readiness assessment been attending an oral medium school for 3 years 0 months. If it were assumed that subjects in Group B were admitted to the pre-school at the beginning of the educational year, the average length of time that these subjects would have been attending a signed language medium pre-school would have been 3 years 2 months at the time that the school readiness assessment was conducted. As this is only an assumption the relevance of the average length of time each group had been in the relevant education program cannot account for the results obtained in the research.

As stated previously in this research, a child is obliged to enter grade one in the year that he turns 7 years old. 80% of the subjects In Group A turned 7 years of age in 2002 and consequently it can be deduced that these learners received exemption from school for the year 2002. In contrast only 14% of the subjects in Group B turned 7 years old and thus received school

exemption in 2002. Subjects receiving school exemption for the academic year 2002 were thus afforded the luxury of repeating their pre-school year, providing them with a second opportunity to either consolidate acquired skills or master unlearned skills. As 80% of subjects receiving their pre-school education in a spoken language received school exemption during 2002 and were consequently repeating their pre-school year in contrast with only 14% of subjects receiving their pre-school education in a signed language who received exemption for the same period, this may have attributed to the overall better performance of Group A on the school readiness assessment battery.

The socio-economic status of Group B appears to be slightly lower than the socio-economic status of Group A which may account for the former groups lower performance.

The parents of subjects in Group A were fluent in the spoken language to which these sbjects were exposed in the home environment. In contrast the parents of subjects in Group B first had to learn sign language themselves before being able to communicate with their children in this language. As is the case when learning any language, grammatical errors are initially made and vocabulary is limited. The subjects in Group B are therefor not exposed to a fluent sign language model within the home environment. This limits the opportunity for language acquisition and the quality of the sign language to which they are exposed remains questionable.

In addition, subjects in Group A were exposed to the language in which they were being educated (spoken language) throughout the day – both at pre-school and at home. Subjects in Group B, however, were not afforded this luxury as the parents of these children did not use sign language exclusively in the home environment but were inclined to communicate in their mother tongue which in all cases was a spoken language. Group A therefor appears

to to be exposed more often to the language in which they are being educated than subjects in Group B.

Within the pre-school context, subjects in Group A received their education from teachers whose mother tongue was equivalent to spoken language in which the chld was being educated. Subjects in Group B, however, were being taught by teachers whose mother tongue was a spoken language and for whom sign language was a second or third language. Although the teachers assistant was deaf, it should be taken into consideration that she was not a qualified teacher.

From the discussion above it appears as if the subjects in Group B may have been at a disadvantage with regards to their average chronological age; average age at which the hearing impairment was diagnosed; pre-school year exposure – greater percentage of subjects in Group A were repeating their pre-school year ; the influence of the home language and being educated by educators whose mother tongue is a language – spoken – other than the language – sign language - in which the child was receiving his education.

When focussing attention on the subtests in which Group B (subjects receiving their pre-school education in a signed language) scored higher than Group A namely draw a man, fine motoric co-ordination (writing patterns) and gross motoric co-ordination (skipping 4 metres), no common factor can be identified to account for the better performance.

5.5 CONCLUSION

 It is evident from the discussion above that further research is necessary before a statement pertaining to the preferred medium of education for the deaf can unequivacally be supported.

According to this pilot study the pre-schoolers receiving their pre-school education in a spoken language faired considerably better than those pre-schoolers receiving their education in a signed language. In addition to the contrasting medium of education as a possible cause for Group A (the pre-schoolers receiving their pre-school education in a spoken language) out performing Group B (pre-schoolers receiving their pre-school education in a signed language), the average chronological age of the pre-schooler and the average age at which deafness was diagnosed may have contributed to the results obtained.

This pilot study was conducted on a small scale and although the findings of the study may provide impetus for the parents of a deaf child when confronted with the issue of the medium of instruction and consequently for the best educational placement of their child, further comparative research is needed before either language as a medium of education for the deaf child can be regarded as superior in its development of pre-school readiness skills and ultimately in the fostering of literacy skills.

In spite of its status as a democratic country , the history of Deaf Education In South Africa is deeply intertwined with the history of Apartheid education and its intricate language policies. It is necessary to abolish the shackles of past education practices and implement policies that will facilitate the unbias research of the most appropriate medium of Deaf education. This would imply granting South African Sign Language official status with all the privelages that are afforded to official languages of a country. In order to fairly compare and contrast the benefits of sign language as a medium of education with the benefits of spoken language as a medium of education it is necessary for the government to:

Provide deaf children with an opportunity to acquire sign language naturally, by implementing an early intervention program.

Train deaf adults as educators of the Deaf.

Provide sign language training programs to ensure suitably qualified sign language teachers of the Deaf.

Once signed language has achieved equal status to spoken language the outcome of a comparative research study to determine the appropriate language medium for Deaf education will have far reaching cosequences on Deaf education and ultimately Deaf literacy.

SUMMARY

In this pilot study the plight of deaf education was highlighted. As the oral/manual controversy continues to play a pivotal role in deaf education, the medium of instruction for the deaf pre-school child was addressed as a possible criteria for determining school readiness skills and ultimately academic success translating into the acquisition of literacy skills.

Presently the literacy level of the deaf school leaver is equivalent to a grade three or four level.

Curriculum 2005 was discussed and the school readiness skills needed to ensure academic success with this curriculum were investigated

The Group Test for School Readiness aimed at assisting the class teacher in differentiating between children with appropriate and inappropriate school readiness skills was deemed an appropriate test for assessing deaf pre-schoolers receiving their education in a spoken language and deaf pre-schoolers receiving their education in a signed language as the Group Test for School Readiness can be utilised to obtain a reliable profile of the childs cognitive, perceptual, language, numerical and motoric abilities.

The Group Test was administered by the class teacher to eliminate possible discrepancies resulting from communication problems between the subjects and the researcher.

With the exception of their performance on three subtests, the deaf pre-schoolers receiving their pre-school education in a spoken language faired consistently better than the Deaf pre-schoolers receiving their pre-school education in a signed language. Apart from the contrasting medium of education implemented, additional reasons for the difference in performance between the two groups was investigated.

The average chronological age of the pre-schoolers receiving their pre-school education in a spoken language appears to be 7 months older than the pre-schoolers receiving their pre-school education in a signed language.

The majority of the subjects in the former group having already turned 7 years of age in 2003 would have received exemption from entering grade 1 in 2003 and are consequently repeating their pre-school year. In addittion the average age at which deafnes was diagnosed in the deaf pre-school subjects receiving their pre-school education in a spoken language was 9 months earlier than the deaf pre-school subjects receiving their pre-school education in a signed language.

The quality of the language the subjects in group B were exposed to in both the home and school environment was identified as possibly contributing to this groups weaker performance.

It appears as if further research is necessary before the supremacy of either language as a medium of education can be supported.

OPSOMMING

In hierdie studie is die stand van dowe onderrig beklemtoon. Omdat die gesproke/gebaretaal stryd aanhou om 'n deurslaggwende rol in dowe onderrig te speel is die medium van onderrig met dowe voorskoolse kinders as 'n moontlike kriteria vir die bepaling van skool gereedheid en uiteindelik akademiese sukses wat aanleiding sou gee to die verwerwing van geletterheid ondersoek.

Tans is die gelettertheid syfer onder dowe skool verlaters gelykstaande aan 'n graad 3 of 4 vlak.

Kurrikulum 2005 is bespreek en die skoolgereedheidsvaardighede wat benodig word om akademiese sukses binne die kurrikulum te verseker is ondersoek.

Die Groep Toets vir Skoolgereedheid wat die klas onderwyseres ondersteun om onderskeid te tref tuusen kinders met toepaslike en nie toepaslike skoolgereedheidsvaardighede is as toepaslike toets beskou om dowe kinders wat hul voorskoolse onderrrig in gesproke taal ontvang en dowe kinders wat hul voorskoolse onderrig in gebaretaal ontvang te toets aangesien die Groep Toets vir Skoolgereedheid gebruik kan word om 'n betroubare profiel te verkry van die kind se kognitiewe, perseptuele, taal, numeriese en mooriese vaardighede.

Om moontlike kommunikasie probleme tussen die navorser en toetslinge te elimineer is die Groep Toets deur die klas onderwyseres afgeneem.

Met die uitsondering van drie subtoetse het die dowe voorskoolse kinders wat hul onderrig in gesproketaal ontvang herhaaldelik beter gevaar as die dowe voorskoolse kinders wat hul onderrig in gebaretaal ontvang. Afgesien van die medium van onderrig wat geimplimenteer is, is bykomende redes vir die verskil tussen die twee groepe se prestasie ondersoek.

Die gemiddelde kronologiese ouderdom van die voorskoolse kinders wat hul onderrrig in gesproketaal ontvang blyk 7 maande ouer te wees as die voorskoolse kinders wat hul onderrig in gebaretaal ontvang.

Omdat die meederheid van die kinders in die eersgenoemde groep alreeds 7 jaar oud geword het in 2003 het hul vrystelling vir die skooljaar 2003 verkry en herhaal dus hul voorskoolse jaar. Boonop is die gemiddelde ouderdom van 'n diagnose van doofheid in die voorskoolse kinders wat hul voorskoolse onderrig in gesproketaal kry 9 maande vroeer gemaak as die voorskoolse kinders wat hul voorskoolse onderrig in gebaretaal kry.

Die kwaliteit van die taal waaraan die kinders in groep B in beide die huis en skool blootgestel word is geidentifiseer as 'n moontlike faktor wat bygedra het tot die groep se swakker prestasie.

Dit blyk asof verdere navorsing nodig is voordat daar met sekerheid vasgestel kan word watter medium van onderrig die beter een is.

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