

**REMEDIAL APPROACHES FOR HEARING-
IMPAIRED LEARNERS WITH READING
DIFFICULTIES**

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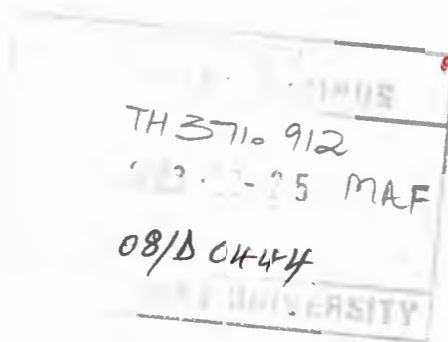
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Declaration

I declare that this mini dissertation for the degree of Masters of Education at the North West University hereby submitted, has not been previously submitted by me for a degree at this university, that is my own work in design and execution and that all materials taken from other sources have been duly acknowledged.



Dedication

This piece of work is dedicated to hearing-impaired learners and teachers who teach them.

Acknowledgements

I wish to extend my gratitude to both head teachers of Ramotswa and Francistown Centre for Deaf Education for allowing me access into the schools and the support they accorded me during the administration of the questionnaires.

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Foreword

This study is a requirement for a masters' degree award done under the supervision of the department of foundations (Faculty of Education) in the University of North West. The study involved collecting information on remedial approaches for hearing-impaired children with reading difficulties in Botswana. The information was collected through the use of questionnaires in two special primary schools for the hearing-impaired.

The content of information in this report with respect to accuracy and opinion of the respondents is the responsibility of the researcher.

Abstract.

The study investigates remedial approaches for hearing-impaired learners with reading difficulties in Botswana special primary schools. The variables of demographics, remedial approaches, application of the approaches and involvement of other professionals are examined. In order to provide an overview of the current situation regarding the use of remedial approaches targeting hearing-impaired learners with reading difficulties, research questions were asked on the following: which approaches are used? How are the approaches applied? And, which professionals are involved if any?. Survey questionnaires were sent to two special schools for the hearing-impaired namely: Francistown and Ramotswa Centres for the Deaf. Semi-structured questionnaires were used to collect data.

The use of remedial approaches for developing good reading skills in hearing-impaired learners is very essential. Findings from this study reveal that teachers do use the ‘matching’ approach very often. There are also a few teachers who indicated that they use cued speech and 2 of the 21 teachers indicated that they use the ‘language experience approach’. The language experience approach has been considered to be an effective approach for developing reading skills in hearing-impaired learners and there is, therefore, a strong need to mobilize and advocate for the use of the approach.

The Ministry of Education should employ reading specialists as well as the speech and language pathologists on permanent basis for each school.

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Abbreviations

NGOs:	Non-Governmental Organizations
RNPE:	Revised National Policy on Education
SEN:	Special Educational Needs
HI:	Hearing Impairments
SITs:	School Intervention Teams
DARTS	Directed Activities Related to Text
CS	Cued Speech
LEA	Language Experience Approach
SLI	Specific language impairment
PA	Phonemic awareness

Chapter 1

The scope of the problem

1.1 Introduction

One of the keystones in the government of Botswana's policy on Special Education embodied in the Revised National Policy on Education (RNPE) is to identify problems hindering the academic success of children with Special Education Needs (SEN) and remedy them. One major problem identified so far with particular reference to hearing-impaired learners is that of poor English reading skills (Fitzgerald, 2005: 1; Loeterman, Paul & Donahue, 2003: 4).

1.2 Statement of the problem

The greatest international concern for educators is that though attempts have been made to implement numerous special education policies, there is an indication that very little has been done to implement remedial approaches targeting the hearing-impaired learners (Nougaret, Scruggs & Mastropieri, 2005: 219; Torgesen, Alexander, Wagner, Rashotte, Voeller, Conway & Rose, 2001: 3-58; Snow, Perlmann & Nathan, 1987: 27-140; Knight cited in Gregory, Knight, McCracken, Powers & Watson, 1998: 101-105; Harris, 1992: 205-216). Botswana shares this concern (Kisanji, 2003: 36). One area, which urgently needs a swift action in planning remediation for hearing-impaired learners, is the poor English reading skills of these learners (Loeterman et al. 2005:1; Webster & Webster, 1997:199; Kisanji, 2003: 34).

In Botswana, much has been written about hearing-impaired learners' difficulties with reading, showing how their performance in literacy tasks falls well below levels achieved by their hearing peers (Kisanji, 2003:28). Kisanji further alludes to the fact that hearing-impaired learners in Botswana have communication difficulties due to their slow rate of English language skills of reading. Consequently, these learners find it difficult to access

the national curriculum (Kisanji, 2003: 15). A curriculum in which the development of spoken and written English skills is the primary goal and sign language is used essentially as a means of supporting access to spoken English language (The Botswana Government, 1994: 18).

In the light of these concerns about poor reading skills of hearing-impaired learners, it is appropriate to take stock of remedial approaches used by Botswana primary school teachers in enhancing these learners' English reading skills. This will be achieved by looking at how foreign approaches are adopted for Botswana and the challenges of using remedial approaches.

Therefore, this study endeavours to look into the current situation regarding remedial approaches for hearing-impaired learners with reading difficulties in Botswana primary schools in order to: find out the forms of remedial approaches used to develop the learners' English reading skills; find out how the approaches are used; investigate whether other professionals are involved in the remediation process and; to make possible recommendations.

1.3 Background of the study

The Education of hearing-impaired children in Botswana can be dated as far back as 1970 (Matale, 2003b). This indicates that the education of the hearing-impaired children has a very short history of about three decades. Like in other developing countries, the Non-Governmental Organizations (NGOs) initiated the education of the hearing-impaired children in Botswana. The first special education unit for the hearing-impaired children was established in 1970 by the Lutheran Church in Ramotswa (Matale 2003b). The unit was attached to Mokgosi Primary School.

The Government of Botswana itself did not put any emphasis on educating children with special needs until recently. For example, even though the government of Botswana passed the first Policy on Education in 1977, there was no mention of special education in

the policy. Most attention was placed on ensuring a regular education for all children. Special education would have to wait its turn (Government of Botswana, 1977). However, at about the same time a change in strategy was taking place as a result of Botswana's national Philosophy; "**Kagisano**". The education for kagisano recognized the limited access to education by children with special educational needs. In addition, the RNEP has shown the same recognition in its first two goals and these have been stated as follows:

- a) To ensure all citizens of Botswana including those with SENs have equality of educational opportunities.
- b) To prepare children with SENs for social integration by integrating them as far as possible with their peers in ordinary schools (Government of Botswana 1994: 38).

Great strides in educating the hearing-impaired children became apparent after 1992. In this year the Ministry of Education set up the National Commission on Education. As a result of this commission, the Revised National Policy on Education (RNPE) was formulated. The RNPE was then approved by the National Assembly as Government White Paper No.2 of 1994 and was implemented the same year (Kisanji, 2003: 17).

One significant aim of the RNPE is to provide equal educational opportunities to all children including those with SENs. This is in line with the 1990 Jonteim Declaration of Education for all and in pursuance of the National Principle of social justice. The Jonteim Declaration of Education indicates that the aims of education are common to all children and that; education is a basic human right and hence should be made accessible to all children including those with SENs (Kisanji, 2003: 12).

Since the adoption of the RNPE in 1994, Botswana has been making efforts directed at increasing access for children with SENs including those with hearing impairments. Schools for the hearing-impaired children have been built, namely:

Francistown Centre for the Deaf Education (a Special Primary School)

Ramotswa Centre for the Deaf Education (a Special Primary School)

Ramotswa Community Junior Secondary School

Two of the most important recommendations in the RNPE regarding educating children with SENs are recommendation 18 and 23, which state that:

- ❖ English should be introduced as a medium of instruction.
- ❖ Each school should be provided with at least one trained remedial teacher at a senior teacher level whose sole responsibility will be remedial teaching (Government of Botswana, 1994: 40).

As the above paragraphs indicate, hearing-impaired learners are already in schools and have to be taught through English and read English texts because the policy demands so (Government of Botswana, 1994: 18; Kisanji, 2003: 20 – 36).

Hearing-impaired learners do not do Setswana at school because they do not know the language, as they do not access it as they grow up. The majority of these learners are born to hearing parents and these parents do not have sign language skills, thus there is often minimal communication between the parents and their hearing-impaired children Kisanji, 2003: 36-75). This situation then leads to the hearing-impaired learners having no good exposure to Setswana, Sign language and English by the time they start primary school.

The hearing-impaired learners learn both English and Sign language by the time they start primary school (Kisanji, 2003). The Sign language they learn is in English as there are no Setswana signs. 75% of the signs are American based and this creates problems for the learners as they often find it difficult to relate the signs to their culture and experiences (Kisanji, 2003). This situation further compounds the learners' problems when it comes to code switching between their first language and the second language. One of the challenges facing primary school teachers in Botswana therefore is to develop teaching approaches, which responds to this need for meaningful and accessible exposure to English. One possible way of achieving this is by implementing policy

recommendation 23, which states that each school should be provided with one trained remedial teacher at a senior teacher level whose sole responsibility will be remedial teaching (The Botswana Government, 1994: 19).

Now, a year beyond the first decade since the adoption of the RNPE of 1994 it is appropriate to take stock of remedial approaches used by teachers of the hearing-impaired children in enhancing the learning of these children. Therefore, this study endeavours to look into the current situation regarding remedial approaches for hearing-impaired children in Botswana with particular focus on their reading skills in English.

1.4 Purpose of the study

The purpose of this study was to investigate the following:

- ❖ Remedial approaches teachers use in supporting hearing-impaired learners with reading difficulties.
- ❖ How the approaches are applied.
- ❖ Whether other professionals (apart from teachers) are involved in the remediation programs for hearing-impaired learners with reading difficulties and, to make
- ❖ Possible recommendations for remediation programs for hearing-impaired learners in Botswana will be made

1.5 Research questions

The following questions shall form the basis of this study:

- ❖ Are there any remedial approaches for reading that target the hearing-impaired children?
- ❖ How are the approaches used?
- ❖ Are there any professionals (other than teachers) involved in the remediation of hearing-impaired learners with reading difficulties?

1.6 The significance of the study

Through this study teachers of hearing-impaired children are more likely to reflect on their remedial approaches (if any). They may use the information from the study in particular reference to commonly used approaches internationally to either update existing ones or develop new approaches in their schools. Similarly, the Ministry of Education may get ideas of areas and topics to be used for in-service training of teachers of the hearing-impaired learners already on the field. As for teacher training institutions, there is a possibility that they may evaluate and review their programs and modify them (if need be) to either incorporate or update modules in remedial approaches in reading for hearing-impaired children.

The beneficiaries of this study will be:

- ❖ Teachers of the hearing-impaired learners.
- ❖ The Division of Special Education in the Ministry of Education and other stakeholders.
- ❖ Teacher training institutions.

1.7 Delimitation of the study

As mentioned earlier, there are only two special primary schools for hearing-impaired children. This study will be carried out in these two schools. The schools are Ramotswa Centre for the Deaf in the south and Francistown Centre for the Deaf in the northern part of Botswana. As for the participants, the study will involve all staff at both the schools namely: 2 principals, 8 senior teachers and 25 teachers.

This study will only be limited to the approaches related to the areas mentioned under the research questions outlined on paragraph 1.5.

1.8 Research design

1.8.1 Literature review

For this study a literature survey of the remedial approaches targeting hearing-impaired learners with reading difficulties were reviewed. Current journals with information regarding remedial approaches for hearing-impaired children were consulted. The journals provided information on the current critical issues regarding remedial approaches for hearing-impaired children. In addition to the journals, books and other articles were also consulted. These were used as the secondary sources while the journals were used as the primary source.

1.8.2 Research approach

This study is mainly qualitative with quantitative elements and it is explorative, descriptive and contextual. In a nutshell, contextual research designs are concerned with doing some research on what people do, what their tasks are and what their goals are (Mouton, 2005: 125; Lehtonen & Pahkinen, 2004: 76).

Explorative research designs are concerned with investigating something new, of which little is known, guided by a general interest (Mouton, 2005: 125; Lehtonen & Pahkinen, 2004: 76).

The descriptive method allows the researcher to get into the respondents' area and collect data once and go (Ruane, 2005; Scott & Usher, 1996; & Sarantakos, 1988). According to Ruane (2005), Scott and Usher (1996) as well as Sarantakos (1988), descriptive surveys seek to find out what is happening, who is involved and the size of the group involved. As a result of this, the method is appropriate for the purpose of this study stated on paragraph 1.4.

Generally, surveys are data collection instruments in which data is often gathered through oral and written questioning. Oral questioning is known as interviewing while written questioning is accomplished through questionnaires (Giles, 2002:141).

Data were collected through the use of a semi-structured questionnaire. Semi-structured questionnaires are those that contain both closed and open questions (Webster & Webster, 1997: 397). In this study, sections A and B contained closed questions while section C and D contained a mixture of closed and open questions (cf. appendix A).

The researcher hand delivered the questionnaires to the respondents. The researcher then left the questionnaires with the respondents for three days to allow them time to read and complete. The researcher then went back after the three days and collected the questionnaires (cf. par. 1.7).

Data was analyzed using frequency and percentage tables. This technique stipulates frequencies and percentages of responses to each question. The data analyzed quantitatively included responses to questions from sections A; section B; section C questions 12 and 13; as well as section D. The qualitative data from section C question 11 was analyzed by simply stating the responses as they were stated by the respondents, but with very limited interpretations. The qualitative data from section C question 11 was analyzed by simply stating the responses as they were stated by the respondents, but with very limited interpretations.

1.8.3 Population

This research was carried out in two special primary schools for hearing-impaired children, which are the only ones in Botswana. The two schools combined have a teaching staff population of 35 inclusive of the senior teachers and the principals. Ramotswa Centre for the Deaf has 19 teachers including the principal while Francistown Centre for the Deaf has 16 teachers including the principal. All the teachers are locals.

The whole population was used since 35 is a manageable number. Therefore there was no need for sampling.

1.8.4 Ethical considerations

Taking cognizance of ethical issues as stipulated by Ruane, (2005); Mouton, (2001), Silverman, (2000); and Heiman, (2001), the questionnaire was sent together with a cover letter (cf. appendix D). The main aims of the cover letter were to:

- ❖ Introduce the topic of research and the researcher.
- ❖ Neutralize any doubt or mistrust respondents might have about the study.
- ❖ Motivate the respondents to participate in the study, and answer the questions.
- ❖ Assure the respondents of confidentiality and anonymity.

The cover letter has been recognized as one of the factors that influence the response rate (Ruane, 2005; Bell, 2003; Mouton 2001 & Silverman 2000). According to these authors, the way the questionnaire is presented and the type of assurances provided to the respondents determine, to a large extent, whether the respondents will complete the questionnaire or not and whether they will answer all questions.

Initially, the researcher had an informal meeting with the school heads of the two schools. The purpose of this meeting was to obtain agreement in principle; so that the researcher would be allowed permission to have access to the school and the teachers. Bell (2003: 40-41) recommends that holding informal meetings with school heads to obtain agreement in principle should always be done and that is why the researcher did it. It was at this meeting that the researcher gave the school heads a letter of introduction from the North West University (see appendix B), a cover letter to teachers (see appendix D) and requested to have a formal meeting with the teachers to discuss issues regarding informed consent.

The researcher was granted permission to have a meeting with the teachers and because the researcher endeavoured to have informed consent from the part of the teachers, he rendered all possible and adequate information on the following:

- ❖ The purpose of the study.
- ❖ Procedures, which would be followed during the study.
- ❖ The possible advantages, disadvantages and dangers to which respondents may be exposed (de Vos, 2005: 59).

The purpose of the study

The purpose of the study is four fold: first, the study investigates if the schools have any remedial approaches for hearing-impaired learners with reading difficulties. Secondly, the study examines how the remedial approaches are applied and thirdly, the study investigates the involvement of other professionals (apart from teachers) in the remediation of hearing-impaired learners with reading difficulties. Lastly, the study makes possible recommendations guided by the research questions and the results.

Procedures to be followed during the study

The researcher would give the teachers a questionnaire to complete and leave it with the teachers for three weeks. The researcher would then come after three weeks to collect the completed questionnaires.

Possible advantages and disadvantages of participating in this study

The research will attempt to explore current practice regarding remediation of hearing-impaired learners with reading difficulties. It is hoped that the final report would be of benefit to the school and to those who take part in the study. Thus, the school and the participants will receive a copy of the final report. In addition, all the participants will be

offered the opportunity to remain anonymous and all the information will be treated with the strictest confidentiality.

The study is to be assessed by the North West University for examination purposes only, however, should the question of publication arise at a later date, permission will be sort from the participants.

According to Hakin (2000) cited in de Vos (2005: 59), informed consent becomes a necessary condition rather than a luxury (see also Ruane, 2005:76; & Mouton, 2001: 123). Therefore, the researcher's emphasis was on accurate and complete information, so that respondents would fully comprehend the investigation and consequently be able to make a voluntary and thoroughly reasoned decision about their possible participation.

1.9 Definition of terms

Hearing Impairment: A condition in which the sense of hearing is non-functional for the ordinary purposes of life (Zindi, 1997: 7).

Hearing-impairment has also been defined as a continuum ranging from slight hearing loss to profound hearing loss such that the child has difficulties in processing linguistic information through auditory processes (Kirk, Gallagher & Anastasiow, 2003: 346).

In this study the term hearing impairment means lacking a sense of hearing, either wholly or partially, such that accessing information through spoken language is difficult.

Remedial Approaches: Forms of intervention that will overcome or compensate for deficits within children (Upton, 1991: 6).

In this study remedial approaches mean methods of removing barriers hindering successful learning of children with learning difficulties/disabilities.

Special Education: Individualized instruction designed to meet the unique educational and related needs of children with disabilities (Culatta, Tompkins, & Werts, 2003: 135).

Special Education has also been defined as a specially designed instruction that meets the unique needs of the child who may have disabilities such as learning, physical, emotional, visual, hearing and any other handicaps that inhibit him/her from realizing his/her full potential (Zindi, 1997: 2-3).

In this study special education means purposeful and successful interventions or instructions to prevent, eliminate, and or overcome the obstacles that might keep individuals with special educational needs from learning and from full and active participation.

Special Educational Needs: A child has special educational needs if he or she has a learning difficulty that calls for a unique provision to be made for him or her (British 1993 Education Act, Section 312, cited in Westwood, 2003: 1).

The above definition will be used for the purposes of this study.

1.10 Chapter orientation

CHAPTER 1:	Problem orientation
CHAPTER 2:	literature Review
CHAPTER 3:	Methodology
CHAPTER 4:	Analysis and Interpretation of the Results
CHAPTER 5:	Summary

Chapter 2

Literature review

2.1. Introduction

This part of the study looks at literature available on remedial approaches for hearing-impaired learners with reading difficulties. The Literature review was particularly concerned with reading disabilities in Sensory-neural hearing loss because it is believed that hearing impairments of severe degree is accompanied by marked reading failure (Kisanji, 2003: 80). The study discussed models of reading and language models' as these tend to be very critical for the remediation programs for any child with reading difficulties (Gregory et al. 1998: 100).

But, before discussing the above details, this section will start by giving a brief overview of why this study intends focusing on supporting the reading of English.

2.2. Why is the study focusing on the reading of English? A brief Overview

To initiate the debate on the issue of English being the focus of this study it is necessary to consider two of the most important recommendations of the Botswana Revised National Policy on Education (Botswana Government, 1994: 18-19).

The two recommendations are:

- ❖ English should be introduced as a medium of instruction.
- ❖ Each school should be provided with at least one trained remedial teacher at a senior teacher level whose sole responsibility will be remedial teaching (cf. par. 1.3).

Consequent to the recommendations above, English is both used in teaching and it is taught as a subject to primary school learners starting as early as standard two. Thus, it is in the context of Botswana hearing-impaired learners' education that this study focuses

on hearing-impaired learners' reading difficulties in relation to English. However, whether English should be used in Primary school is not the focus of this study.

It is documented that the right kind of exposure to language is essential for language learning (Kisanji, 2003: 20-56; Swanwick, 1998: 3-9; McAnally, Rose & Quigley, 1994: 45-91). Learners often need experience of the language they are trying to learn as a complete language, being used for real purposes in meaningful contexts (Swanwick, 1998: 3-9). Hearing-impaired learners learning English as a second language gain this exposure through the experiences of listening and speaking in that language and this is then consolidated through the written form (Swanwick, 1998: 3-9; McAnally, Rose & Quigley, 1994: 45-91). For hearing-impaired learners this exposure is obviously problematic because of the barriers experienced by the learners in accessing the full spoken form (Kisanji, 2003: 20-56). The study discusses the following two barriers:

- ❖ First, the hearing-impaired learners often do not hear English words being said (Paul & Quigley, 1994: 211). Thus they cannot repeat the words after speakers and they do not gain any exposure to the use of English within their surrounding (Pudlas, 1987: 232-236). Therefore, without this vital exposure, reading English texts would always be difficult to hearing-impaired learners (Kisanji, 2003: 36-40; LaSasso & Davey, 1987: 211-220; LaSasso & Swaiko, 1983: 449-452).
- ❖ Second, hearing-impaired learners in Botswana do not have Setswana as a language. That is so because Setswana has no signs though most hearing-impaired rely heavily on signs and gestures. Consequently, the hearing-impaired learners do not learn Setswana at school (Matale, 2003b: 6-7; Kisanji, 2003: 45). This then presents problems to the learners when they attempt to switch codes between language one and two.

Like it is already mentioned, the issue of whether English should be taught in Botswana schools is not the focus of this research. Whatever the rights or wrongs of what goes on in

support of hearing-impaired learners in Botswana, the fact is that English is the language used and that is why this study is focusing on supporting the reading of English.

2.3 Models of reading

This part of the study looked at three current major models of learning to read namely; bottom-up, top-down and interactive models. Each of these models has implications for teachers concerned with the remedial teaching of reading to hearing-impaired learners (Gregory et al, 1998: 102-103; Webster & Webster, 1997:1991 Kelly, 1995: 318-334; Wray & Medwell, 1991; 98).

Webster and Webster, (1997:189) states that the models differ according to their emphasis on text level. The bottom-up model begins at the level of print on the page, working upwards from the visual or sound features, towards higher levels such as words, phrases and sentences (see also Gregory et al. 1998: 102-103; Kelly, 1995: 75-90).

The top-down model put more emphasis on the child's existing knowledge of language and the world, which guides what the reader looks for in the text (Wray & Medwell, 1991: 86), while the interactive model take cognizance of the fact that the reader's previous experience, the reading context and the distinctive features of the text itself, interact in the creation of meaning.

2.3.1 The bottom-up model

In a careful analysis of bottom-up models of reading Webster (1988:78) used a term "flat earth" to refer to views of reading which break the skill into component parts and isolate it from the child's wider social encounters with language both at home and across the school curricular.

Webster, (1988:78) and Kelly, (1995:318-334) gave two examples of the "*flat earth*" view of the bottom-up model of reading. One example begins at the level where the

reader perceives visual features, such as letter shapes and builds these up into larger units, e.g. words or phrases. Details of a word's pronunciation, grammatical class and meaning, would be recovered from an inner store or lexicon, rather like looking up words in a dictionary (see also Gregory et al. 1998: 102-103; Webster & Webster, 1997-191).

Mitchell (1982:61-95) studied visual building blocks and the possibility of perception deficits in poor readers. In this research, Mitchell looked at whether words are more easily recognized than single letters and the significance of aspects such as letter reversals or inversions control of eye movements across the page.

Another "*flat earth*" view takes the basic building block to be acoustic rather than visual. A source of information for the reader may be the set of rules pronouncing letters, blends and sequences, which often enable print to be decoded into corresponding speech sounds (Gregory et al. 1998:102; Kelly, 1995:318-334; Jorm, 1983: 79).

Teachers often refer to this method as reading by phonics (Webster, 1988:78). The child needs to learn that speech can be split into sound segments or phonemes, which can be written down and then read (Harris & Beech, 1998: 205-216; Swank, 1994: 56-71). A research review by Beech (1985: 39-47) indicates that beginners have to develop proficiency at the mechanical translation of letters into sounds, and this should be the focus of remedial teaching and monitoring. On the other hand, there tends to be a strong possibility that experience of reading itself may provide the child with insights about the visual and phonic features of print rather than the other way round (Lyon, 1998: 14-19; Harris & Beech, 1998: 205-216; Swank, 1994: 56-71).

2.3.2 The top-down model

The top-down model of reading put more emphasis on the child's existing knowledge of language and the world, which guides what the reader looks for in the text (Gregory et al. 1998: Webster, 1988: 78-79; Wray & Medwell, 1991: 86). Proponents of the top-down model, Smith (1978) and Goodman (1969) cited in Webster, (1988: 71) hold the view

that reading does not proceed letter-by-letter, or word-by-word. Instead, the reader approaches print with a specific purpose in mind using knowledge of language and how the world works to predict what might be found in text. The reader looks for a meaning, rather than letters, sounds or words (Gregory et al. 1998: 103, Webster & Webster, 1997: 190).

According to Webster and Webster (1997: 190) the child brings meaning to text, rather than deriving meaning from it. Webster (1988:70) refers to this view is referred to as “round earth”. There are several accounts of this “*round earth*” approach, all of which describe the child as making hypothesis about print, by sampling and checking text (Stanovich, 1980: 32-71). According to de Weirtdt (1988: 163 – 183) reading is not primarily a visual or sound decoding process, but engages the child in solving the linguistic puzzles of text.

2.3.3 The interactive model

Webster, (1986a) has shown favouritism on the interactive model, which is the third model of reading. The model recognizes that the reader’s previous experience, the reading context and the distinctive features of the text itself, all interact in the creation of meaning. Through this model, all readers draw on a range of clues, letters, sounds, words and syntax (Wray & Medwell, 1991:86). Some clue may arise upwards from the page as the reader makes predictions and looks for expected meaning. Good readers often develop many automatic skills. When they ask questions of print they ask the most efficient questions for reducing uncertainty. Poor readers’ skills are less automatic, and when they interrogate text they draw on more limited resources of language or experience, and often ask wrong questions (Webster, 1986a” 47). One possibility, perhaps more relevant to the hearing-impaired learners, tend to be that prior experience in school would have taught the child not to ask questions (Webster, 1988:79).

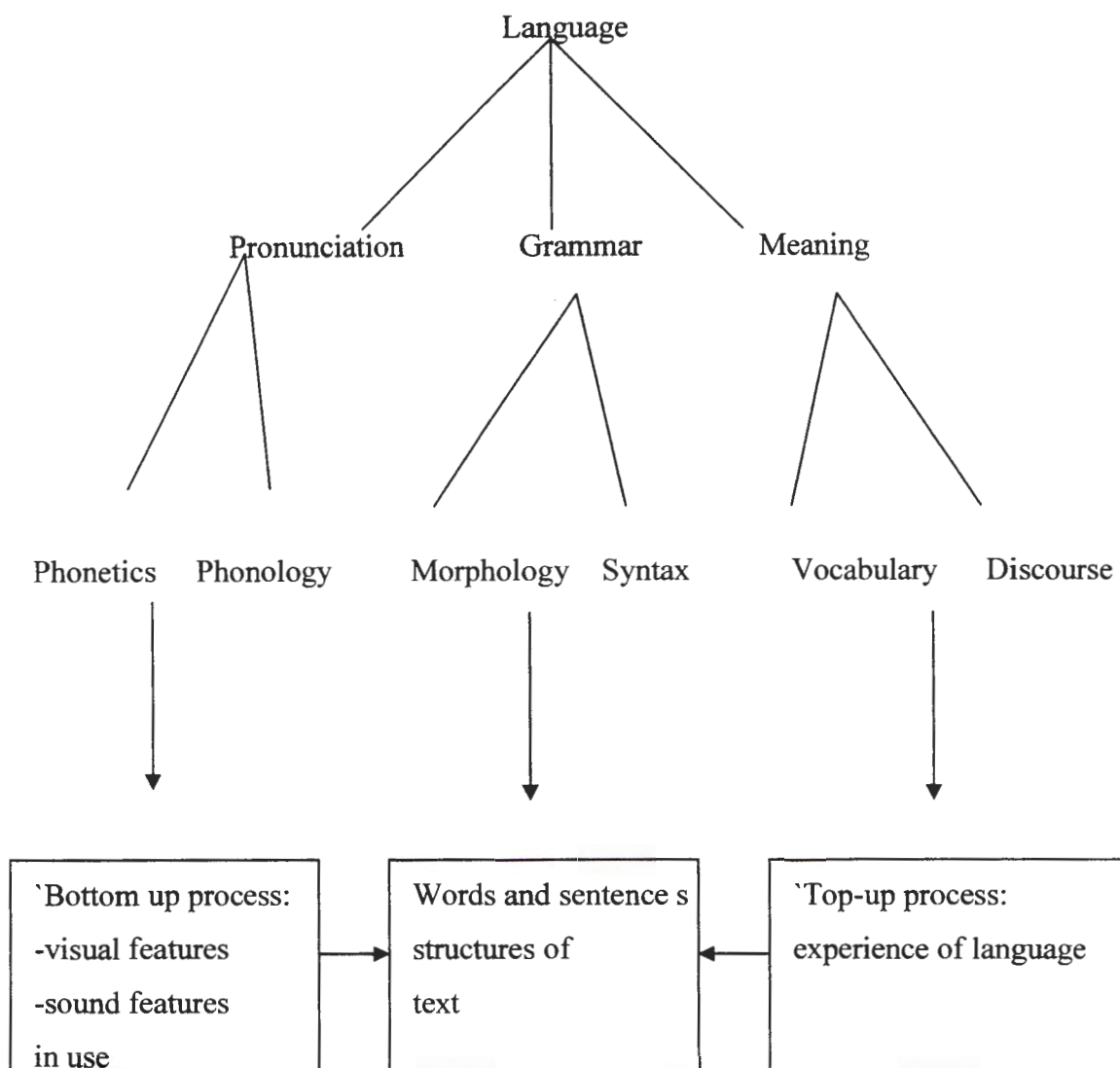


Figure 1: Aspects of language in relation to models of reading (Webster, 1986:107)

2.4 Assessment of reading age in hearing – impaired children

International assessment of reading age indicates that in numerous cases, hearing impairments of severe degree is accompanied by marked reading failure (Loeterman et al. 2002: 1; LaSasso & Mefzger, 1998: 256-289; Lyon, 1998: 14-19; Webster & Webster, 1997: 359-360 & Webster 1998: 80). Wrightstone and Overstreet (1963) cited in Bamford and Saunders (1991: 203) carried a survey of over 500 hearing-impaired learners in schools throughout the USA and Canada using the Elementary Reading Test of the Metropolitan Achievement Test. The results of the survey showed that learners

aged 15-16 years had a mean reading age of 9 years. In another test discussed in Lindsay, Shapiro and Musselman (1988: 144-162) in which 133 profoundly, prelingually deaf children aged 3-5 years were followed for a four year period, the learners were found to have an average or above average intelligence on the Leiter International Performance Scale IQ test. In spite of this, the learners were typically 7 years old before their reading skills approximated that of 4 year olds on a receptive Language Assessment Battery. The test items are said to have been presented in the child's usual form of communication, either by speech alone or using both speech and manual communication. Strong, (1988) cited in Lindsay, (1988): 130) states that these test results are typical.

Therefore, in brief, tests of reading in hearing-impaired learners tend to indicate that English reading levels of severe to profound hearing losses are very low compared to those of their hearing peers (Musselman, 2000: 9-31; Paul, 1998:45; Lichtenstein, 1998: 80-134; Webster & Webster, 1997: 359-61). Progress is often extremely slow for those learners, with gains in three or four years typically as much as gains experienced by hearing learners in one year (Marschark & Harris 1996: 279-300).

2.5 The nature of reading difficulty in hearing-impaired learners

Reading is a complex task requiring a mastery of a whole range of skills from discrimination of letter shapes, extraction of salient in variety features from letter shapes, word identification and word recognition in text, through to complex processing skills which optimize information from not only visual but phonemic, semantic and syntactic sources (Lyon 19978: 14-19; Blachman, 1991: 51-56; Webster & Webster, 1998: 77-80). Lyon, (1998:16) and Blachman, (1991: 79) have shown that reading is a Language-based activity. The written English Language represents the spoken language.

Therefore, since English is an alphabetical language, the beginning reader must construct an internal map of sound-letter relationship, which permits arbitrary written symbols to be decoded and compared to words stored in phonological form in the memory (Jenkins

& Bowen, 1994: 26-39; Bamford & Saunders, 1991: 209). But, because this map is both arbitrary and incomplete, constructing it is often a complex process.

The fluent reader often draws on print knowledge about properties of language to generate his or her own hypothesis about what text means. (Webster & Webster, 1997: 293). The reader also looks for rules and regulations in the written code to enable him or her to reflect or confirm the hypothesis. Thus, the ability to comprehend seems to depend to a large extent on knowing what you already know about what you are supposed to know (Bus & van Ijzendoorn, 1999: 403-414; Metsala, 1997: 162, Elbro, 1996: 453-485). Learning to read is not simply parasitic upon speech (Baddley, 1986: 107-129), it involves, in addition, a large number of skills at various levels of complexities, one or all of which could represent an area of difficulty for the hearing impaired child (Webster & Webster, 1997: 359-360).

The issue of reading English text is more problematic for Botswana primary school learners because they do not have a solid foundation in Setswana or even Sign language (Kisanji, 2003). It is documented that a solid foundation in a first language leads to better English Performance over time, and skills transfer from one language to another (Wolkomir, 1992: 30-41). Because of the lack of a solid foundation in Sign language, Botswana primary school hearing-impaired learners find it difficult to switch between Sign language and English.

The other problem that adds to the learners difficulties in reading English texts is the fact that the learners are taught by local teachers who also use English as their second language. The teachers teach using signs to support English and this on its own is a problem. For example, signs used are predominantly American (Kisanji, 2003). America Sign Language (ASL) and English are two distinct languages in the same way as Setswana and Afrikaans (Schirmer, 1994: 234; Wolkomir, 1992: 30-41). ASL is a complete language with its own grammar, syntax, and rules for interaction (Finnegan, 1992: 102-105; Wolkomir, 1992: 30-41). Signing ASL and speaking English cannot be performed simultaneously with a great degree of success and speaking English when

signing deteriorates the visual signal resulting in an inferior production of signs as well as inferior use of spoken English ((Mahshie, 1995: 201). But, the Batswana teachers often find themselves caught up by the problem of signing while at the same time are speaking English.

2.6 Why do many hearing-impaired learners tend to have difficulties in reading English?

English is a spoken language and all hearing children of English-speaking parents absorb it unconsciously, starting from the moment they are born (Nougaret et al. 2005: 217, Gonzalez, del Rosario, Garcia & Rosquete, 2002: 334, deWeirdt & Snow et al, 1998: 57). From birth, hearing children are surrounded with English, bombarded with it from all sides; they listen and imitate (de Weirdt, 1998: 163-183; Bamford & Saunders, 1991: 208). Therefore, hearing children effortlessly begin to put together grammatically correct sentences well before they learn to read. Hearing-impaired children are excluded from this process. Since they cannot hear this language bombardment, they do not benefit from it (Gregory et al. 1998: 96). Only the lucky ones, whose parents are fluent in sign language, start school already knowing language even though this does not refer to English in its spoken and or written form. Otherwise, the significant number of hearing-impaired children whose parents cannot sign start school without knowing any real language at all (Kisanji, 2003: 41; LaSasso & Davey 1987: 211-220). This situation often has disastrous effect on their educational development.

Some hearing-impaired learners may also have difficulties in reading due to the fact that they may have specific language impairment (SLI) (Francisco, 1997: 2). Specific Language Impairment refers to children whose language delay cannot be attributed to mental impairment, autism or other identification syndromes. The delay is often attributed to lack of understanding language content, language form and language use (Lewis, 1996: 1-6; Maxwell, 1986: 14-20). It is estimated that 1-3% of pre-school children have specific language impairment. Studies suggest that these children do not

catch up with their same age peers and are at risk of reading problems and educational failure (Berke, 2005: 1-3; Francisco, 1997: 1-5).

Some hearing-impaired children with specific language impairment often have language that is delayed from the onset. Some show language delays, but relatively good comprehension. A high proportion of these early language delayed children continue to demonstrate language and articulation delays (Francisco, 1997: 34-37).

Other hearing-impaired children are simply late bloomers. $\frac{1}{4}$ to $\frac{1}{2}$ of late talkers progress to a diagnosis of specific language impairment by school age (Rack, Snowling & Olson, 1992: 29-53).

A significant number of normally developing children experience developmental disfluency (2-4 year old children). Children with this developmental disfluency often:

- Hesitate.
- Repeat or prolong sounds syllable and words.
- Insert fillers such as *um* and *well*.

Some of these children develop stuttering (greater degrees of disfluency). They often repeat more than 10 words or syllables in 100 words (Wray & Medwell, 1991: 34-45).

The cause of severe stuttering is currently not known and very often more than half of preschool stutters recover before age seven (Swank, 1994: 56-71).

It is estimated that 90% of deaf children are born to hearing parents. These children may be able to lip read or focus on the speaker's face. However, they are more likely to miss conversations that do not take place face to face. In addition, many English sounds have ambiguous forms on the lips; e.g. /p/, /b/, /m/, and some are made in the back of the mouth and are thus not easily visible on the lips (Gonzalez et al. 2001:337). This makes it

difficult for the hearing-impaired children to lip-read and as a result they may never get the experience of working with such sounds (Gregory et al. 1998: 117).

Some hearing-impaired children are born to deaf parents. Many of these children grow up learning sign language. Sign language is not a collection of pictures in the air but is a true language compared to any spoken language (Gregory et al. 1998: 315-323; Kisanji, 2003: 20-35; Humphries, Padden & O'Rourke, 1994 1-45). In its use of a finite, though complex set of units and rules that allows the generation of an unlimited variety of sentences. Sign language does not have sound but it does have:

Phonology

- hand shape, movement and location.

Morphology

- Inflection.
- Often are not in bound form but are additional signs.

Syntax

- Sign Language has a variety of syntactic rules, many of which are different from English.

Sign Language acquisition, like spoken language, is affected by motor complexity, morphological complexity, syntactic complexity and semantic complexity (Humphries, Padden & O'Rourke, 1994:1-15).

Hearing-impaired children of hearing-impaired parents, exposed to sign language from birth often show the same stages and order of language development as hearing children.

They often show:

- ❖ Manual babbling.
- ❖ Single-sign production.
- ❖ Multi-sign production.
- ❖ Morphological combinations.
- ❖ Complex syntax.

Thus these children are more likely to learn reading English more easily than those without sign language. In general, it has to be noted that hearing less at birth or shortly thereafter makes normal language acquisition difficult.

- ❖ Hearing-impaired children with sound perception limit to above 60 dBs are often not able to produce normal spontaneous language.
- ❖ Hearing-impaired children with hearing impairment that exceeds 90dBs often do not develop skills without remedial intervention.
- ❖ The extent to which language (including English in this particular instance) development is affected by hearing loss depends upon:
 - The severity of the hearing loss.
 - The age of hearing loss and.
 - The use of hearing aids (Webster & Webster, 1997: 291-301).

Approximately 90% of the hearing-impaired learners in Botswana severe hearing loss and thus they are profoundly hearing-impaired and depend largely on the use of hearing aids (Kisanji, 2003). The majority of these learners are born with the hearing loss. Thus, they do not get to hear and acquire their mother tongue as early as their hearing peers do. This then creates a very weak foundation for the learning of English as a second language (Schirmer, 1994: 203; Ewoldt & Yurkowski, 1986: 243-247).

The other great concern is that the hearing-impaired learners are taught English through the use of Sign language. This form of teaching is often referred to as Sign Supported English. The Sign language that is used in Botswana to support the learning of English is 75% American (Kisanji, 2003). The problem that often arises from this situation is that American Sign Language (ASL) and English are two distinct languages in the same way that, for example, Setswana and Afrikaans are distinct languages. ASL is a complete language with its own grammar, syntax, and rules for interaction. Signing ASL and speaking English cannot be performed at the simultaneously with great degree of success. Therefore, when signing ASL the one should not attempt to speak English, however,

most Batswana teachers often find themselves doing just that. The problem is that speaking English when signing deteriorates the visual signal resulting in an inferior production of signs as well as inferior use of spoken English (cf. par. 1.3 and par. 2.2) (Finnegan, 1992: 7; Maxwell, 1991: 123).

2.7 Areas proving to be difficult for hearing-impaired learners while reading

Teaching a hearing-impaired child or even any other child to read can be complicated because English is neither a purely phonetic language, nor is it a purely symbolic language. It is a combination of two (Lyon, 1998: 14-19 & Swank, 1994: 56-71). There is a direct relationship between the sounds of English and the symbols used to represent them (Schirmer, 1994: 36; Oney & Goldman, 1984: 557-568). Schirmer further alludes to the fact that English is a language in which the mapping from the written symbols to phonemes is nearly one to one.

Normal hearing children, once they have learned the sound for each letter, often learn how to read within 3-4 months (Lewis, 1992: 1-6; Maxwell, 1986: 14-20). Because of the ease with which hearing children learn how to read the problems facing hearing-impaired children in learning to read are often underestimated (Wood, Griffiths & Webster, 1992: 148-154)). To elaborate more on this issue the following paragraph looks at the processes involved in reading.

There are two different processes involved in reading: One is decoding print; the other is attaching meaning to the decoded print (Wood, Griffiths & Webster, 1992: 148-154; Maxwell, 1986: 14-20; King & Quigley, 1985: 35; Oney & Goldman, 1984: 557-568). "Decoding is the ability to read out loud or recognize a word from its print even when it is not in context" (Girgin, 2000: 2). To be able to decode the child needs to know the sound each letter makes and unfortunately the majority of the profoundly hearing-impaired learners do not have the knowledge of sounds made by many English words (Kisanji, 2003: 34-70; Girgin, 2000: 2; Wood, Griffiths & Webster, 1992: 150).

Therefore, for any remedial approach for teaching hearing-impaired learners reading to work, these aspects of English and other factors discussed in the following paragraphs, which may be the problem for the hearing-impaired learners, have to be identified and attended to. Other typical common problems for the current hearing-impaired learners include, inter-alia: asking what a word is, guessing at words, skipping words and poor spelling (Loeterman et al. 2003:1-2; Paul & Gustafson, 1991: 52-62).

In addition, there are a number of factors reported to influence hearing-impaired learner's development of reading skills. These factors include difficulties in the areas of:

- ❖ Phonemic awareness (Lindsay et al. 1998: 144-162; Lichtenstein, 1998: 80-134; Jenkins & Bowen 1994: 26-36).
- ❖ Vocabulary (LaSasso & Metzger, 1998: 256-289).
- ❖ Syntax (Kelley, 1996: 75-90).
- ❖ The use of prior knowledge and metacognitive skills (Stewart & Klawin, 2001: 49).

Generally a significant number of hearing-impaired learners have been found to have difficulties with both low-level and high-level reading skills (Paul, 2001: 53 & Kelly, 1995: 318- 334). One example of low-level reading skills would be word identification, while vocabulary knowledge and comprehension would be examples of high-level skills (Gonzalez et al. 2002: 334-338). Therefore, in order for any remedial instructional reading program to be effective, it needs to address the development of skills such as word identification, word knowledge and metacognition (Webster & Webster, 1997: Strassman, 1997: 140-149).

2.7.1 Phonemic awareness and hearing-impaired learners

The most striking reading difficulties for hearing-impaired learners tend to be in phonological development (Harris & Beech, 1998: 205-216; Jenkins & Bowen, 1994: 26-39; Bamford & Saunders, 1991: 135). According to Harris and Beech most hearing-

impaired learners have unintelligible speech, omit or misarticulate sounds. These learners also tend to have problems with less visible phonemes and part of consonant clusters. The learners often lack fluid coarticulation partners.

There is a considerable agreement that a phonological process deficit is the major cause of reading disability in numerous children including those with hearing-impairments (Lyon, 1998: 14-19; Elbro, 1996: 453-485; Jenkins & Bowen, 1994: 26-39; Grushkin, 1998: 179-204). According to this hypothesis a specific deficit in some aspects of phonological processing impairs the understanding of the grapheme-to-phoneme translation (i.e., sound-to-letter link (Lyon, 1998: 14-19; Grushkin, 1998: 179- 204 & Rack, Snowling & Olson, 1992: 29-53).

Many studies have attempted to specify which aspects of phonological processing are impaired in individuals with specific reading disabilities (Lyon, 1998: 14-19, de Weirdt, 1988: 163-183; Reed, 1989: 270-292). Phonemic awareness (PA) is the phonological processing skill that is most frequently studied. Phonemic Awareness is the ability to gain access to and intentionally manipulate the phonemes within words (Gonzalez et al. 2003: 334, Bus & Van Ijzendoorn, 1999: 412; Blachman, 1991: 51-65). According to Bus and Van Ijzendoorn, (1999: 412) most research indicates that children who are better at phonemic awareness tasks tend to decode words more easily. This association seems to be present even after partialing out variability to reading skills due to intelligence, memory skills, respective vocabulary, and social class. Unfortunately, children with reading disabilities tend to perform significantly lower than their reading age-matched peers on phonemic tasks and these include children with hearing impairments (Lindsay et al. 1998. 144-162; Lichtenstein, 1998: 80 – 134; Metsala, 199:162; Jimenez, 1997: 103). Furthermore it has been found that the linguistic structure of words affects these children's development of phonemic awareness tasks (Bruck & Treiman, 1990: 156).

Another area often studied and, which tend to present reading problems to the hearing impaired learners is phonological coding. Phonological coding is the ability to code abstract representations of the sound attribute of spoken and written words in the form of

individual units known as phonemes (Gonzalez et al. 2003: 334-336; Swank, 1994: 56-71). According to Swank, phonological coding underlines the learners to learn about word structure and to make judgments about words, for example to understand that words rhyme. This knowledge of the sound structure of words, or phonological awareness plays a critical role in learning to read English (Swank, 1994; 56-71). In the initial stages of reading development, learning phoneme awareness and phonics skills and practicing these skills with text are critical (Lyon, 1998: 14 – 19).

2.7.2 Hearing-impaired learners and vocabulary

Hearing-impaired children's reading skills may never surpass the third grade level. Some of these difficulties in reading may be due to depressed vocabulary skills attributed to limited exposure to language (Gregory et al. 1988: 65-70). The hearing-impaired children often have problems with vocabulary because they tend to be disadvantaged due to not having the benefit of recognizing a word once it is sounded out.

For hearing-impaired learners, researchers have documented a strong positive correlation between in-depth knowledge of words and reading comprehension (LaSasso & Metzger, 1998: 265-289; Harris & Beech, 1988: 205 – 216; Grushkin, 1998: 179 – 204; Bamfuord & Sounders, 1991; 203 – 215).

According to Bamford and Saunders good readers, hearing or hearing-impaired, have an extensive knowledge of words. It is documented that skilled readers do not acquire this deep knowledge of words via instruction (de Weirtdt, 1988: 163-183; Reed, 1989: 270-292). Skilled readers are said to be independent word learners who develop their understanding through extensive varied and extensive reading experience and reflections on words. This growth in word knowledge tends to occur in small but steady increments (Schirmer, 1994: 95; Yoshinoaga-Itano, Synder & Mayberry, 1996: 9-38; Strong, 1988:86).

In contrast, poor readers, (including many hearing-impaired learners) tend to learn much about the words that they encounter in context during reading (Gonzalez, 2002: 336; de Villiers & Pomerantz, 1992: 409-431).

Hearing-impaired learners often do not possess the range of skills that would enable them to use context effectively. They are also often found not to read widely and have benefit from exposure to words (Torgesen et al. 2001: 33-58; Metsala, 1997: 159-169; Elbro, 1996: 453 – 485).

Hearing-impaired readers, (who happened to be poor readers) seem to need systematic instruction in vocabulary, and especially in multiple dimensions of words, before they can become independent (Gregory et al. 1998: 101-118, Bamford & Saunders, 1991: 203-215). There tends to be a consensus that explicit, systematic vocabulary instruction is generally more effective for poor hearing-impaired readers than is relying on incidental word learning from context or on wide reading.

2.7.3 Hearing-impaired learners and syntax

At the syntax level, (see figure 1 page 13), severely hearing impaired children may be very delayed in their acquisition of the grammar of English. This applies to children brought up in signing or oral environments (Kelly, 1996: 318 – 334; Paul, 1998:15; Bamford & Saunders, 1991: 213-215). It is estimated that on average an 18year old hearing-impaired child has the facility with English Syntax of a 10year old (Bamford & Saunders, 1991: 108 – 116). Quigley, McAnally & Rose, (1976) cited in Webster (1998:80) states that hearing-impaired learners continue to make progress in using grammar through the school years, but may continue as adults to have problems interpreting complex, embedded passive structures. For example, a child who interprets all clauses as though they follow a Subject-Verb-Object pattern, may misconstrue sentences where the surface word order does not reflect the deeper meaning: “*The ball was headed by Dips*” will be interpreted as though the ball, and not Dips, did the heading. (Kavale, 1988: 100-111); Kelly, 1996: 318 – 334; Paul, 1998: 15-25). Webster,

(1998: 80) suggests that children often do use such oversimplified rules because they do not know what else to do.

Difficulty in syntax control tends to account for numerous difficulties hearing-impaired learners have in reading comprehension. There tend to be such a mismatch between the syntax of reading materials and the structures the child controls, the meaning frequently miscarries and reading becomes a language-learning process at one and the same time (Webster, 1989:82-92).

2.7.4 Hearing-impaired learners and semantic awareness

In reference to figure 1, hearing-impaired learners tend to have delays in semantic awareness (Webster & Webster, 1997:81). According to Webster (1988:81), numerous teachers comment much on the literal use of language by hearing-impaired learners and the apparent lack of metaphoric expression. For example a hearing impaired child may have learnt literal meanings of words such as “time”, in the sense of “what is the time”? But, be totally confused by expressions such as ‘take your time’. Nouns of concept, form, structure and meaning may be lost because of a child’s limited experience of spoken language in use (Webster, 1998:81). In addition, Lyon (1998:14-19), Gregory et al. (1998:62), Bamford and Saunders (1991:113-115) state that verbal puns jokes do not characterize humor in hearing-impaired learners.

Hearing-impaired learners may therefore, approach reading with a dual challenge. First, they may never have met the printed symbols of the written code before. Second, they may never have met the words and sentence patterns, which the code represents (Webster & Webster, 1997: 360; Kavale, 1988: 100-111; Conway, 1990: 339-349).

2.8 Remedial approaches targeting hearing-impaired learners with reading difficulties

This section of the study will explore ways in which remedial teaching for reading skills, with particular reference to hearing-impaired learners is tackled in UK and USA. The US is chosen for the simple reason that the Botswana sign language is believed to be using 75% of the American signs (Kisanji, 2003:12-96), while the UK is studied because the Botswana education policy is largely informed by the British education policy.

It would be appropriate to give the Botswana picture regarding the approaches and perhaps find out whether the approaches used in Botswana are exactly the same as those used in the UK and Us and also find out if there are used the same way or differently. This could not be done because the use of remedial approaches targeting hearing-impaired in Botswana is not documented. The picture would unfold when results are being analyzed as this is the core focus of the study.

2.8.1 Cued speech approach

In both USA and UK teachers of the hearing-impaired learners have resorted to using cued speech (CS) to remedy the children`s reading difficulties (Cued Speech Association UK, 2003: 1-4; LaSasso, 1998:265-289; Leyberert & Charlier; 1996:234-248 Conett & Daisey, 1992:49).

There is an indication that the approach is also known in Botswana (Kisanji, 2003). This study shall find out whether teachers in Botswana use cued speech.

“Cued Speech is a simple sound-based system which uses eight hand shapes in four different positions (cues) in combination with the natural mouth movements of speech, to make all the sounds of the English Language clearly understandable to hearing-impaired people of all ages “ (*Cued Speech Association UK, 2003:1*).

Cued Speech was devised by R. Orin Cornett in the late 1960's (Cornett & Daisey, 1992:37). It is variously described as a phonemic tool and a communication method. It is emphatically not a language, it is an attempt to represent spoken language visually (Leyberet & Charlier, 1996:234-248). There are three parameters in a cue and these are:

- ❖ The natural mouth associated with a Consonant-Vowel (CV).
- ❖ One of 8 hand shapes to distinguish the consonant.
- ❖ One of the 4 Vowel positions to disambiguate the Vowel (LaSasso & Metzger, 1998:165-289).

Cued speech is a system approximating the 40+ phonemes of speech in English and the system can be learned in a relatively short time (LaSasso & Metzger, 1998:265-289; Leyberet & Charlier, 1996:124-248).

With consistent practice, an adult can learn to cue at a normal rate of speech speeds (Leybaert & Charlier, 1996:234-248).

2.8.1.1 Goals for the development of cued speech (CS)

Cornett and Daisey, (1992:37-41) cited goals for the developments of Cued Speech (CS) as follows:

- ❖ Ease of instruction and use.
- ❖ Ease of communication within the family setting.
- ❖ Rapid, early language development.
- ❖ Construction of an accurate internal representation of the spoken language instructional practice: (General points).
- ❖ Cue all names and aim to build up to be able to cue everything said.
- ❖ Encourage children to cue back while learning new words this may help them to remember the words and to pronounce them.

- ❖ Use a mirror for individual sessions; sit side by side to compare mouth shapes and hand cues.

2.8.1.2 For children with some knowledge of written language

Point out groups of sounds which look alike, e.g. /b/p/m/, /f/v/, /t/d/n/l/ and show how the hand shape or position makes each sound clearly different.

Build on what you have and make 'word chains' with similar sounds, e.g.

- pete/peat, meat/meet, see/sea/c
- on/off, bomb/gone, job/top, was/wash/wasp
- I/eye/my, mind/find/kind/wind, right/write

Look at words with the same beginning and vowel, e.g. bed, ben, bent, bet, or with the same vowel and end, but different beginning e.g. head, red, led, ted, wed. Make a personal dictionary or subject-based book using cue script (a very simple system of noting the position and hand shape of a cue under a written word). Examples could include names, meals (with all the different foods) and animals (including noises).

Accurate pronunciation and identification of technical and mathematical language is usually appropriate e.g. triangle, square, circles, sphere, cylinder, prism, diagonal, circumference. Number work usually improves rapidly because so many numbers look identical on the lips (e.g. 4, 14, 40) but are quite different one from another with the cues.

2.8.1.3 Cued Speech use with hearing-impaired learners

The optimum age to start to use cued speech (CS) is with children under 3 years. Such children can learn to understand spoken language in much the same way as hearing children but through vision rather than listening. Early and consistent use in the home is more likely to eliminate the delayed and incomplete language development, which is common amongst other hearing-impaired children of hearing parents.

Cued speech can also be used successfully with older children, but they have slightly different needs because they already have some language delay and for them, the optimum age for learning language has passed (LaSasso & Metzger, 1998:265-289).

2.8.1.4 Evaluating the use of cued speech approach and acquisition of good reading skills

The Wandal' study (1989:120-156) of the effectiveness of cued speech matched groups of elementary school learners from five communities across the US. The first three groups were hearing-impaired, separated by the variable of communication mode (oral, total communication and cued speech). A group of hearing learners formed the control group. The groups were also divided according to their level of hearing loss (severe and profound). 120 learners were used out of the initial sample of 213. Results indicated that both the sub groups had the lowest achievement and the lowest internal speech ratios. Wandal (1989) further reported no significant difference in reading achievement between the hearing and cued speech profound groups.

Phonics abilities have also been studied in cued speech hearing-impaired learners and have been reported as resembling the phonics abilities of hearing peers more closely than that of hearing-impaired peers (LaSasso & Metzger, 1998:265-289).

According to Cued Speech Association UK (2003:1-4), there are many cases where children who have started cued speech later have made very good progress; sometimes making all the ground they lost within a few years.

Cued Speech Association UK (2003: 1-5) suggests that Anthony was the first in the UK to use cued speech in 1971. He was introduced to a boy CS at the age of 7 ½ years. He was diagnosed with no hearing in one ear and over 80dB loss on the other at the age of 3 ½ months. However, even his early diagnosis together with contributions made by the mother who was a speech and language therapist were not sufficient to enable him to

understand English and test showed that he had very low levels of language. As an adult looking back on the way he learnt language he said;

“The structure of the English language became more apparent, phonetically and lexically, when I was learning Cued Speech.....The confusion of the written format was solved, with the help of the usual patterns of cuing. In an 18-month period my spoken language had increased by 5 ½ years and this was within 2 years and 5 months of being introduced to Cued Speech. I grasped up reading difficulties and phonological memory of sounds very quickly like many other hearing-impaired people using cued speech Learning a language (both spoken and written) was natural and subconscious, as it is for my hearing peers. It is possible for hearing-impaired people to learn (spoken) language visually, not just by audition. This has been proved in research (Cued Speech Association, 2003:1.

He went on to say that Cued Speech supplements, but never duplicates or replaces what is said. It shows accents, phonemes patterns, rhythms, and stress. It has no vocabulary of its own, but clarifies whatever is said.

2.8.1.5 The need for accelerated language developments

Profoundly hearing-impaired children who start Cued Speech late, at ages such as 5 to 9 years are often delayed in verbal language. If this were not the case the parents would probably not consider a change. As soon as children have the basics of the system they should ideally be exposed in school to an extensive (two or more hours per day), structured program for accelerated language development, conducted or guided by an expert in remedial language development who can use cued speech and who will guide parents in their support of accelerated language development (Cornett & Daisey, 1992:37-96).

2.8.2 The language experience approach

One other remedial approach to teaching hearing-impaired learners reading skills (also used in the UK and the US) is the language experience approach often referred to as LEA (Schelper, 2001:1).

2.8.2.1 Definition:

“The language experience approach is a strategy to reading instruction based on activities and stories developed from personal experiences of the learners” (Helms and Schleper, 2000: 13-16). This strategy is often used to develop and reinforce reading by using learners’ personal experiences and natural language. The strategy is often effective in developing new vocabulary, word attack, comprehension and the basics of English grammar (Schleper, 2004: 1).

2.8.2.2 Procedures of using the language experience approach

In general procedures for using the language experience approach involves the whole class or a small group in:

- ❖ Experiencing.
- ❖ Discussing the experience.
- ❖ Recording the experience.
- ❖ Using the record of experience for reading activities (Kisanji, 2003: 36).

a) Students initiate the experience

There are many possible topics that the teacher can use in creating the language experience records. The learners can select relevant topics from the Botswana primary school curriculum. The curriculum recognizes components of agriculture, educational tours and home economics, inter-alia, as the necessary components in providing quality

basic education (Republic of Botswana, 2002a; Government of Botswana, 2005). Thus, it is in the context of this curriculum that the following possible procedures of the language experience approach are being discussed examples and illustrations would be discussed within the topics as shall be seen below. The topics could include:

Cooking

One of the topics taught at primary school level in Botswana is food nutrition (Republic of Botswana, 2002a). During one of the lessons in which the theme is cooking special meals for occasions, for example, learners may discuss the recipes for the various food supplements they often cook at home, during special feasts and other food experiences. The teacher must record the recipes and the description of the feasts using videotape.

Growing flowers in the classroom

This may include discussions on how to grow flowers and creating flower charts. The concept of growing flowers falls under gardening, a topic that is part of the Botswana primary school syllabus (Republic of Botswana, 2002a).

Planning a field trip

The Botswana primary school curriculum demands that learners should go on tours, and or field trips (Republic of Botswana, 2002a). For examples, some primary school organizes school trips around October/ November every year. Some schools visits the parliament, some visits game parks while some visits neighboring countries.

It is during such trips that the learners could engage themselves in talking about things to bring, rules to follow before the trip and they may then draw and label a map of where they went, and describe the experiences from the trip afterwards.

Making a record of a cultural event such as the visit of a special guest

Summarizing a favourite story that learners have heard, viewed, or dramatized several times.

b) Students and teacher documents the experience

The following points are an example of the procedures that could be followed when students and teacher document experiences:

- ❖ Create a class album through using a camera to capture an experience. Children can sign captions for each photograph and the teacher can discuss concepts of print as he or she records what they sign.
- ❖ Have children work in pairs to draw a picture of their favourite part of the experience and then sign the accompanying text for the teacher to write on a sentence strip. The pictures can then be used in a sequencing activity, e.g. the children might use the pictures to decide what happened first, second, third, etc. The same pictures and sentence strips can be used to make bulletin boards, or big books that can be used for shared readings (Schleper, 2004: 2 & Schleper, 2002: 123).

It is important for teachers to regularly sign back each sentence to make sure it is correct (Nelson & Wayne, 1999: 234; Whitesell, 1999: 129; Dixon, 1990: 87).

Students and teacher draw pictures or use digital or video cameras throughout the experience. In the language experience approach it is the teacher or another adult who has to do the recording. This is because the approach is intended to demonstrate to children the match between what they sign and its written form, and to develop other print concepts. The teacher would draw attention to these aspects of print while writing on chart paper positioned so as to be visible to all the children.

It is very important that the teacher or the adult records the children's language. The teacher or adult should record the children's words and keep the match between what they sign and what the teacher or adult writes. The teacher or adult must use the students' names as much as possible because their names are one of the first words children learn to recognize. In addition, this practice often helps to maintain the children's connections to the experience in subsequent reading.

It is also very important that the teacher or adult recording varies the type of record he or she creates. The written products of the experiences might be made into a big book, a bulletin board, or an illustration chart.

c) Children and teacher use the text for reading instruction

The children use the sentence strips, the big book, and or bulletin boards to learn new words. They may also use a cloze exercise or a sequencing activity to focus on specific words (Kisanji, 2003: 36; Helms & Schleper, 2000: 234). The teacher should then make additional copies of the text for each individual child to share with friends and families, as well as to read repeatedly during the year.

The main purpose of the language experience approach is to provide meaningful texts for students to read alone or with the support of peers and families. Therefore, the record of the experience should be mounted in a prominent place for several weeks following its creation and referred to regularly (Ewoldt & Yurkowski, 1986: 241-247).

2.8.2.3 Materials used in language experience approach

Materials used will often depend on the nature of the chosen experience.

Those materials teachers may use include:

- ❖ Books, poems, songs, and or chants related to the focus of the experience.
- ❖ Chart paper and felt markers.

- ❖ Materials for writing and bookmaking.
- ❖ Cameras and film for taking pictures of the experience for use in developing memory books and memory walls (Schelper, 2002: 127-129).

2.8.2.4 The effectiveness of the language experience approach

The language experience approach is considered to be an effective strategy for developing reading skills in hearing-impaired learners (Schleper, 2002: 127-129). Most important strength of the approach is that teachers can be certain that the content is within the reader's experience and conceptual level (Helms & Schleper, 2000: 56). Nelson (1999: 213) contends that hearing-impaired reader familiarity with the content and language used in print material facilitates comprehension.

However, critics of this approach indicate that modifying the child's story may lower the self-esteem and lead to loss of moral. It may be necessary to consider the possible effects on individual children before it is done. Young hearing-impaired children may not feel offended by the modification as the elder ones. Nevertheless, modifying the story seems to be an effective approach for helping hearing-impaired children it also often enables the teacher to obtain effective printed materials for developing other aspects of reading (Ewoldt et al. 1986: 243-247).

2.8.3 Directed Activities Related to Texts (DARTs) remedial approach

Across the schools and services working with hearing-impaired learners in the UK the use of Directed Activities Related to Texts (DARTs) is very common in remedial teaching for reading difficulties (Swanwick, 1993: 4-9; Swisher, 1989: 239-257).

Directed Activities Related to Texts (DARTS) were devised as part of a Schools Council Project for the remediation of learners with reading difficulties (Webster & Webster, 1997: 290).

Directed Activities Related to Texts are sets of strategies for encouraging learners to be active enquirers of text, focused on effective question-raising, guesswork and searching for meaning. Rather than modifying readability levels of text, the idea is to help learners cope with material, which may stretch reading skill, but can still be a source of useful information (Gregory et al. 1998: 116; Webster & Webster, 1997: 290). In this approach learners are taught how to make sense of what they read and how to relate meaning to what they know already, going beyond reading as mere decoding (Swanwick, 1993: 4-9).

Directed activities Related to Texts encourage a 'broken' read, deciding beforehand on what one wants to find out, how to tackle the task and whether having read, these functions were served (Webster & Webster, 1997: 290).

2.8.3.1 Use of DARTs in the classroom

The use of DARTs in the classroom often encourages:

- Peer group collaboration in learning.
- Use of texts at a higher readability level than learners can normally manage.
- Work with a wide range of text formats such as poetry, drama, charts, journals, reference texts, diaries, newspapers, and magazines.
- Approaches to learning using learners own insights, questions and problem-solving strategies.
- Development of independent, self-critical search for meaning (Gregory et al. 1998: 103-104; Swanwick, 1993: 123).

2.8.3.2 Instructional practice

a) Using existing text

In one variety of DARTs task whole extracts from texts are used and learners are helped to penetrate beyond the surface sentences to discover the critical features (Webster & Webster, 1997: 292). During this task, the teacher should:

- ❖ Ask learners to locate specific information in the text, such as underlining the words or phrases which describe the subject of the story, place or
- ❖ Ask learners to highlight a specific phrase or word, which gives a particular insight or meaning.
- ❖ Ask the learners to label a diagram by reading a passage, to set out the sequence of events in a story or to complete a table of information derived from a text under specific headings (Webster & Webster, 1997: 292; Swanwick, 1993: 4-9).

The exercises move beyond literal questions to inference, interrogation and making judgments, to make better use of the clues, which are already there, but may be missed (Gregory et al. 1998: 116).

In one example, learners with language difficulties were working on a story around the theme of *'treasure islands'* with an extract from the captain log as the ship hit a dreadful storm (Webster & Webster, 1997: 292). In pairs learners were asked to underline all the references to a sea monster in the extract they were given. They were asked to collect together all the information, which described the monster's appearance under the headings *'head'*, *'tail'*, *'claws'* and *'body'* and then to draw its portrait.

They were also asked to list the four most dangerous aspects of the monster in order of priority, and to locate particular phrases in the story, which gave specific meaning, such as *'the sea was smooth and calm'* (smooth emerald water). Together with these locating and collecting activities learners were asked to predict outcomes and carry on the story.

b) Using modified texts

In another variety of DARTs tasks, modified texts are used (Swanwick, 1993: 4-9). The teacher deliberately alters the form of a text, which is then given to learners in one of two main ways discussed below.

In the first method, words and phrases are deleted from a passage and replaced with a line (see example the next page). The puzzle is to complete the gaps, using the passage for clues. The point of deletion is to select words, which will encourage discussion and reflection. The technique is not to delete every nth word, but to focus the learners' attention on relevant information in the text in order to fill the gaps. More than 1 in 5 deletions will probably leave insufficient clues in the passage to make the exercise soluble.

There are two major types of DARTs: those 'which can be carried out using modified texts and those using unmodified texts. Unmodified DARTs include underlining or highlighting the main ideas in a text, labeling or constructing diagrams and tables using the main ideas identified.

_____ text DARTs include deleting words which are imported to _____ of the text and this is an _____ of a _____ DARTs. You will notice that there is an introductory passage which _____ the style and _____ of the prose. Approximately _____ deletions should be _____.

Another type of _____ text DARTs is called sequencing or _____. A _____, which develops in logical _____ is selected and scrambled into 6-8 sections. Each section is _____ onto cards of uniform size and learners are asked to _____, then in a _____ sequence

Example 1: An example of a completion DART (Webster & Webster 1997: 293)

Usually, an adequate run-in passage needs to be given which establishes the style and content before deletions are made. There are no absolutely correct answers to deletions, which leave room for discussion.

Another type of modifying text is to choose a passage with a fair presentation of ideas in a relevant topic area. The passage is reproduced, cut up into about 6-8 sections and mounted on card. The cards are then jumbled and then the learner is asked to work with a partner to restore them to a logical sequence (Webster & Webster, 1997: 293; Swanwick 1993: 4-9).

The puzzle for the learner is to think carefully about the concepts and information in the material in order to discover the sequence in which the ideas develop. For some learners, sequencing can be difficult if there are no other clues apart from the written word.

It might be helpful in that case to turn some of the learner's own reading materials into a sequencing exercise, or to add picture illustrations to the sections (Swanwick, 1993: 4-9).

c) Key points about Direct Activities Related to Texts

- DARTs are rooted in specific curriculum areas.
- Peer group collaboration is encouraged in learning.
- Higher readability level texts can be used than learners normally manage.
- A wide range of text forms is used, such as poetry, drama, charts, journals, reference texts, diaries, newspapers and magazine.
- Learners interrogate text looking for specific items of information.
- Development of independent, self-critical, search for meaning approaches.

2.8.3.3 Using existing text (unmodified)

a) Labeling a diagram

Using an information section of a text, construct a diagram with parts identified but labels omitted. Some clues can be given, such as the number of letters, in each word, initial, medial or final letters. The task is for learners to work in pairs to study a text and use it as a basis for restoring the labels to the diagram.

b) Post-its

Use stick on labels to locate key ideas within a text.

c) Constructing a matrix, table or flow chart

Learners are given a text to study and a framework for extracting information according to certain headings. Not all of the table or matrix is incomplete to give some ideas of the way the task should be done. This task requires information to be transformed from one form to the other, thus making limited writing demands, but some thinking demands. It is better than straightforward copying.

2.8.3.4 Using modified texts

a) Highlighting

- Photocopy an extract or page of a text.
- Ask learners to find and mark by underlining, highlighting circling information. For example; 'find words, which tell you how alcohol can be bad for you: More specific location exercises include finding words or phrases, which give certain meanings.

b) Segmenting

Learners identify and mark blocks of meaning in different colours. For example, learners can be asked to mark the sections of a photocopied page, which deal with certain topics. They might then be asked to summarize or label the main content of each block, by making notes in the margins.

c) Reconstruction

- Photocopy a passage of text.
- Cut the text up into individual sentence, phrases or paragraphs.
- Stick each segment on a separate card.
- Ask the learners to work with a partner.
- To restore the text to its original form.

Reconstruction is useful for

- Sequencing a series of steps in a process or experiment.
- Ordering a series of instructions.
- Ordering events overtime.

d) Matching

For very limited readers, an illustration topic from the text can be photocopied and keywords or phrases extracted, together with their illustrations. Stick on separate cards and ask pupils to match up the elements.

e) Cloze exercise

Photocopy a passage and delete key words. At its simplest level, words are listed close to hand, which learners select from to fill in the gaps. This can be made slightly harder by providing more alternatives than necessary so that a selection must be made. A more

difficult task requires learners to use a text to find words or phrases to fill in the gaps. Finally, delete quite a lot of the materials so that learners also have to construct correct sentences not just fill the gaps.

2.9 Involving other professionals in the remediation programs of hearing-impaired learners with reading difficulties

Remediation programs for hearing-impaired learners with reading difficulties need a holistic approach (Culatta, James, Tompkins, Margaret & Werts, 2003:283; Kavale, 1987: 363-367). There are many disciplines that may play viable roles on the remediation of hearing-impaired learners with reading disabilities. Potential contributory professionals who may be involved include:

- Speech Language Pathologist.
- Reading Specialist.
- Genetic Specialist.
- Resource Specialist.
- Learning Disability teacher.
- Audiologist (Culatta, et al. 2003: 283-286; Kavale, 1987: 363-367).

2.9.1 Speech Language Pathologist

Speech Language Pathologists are professionals trained to work with the learners to develop skills in articulating the sounds of language, using voices efficiently and developing both receptive and expressive language skills (Culatta et al. 2003: 284; Frattali, 1998: 106; Enderby, 1992: 62-64; Epstein, 1990: 266-269).

Speech Language Pathologist tend to be an appropriate professional to consult when planning remedial approaches for hearing-impaired learners with reading difficulties, since these learners are often oral language deficient (Kavale, 1987: 367; Bamford & Saunders, 1991: 116).

Learning in educational settings is dependent on language competence and language performance. Listening, speaking, writing and reading are all primary components of the language process (Kavale, 1987: 364). For the hearing-impaired learners to acquire solid foundation on these components they should always have the Speech and Language Pathologist by their side (Kavale, 1987).

Kavale further observed that acquiring language skills is so critical in the development of all children. Therefore, they suggested that a Speech Language Pathologist is an important part of almost every intervention program. Culatta et al (2003:284) alluded to the fact that, since Speech Language Pathologist assesses all children referred to special services at most schools, it is natural to routinely include them on multidisciplinary assessment teams. Kavale (1987: 364) reported that out of more than 50% of children with disabilities who were included in Head Start programs in 1977 were communicatively impaired and approximately 5% of these were hearing-impaired. These authors conclude, therefore that for all these children, remedial intervention must include a specialist in language acquisition and speech disorders.

2.9.2 Reading Specialist

Reading specialists diagnose, assess and plan remediation for learners who test below grade levels and/or manifest reading difficulties in silent or verbal reading behaviours. They are knowledgeable and current on the subject of standardized reading tests and commercially available reading programs. Additionally, reading specialists have sufficient knowledge of instructional design and curriculum to be able to devise and supervise individualized reading interventions (Dole, 2004: 17-23).

Reading specialists consult with classroom teachers and resource specialists. They provide additional insight into reading and language skills of learners. Other services available from the reading specialists include; advice regarding appropriate reading books, effective promotion of reading word attack, skills and suggestions regarding oral

language work with hearing-impaired learner (Dole, 2004: 1-20; Rack, Snowling & Olson, 1992: 29-53).

Therefore, reading specialists must always function as the integral part of all remediation programs for hearing-impaired learners with reading difficulties.

2.9.3 Genetic Specialist

(Culatta, et al. 2003: 285; Gerber, 2001: 25; Ludlow & Cooper, 1983: 176), suggest that a significant percentage of hearing losses and reading difficulties are either inherited or occur during prenatal, perinatal or postnatal development. The genetic specialist plays an important role in family counseling and prenatal screening to determine which families are at risk and informing them of the recent knowledge available about hereditary transmission and the consequences.

Therefore, a genetic specialist must always be part of the team that oversees all remedial intervention for all learners with reading disabilities including those with hearing-impairments. The significance of involving genetic specialists is that they may give us clues to the underlying biological causes of reading disability.

2.9.4 Learning-Disability Teacher

The learning-disability teacher:

- is an instructor of a group of learners with disabilities.
- will quickly sum and communicate critical observations of a learner undergoing review.
- describe the learning style of a child and.
- relates possessions of learning strategies to other professionals working on the remediation of the learners (Kavale, 1987: 361-364; Cullata et al. 2003: 280-285).

From the learning-disability teacher, all other professionals' gleans not only what a child does not do in the classroom but also, what he or she does with success.

2.9.5 Resource Specialist

The resource specialist is:

- an innovator.
- a coordinator.
- a programmer.

When the remediation professionals consider potential commercially produced remediation programs, the resource specialist gives feedback concerning availability, suitability, flexibility and limitations of the program. The resource specialist should provide information concerning possible local educational and clinical treatment sources (Kavale, 1987).

2.10 Conclusion

This chapter looked briefly at literature related to remedial approaches for hearing-impaired learners with reading difficulties.

The next chapter deals with research methodology.

Chapter 3

Research methodology

3.1 Introduction

This chapter starts by reiterating the purpose of the study. The chapter then discusses the following issues respectively:

- ❖ Research design.
- ❖ Data collection instruments.
- ❖ Population of the study.
- ❖ Ethical considerations.
- ❖ Data presentation and analysis.
- ❖ Summary.

3.2 Purpose of the study

This study investigated the following (cf. par. 1.4):

- ❖ Remedial approaches teachers use in supporting hearing-impaired learners with reading difficulties.
- ❖ How the approaches are applied?
- ❖ Whether other professionals are involved in the remediation programs for hearing-impaired learners with reading difficulties.
- ❖ Make possible recommendations for remediation programs for hearing-impaired learners in Botswana

3.3 Research design

The study is mainly qualitative with quantitative elements and it is also contextual, explorative, and descriptive (cf. par.1.8.2). In a nutshell, contextual research designs are concerned with doing some research on what people do, what their tasks are and what their goals are (Mouton, 2005: 125; Lehtonen & Pahkinen, 2004: 76).

Explorative research designs are concerned with investigating something new of which little is known, guided by a general interest (Mouton, 2005: 125; Lehtonen & Pahkinen, 2004: 76).

The descriptive survey method is said to be a one off method of collecting data (Ruane, 2005: 65). In simple language, the method often empowers researchers to get into the participants' place; collect data once; and leave. However, researchers are free to come back after some time to follow up on issues they may need clarity.

The researcher chose this method because it fitted very well with the purpose of the study (c.f. par. 1.8.2). The issues outlined under the purpose of the study deal with reports on current practice, e.g. remedial approaches used, how are the approaches used? And, how many respondents use the approaches? The researcher also gathered information on teachers' qualifications, teachers' experience, and teachers' gender. These are examples of facts and the descriptive survey method is believed to be very effective in collecting such information. In brief, the descriptive survey method tends to be very useful when gathering relatively simple facts and or reports of current practice and this study aimed at doing just that (Mouton, 2005: 125; Lehtonen & Pahkinen, 2004: 76).

3.4 Data collection instruments

Self-administered semi-structured questionnaires were used to collect data. These are questionnaires participants complete on their own in the absence of the researcher

(Gillham, 2002: 59 & Blaxter et al. 1996: 159). The researcher used self-administered questionnaires because they often have:

- ❖ Less of the reactive effect that can be created by the presence of the researcher.
- ❖ Less bias, that the interviewer who may have a vested interest in the results can create.
- ❖ A high possibility of making the results both confidential and anonymous such that even the researcher does not know the participants by their responses (Johnson, 2002: 3-14; Webster & Webster, 1997: 315).

Furthermore, these advantages of using self-administered questionnaire often create an atmosphere of trust and therefore lead to more truthful responses (Johnson, 2002: 93).

Using self-administered questionnaire in this study was relevant because generally, surveys are data collection methods in which data is collected through oral or written questioning (Giles, 2002: 141). According to Giles (2002: 141) oral questioning is known as interviewing while written questioning is accomplished through questionnaires.

3.4.1 Format of the questionnaire

This section provides information on the pilot questionnaire and the final questionnaire.

3.4.1.1 Pilot questionnaire

The researcher piloted the questionnaire before ultimately administering it.

In this pilot study, 15 teachers from Ramotswa Community Junior Secondary School were used.

The questionnaire consisted of four (4) different sections and these were section A, section B, section C and section D. The outline of the pilot questionnaire is given below:

Section A: Biographics

Kindly tick one to indicate your choice

1. Gender: Male _____
Female _____

2. Age:
20 – 25 years _____
26 – 30 years _____
31 – 35 years _____
36 – 40 years _____
41+ years _____

3. Teaching qualification:

Certificate in Primary education _____
Diploma in Primary education _____
Bachelors Degree in primary education _____
Masters Degree in primary education _____
Other (specify) _____

4. Teaching experience:

Less than 1 year _____
1 – 5 years _____
6 – 10 years _____
11 – 15 years _____
16 – 20 years _____
21 years + _____



Section B: Remedial approaches for reading targeting the Hearing – impaired learners

5. Which of the following languages are the learners able to read by the time they start primary education (i.e. Start standard 1)? (Please tick one)

Setswana _____
English _____
Sign Language _____
Afrikaans _____
None _____

6. Which of the following languages are the hearing-impaired learners able to read by the time they finish primary education?

Setswana _____
English _____
Sign Language _____
Afrikaans _____
Other (Please specify) _____

7. Which of the following components of the English language often give the learners difficulties when reading?

Phonemic awareness _____
Vocabulary _____
Syntax _____
Semantics _____
Other (Please specify) _____

8. Which of the following strategies for the hearing-impaired learners with reading difficulties is part of the school policy?

To have 1 hour of remedial teaching every day _____

To refer a child with reading difficulties to a reading specialist once a week _____

To provide opportunities for a child with reading difficulties to communicate _____

To provide many clear examples of reading rules _____

Other (Please specify) _____

9. Which of the following remedial teaching approaches for reading do you often use to develop the learners' reading skills? (Please tick one)

Matching _____

Segmenting _____

Cloze exercises _____

Cued speech _____

Other (please specify) _____

10. Tick one statement below, which is true about the reading level of the majority of the learners by the time they finish Standard 7:

Majority still are not able to read on their own _____

They have improved their reading levels by at least two years _____

They can read fluently like their hearing peers _____

They lag behind their hearing peers by only a maximum of two years _____

Not sure _____

Section C: How are the remedial approaches used

11) Explain how the approach you chose in question 9 is used

12) Do you think the approach is:

Very easy to use _____

Easy to use _____

Not easy to use _____

Very difficult to use _____

13) Do you think the learners:

Learn to read easily when using the approach _____

Learning reading satisfactorily when using the approach _____

Do not learn to read easily when using the approach _____

Section D: Involvement of other professionals in the remediation of hearing-impaired learners with reading difficulties

14) Who, among the following specialists is available within the school?

Audiologist _____

Speech and Language Pathologist _____

Reading Specialist _____

Genetic Specialist _____

Other (please specify), _____

15. Indicate the specialist you often contact outside the school by selecting one from the list below:

Audiologist _____
Speech and Language Pathologist _____
Reading Specialist _____
Genetic Specialist _____
Other, please specify, _____

16. Who, among the following specialists should be based within the school?

Reading specialist _____
Speech therapist _____
Resource specialist _____
Audiologist _____
Other (Please specify) _____

Please write down an explanation for your choice.

Section A addressed information regarding biographic facts of the participants and these included gender, age groups, qualifications and teaching experiences respectively. Section B dealt with information on remedial approaches targeting hearing-impaired learners with reading difficulties. Section C considered issues of how the approaches are used and section D looked at whether there are any other professionals involved in the remediation of hearing-impaired learners with reading difficulties.

Sections A and B consisted of closed questions. These are questions that often give a limited choice of categories to the participants (Webster & Webster, 1997: 315).

Section C consisted of one open question and three closed questions. Open questions do not have restricted options for responses. They often allow a variety of individual responses. This often allows the researcher to get an in-depth view of the situation (Walsh, 2001: 65; Bell, 1999: 132). An example of an open question can be seen on appendix A. Section D consisted of 3 closed questions and one open question.

3.4.1.2 The results of the pilot questionnaire

The results of the pilot questionnaire from qualified remedial reading specialists indicated that, except for question 8, the questions could be used and the researcher went on with the actual administration of the questionnaire. No respondent from the pilot group attempted question 8. The respondents felt that it is not the teachers' responsibility to write policies but that of the Ministry. So, they advised the researcher to remove the question and he did (cf. par. 3.4.1.2). Question 10 was deleted as it was not easy to assess.

3.4.1.3 Final questionnaire

Apart from the fact that the researcher removed question 8, sections A, B, C and D of the final questions were the same as those in the pilot questionnaire as shown below (see appendix A for a complete questionnaire).

Section B: Remedial approaches for reading targeting the Hearing – impaired learners

5. Which of the following languages are the learners able to read by the time they start Primary education (i.e. Standard 1)? (Please tick one)

Setswana _____
English _____
Sign Language _____

Afrikaans _____
None _____

6. Which of the following languages are the hearing-impaired learners able to read by the time they finish Standard 7?

Setswana _____
English _____
Sign Language _____
Afrikaans _____
Other (Please specify) _____

7. Which of the following components of the English language often give the learners difficulties when reading?

Phonemic awareness _____
Vocabulary _____
Syntax _____
Semantics _____
Other (Please specify) _____

8. Which of the following remedial teaching approaches for reading do you often use to develop the learners' reading skills? (Please tick one)

Matching _____
Segmenting _____
Cloze exercises _____
Cued speech _____
Other (please specify) _____

Section C: How are the remedial approaches used?

9. Explain how the approach you chose in question 8 above is used

10. Do you think the approach is:

Very easy to use _____

Easy to use

Not easy to use

Very difficult to use

11. Do you think the learners?:

Learn to read easily when using the approach

Learning reading satisfactorily when using the approach _____

Do not learn to read easily when using the approach

Section D: Involvement of other professionals in the remediation of hearing-impaired learners with reading difficulties

12. Who, among the following specialists is available within the school?

Audiologist _____

Speech and Language Pathologist

Reading Specialist

Genetic Specialist

Other (please specify), _____

13. Indicate the specialist you often contact outside the school by selecting one from the list below:

- Audiologist _____
- Speech and Language Pathologist _____
- Reading Specialist _____
- Genetic Specialist _____
- Other, please specify, _____

14. Who, among the following specialists should be based within the school?

- Reading specialist _____
- Speech therapist _____
- Resource specialist _____
- Audiologist _____
- Other (Please specify) _____

Please write down an explanation for your choice.

3.4.2 Administering the questionnaire

The researcher delivered the questionnaire to the participants by hand. The researcher then left the questionnaire with the participants for a week to allow them time to read, understand and ultimately complete. The researcher went back to the participants after a week and collected the completed questionnaires. Initially, only 17 participants out of a total 32 had completed the questionnaires. The researcher went back again after three days to follow up on those who had not completed the questionnaire on the first

collection. This time 4 more participants handed in completed questionnaires. In total 21 questionnaires were completed.

3.4.3 Reliability and validity of the questionnaire

In this study reliability refers to the consistency of the questionnaire used. That is, the likelihood of obtaining the same results should a different researcher use the same questionnaire to do the same study (Wilkinson, 2000: 42).

Validity refers to the extent to which the questionnaire achieves its intended aim (Wilkinson, 2000: 42). It is strongly advisable that researchers should always aim to develop instruments which are not only reliable but that are also valid (de Vos et al. 2005, 116; Ruane, 2005: 65; Walsh, 2001: 14).

To achieve reliability the researcher piloted the questionnaire before ultimately administering it. The piloting of the questionnaire involved 15 teachers from Ramotswa CJSS. The results of the pilot questionnaire indicated that question 8 was the only problematic question. The researcher then removed question 8 and went on with the actual administration of the questionnaire. Piloting the questionnaire before administering it was simply done to detect and minimize any ambiguities that the questionnaire could have had, a procedure Bell, (2003: 216) and Walsh (2001: 14) strongly recommends.

Validity in this study relied mainly the questionnaire which was semi-structured and no statistical procedures for statistical validity were carried out. On the grounds of the pilot study, and the fact that the respondents in the pilot study had little difficulty in answering the questions, It is concluded that the questionnaire was valid, at least at face value.

3.5 Population of the study

This study was carried out in two special primary schools for hearing-impaired learners in Botswana. The two schools are:

- ❖ Ramotswa Centre for Deaf Education and
- ❖ Francistown Centre for Deaf Education

Ramotswa had 18 teachers while Francistown had 14 teachers at the time of the research and the researcher decided to use all the 32 teachers for population. As 32 as the population size is small, the researcher used all the 32 teachers as the sample size hence there was no need for a sample frame.

Out of the 32 participants, only 21 completed and returned the questionnaire. The other 11 teachers were apparently on out reach activities such as workshops. It is worth noting that all the participants who received the questionnaires did complete and return them.

3.6 Ethical considerations

Taking cognizance of ethical issues as stipulated by Ruane, (2005) Mouton, (2000) Silverman, (2000) and Heiman, (2001) the questionnaire was sent together with a cover letter (cf. appendix D). The main aims of the cover letter were to:

- ❖ Introduce the topic of research and the researcher.
- ❖ Neutralize any doubt or mistrust respondents might have about the study.
- ❖ Motivate the respondents to participate in the study, and answer the questions and, assure the respondents of confidentiality and anonymity.

The cover letter has been recognized as one of the factors that influence the response rate (Ruane, 2005; Bell, 2003; Mouton 2001 & Silverman 2000).

According to these authors, the way the questionnaire is presented and introduced to the type of assurances provided to the respondents determine, to a large extent, whether the respondents will complete the questionnaire or not and whether they will answer all questions.

Furthermore, the researcher informed the respondents beforehand about the potential impact of the study. This was done in a formal meeting held at the schools (c.f.par. 1.8.4). de Vos, (2005:58); Ruane, (2005); and Mouton, (2001) recommend that this should always be done. In addition, as the researcher intended to have informed consent from the part of the respondents, he rendered all possible and adequate information on the following:

- ❖ The purpose of the study.
- ❖ Procedures, which will be followed during the investigation.
- ❖ The possible advantages, disadvantages and dangers to which respondents may be exposed (de Vos, 2005: 59).

The purpose of the study

The purpose of the study is four fold: first, the study investigates if the schools have any remedial approaches for hearing-impaired learners with reading difficulties. Secondly, the study examines how the remedial approaches are applied and thirdly, the study investigates the involvement of other professionals (apart from teachers) in the remediation of hearing-impaired learners with reading difficulties. Lastly, the study makes possible recommendations guided by the research questions and the results.

Procedures to be followed during the study

The researcher would give the teachers a questionnaire to complete and leave it with the teachers for three weeks. The researcher would then come after three weeks to collect the completed questionnaires.

Possible advantages and disadvantages of participating in this study

The research will attempt to explore current practice regarding remediation of hearing-impaired learners with reading difficulties. It is hoped that the final report would be of benefit to the school and to those who take part in the study. Thus, the school and the participants will receive a copy of the final report. In addition, all the participants will be offered the opportunity to remain anonymous and all the information will be treated with the strictest confidentiality.

The study is to be assessed by the North West University for examination purposes only, however, should the question of publication arise at a later date, permission will be sort from the participants.

According to Hakin (2000) cited in de Vos (2005:59), informed consent becomes a necessary condition rather than a luxury. Therefore, the researcher's emphasis was on accurate and complete information, so that respondents will fully comprehend the investigation and consequently be able to make a voluntary, thoroughly reasoned decision about their possible participation.

3.7 Data presentation and analysis

Quantitative data was analyzed using frequency and percentage tables. This technique stipulates frequencies and percentages of responses to each question. The data analyzed quantitatively included responses to questions from sections A; section B; section C questions 11 and 12; as well as section D. The qualitative data from section C question 10 was analyzed by simply stating the responses as they were stated by the respondents, but with very limited interpretations. Basic content analysis of the questions was attempted

3.8 Summary

- ❖ This chapter started by reiterating the aim of the study in order to give focus. The chapter then continued by discussing a descriptive survey method as the study research design.
- ❖ The chapter has shown that data was collected using the questionnaire as the research instrument.
- ❖ The questionnaire was discussed with the supervisor and piloted before used to limit any ambiguity that it might have had.
- ❖ The chapter has indicated that both quantitative and qualitative data was collected data collected was presented in frequency tables.
- ❖ Reliability and validity of the questionnaire as well as ethical issues were carefully considered during the study.

The next chapter will present and analyze data.

Chapter 4

Data Presentation and analysis

4.1 Introduction

This chapter endeavours to examine the findings of the study in relation to the research questions and in reference to issues identified in the literature review. Evidence is cited from the original questionnaire sent out to teachers in two special primary schools for the hearing-impaired learners.

The results of this study are organized and presented in four categories, which are the same categories that were used in the questionnaire. The first category provides the biographic information of teachers in schools, which formed part of the study. The second category deals with the questions relating to remedial approaches for reading targeting the hearing-impaired learners in two primary schools. The third category focuses on finding out how the remedial approaches are used while the fourth category examined the involvement of other professionals in the remediation of hearing-impaired learners with reading difficulties.

4.2 Purpose of the study

The purpose of the study was four fold: first, the study investigated if the schools had any remedial approaches for hearing-impaired learners with reading difficulties. Secondly, the study examined how the remedial approaches were applied and thirdly, the study investigated the involvement of other professionals (apart from teachers) in the remediation of hearing-impaired learners with reading difficulties. Lastly, the study made possible recommendations guided by the research questions and the results (cf. par. 1.4 and par. 3.2).

4.3 Biographics

The researcher found it important and necessary to investigate biographic information of the respondents to obtain their background information, in order to establish defrentiated opinions between respondents.

Data gathered from respondents regarding their background was presented and analyzed through frequency tables and charts as shall be seen below.

Table 4.3.1: Gender Distribution

Variable	Male	Female	Total
Frequency	3	18	21
Percentage	14	86	100

Table 4.3.1 indicates that out of 21 respondents only 3 (i.e. 14%) were males and 18 (i.e. 86%) were females. From anecdotal evidence experience, these results are not surprising. For a very long time now it has been significant that female teachers at primary school level are more in number compared to their male peers. Bigala, Seboni and Monau (1993: 10) also found in their study that the 168 teachers they interviewed were predominantly female (82.2% against 17.8% males).

Table 4.3.2: Age Distribution

Variable	20-25	26-30	31-35	36-40	41+	Total
Frequency	0	3	5	7	6	21
Percentage	0	14	24	33	29	100

From Table 4.3.2, it is evident that the majority of teachers in two special schools are between the ages of 31 and above. None were in the category 21-25 years.

Table 4.3.3 Teaching Qualification

Variable	Certificate in Primary Education	Diploma in Primary Education	Bachelor of Primary Education	Master of primary Education	Others: Certificate in Special Education	Total
Frequency	3	5	0	0	13	21
Percentage	14	24	0	0	62	100

Table 4.3.3 indicates that 3 (14%) of the teachers hold Certificate in Primary Education, 5 (24%) hold Diploma in Primary Education while in the category of others 10 (48%) hold Diploma in Special Education and 3 (14%) of the 21 respondents have been trained in Special Education. Thus 62% have training in special education. This has a great potential of being a very positive factor in so far as remedial approaches for the hearing-impaired learners is concerned. No respondent indicated that he or she had either Bachelor or Masters of Primary Education.

Table 4.3.4: Teaching Experience

Variable	Less than 5 years	6-10 years	11-15 years	16-20 years	21+ years	Total
Frequency	2	5	5	5	4	21
Percentage	9	24	24	24	19	100

Teaching experience here refers to the length of time in years respondents have spent in teaching.

From Table 4.3.4 it is evident that the majority of teachers 15 (71%) have been in the field for a period of 6 to 20 years. 14(67%) fall in the categories 11years and above. None was found to have less than 1 year of teaching experience.

4.4 Remedial approaches for hearing-impaired learners with reading difficulties.

The following six tables indicated respondents' views about:

- ❖ Languages which learners are able to read on their own by the time they start primary school.
- ❖ Languages which learners are able to read on their own by the time they finish primary school.
- ❖ English language components that give learners difficulties when reading;
- ❖ The school policy on remediation of hearing impaired-learners with reading difficulties.
- ❖ Remedial approaches for reading that teachers often use to develop the learners reading skills.

Table 4.4.1: Languages which learners are able to read by the time they start primary school (i.e. start Standard 1)

Language	Setswana	Sign language	English	Afrikaans	Other	None	Total
Frequency	0	2	3	0	0	16	21
Percentage	0	10	14	0	0	76	100

As shown on Table 4.4.1 no respondent has indicated that he or she has taught a student who was able to read Setswana at the beginning of standard 1. This tend to be a painful realization because like Wray and Medwell (1991: 235) states, learners often learn reading skills best if they are taught in their mother tongue. Thus, if these learners cannot read Setswana texts, it is more likely that teaching to read texts on any language including English will always be a very daunting task (Kisanji, 2003: 36; Stong, 1998: 132; Wray & Medwell, 1991: 237).

16 (76%) respondents have indicated that the majority of the learners start primary school with no reading skills. They suggest that those learners are not able to read texts on any

language. This is not a surprising finding. It could be concluded that it is a given fact as the reading of hearing impaired learners is concerned. Kisanji, (2003: 41) and LaSasso & Davey (1987:271 – 220) stress that a significant number of hearing-impaired learners whose parents are not signing start school without knowing any real language at all. This situation often has a disastrous effect on the learner's education development. Comprehension of concepts as well as interpretation of written or printed characters is dependent on reading (Stakes & Hornby, 2000: 80-85).

As Table 4.4.1 indicates only 3 (14%) of the respondents indicated that learners with hearing-impairments are able to read English texts on their own at the start of their primary school. This once again signifies that though there may be children who can read English texts on their own at the beginning of their primary school, the number is still so insignificant that it will not be easy to conclude that hearing impaired learners are at the same level of reading skills with their own peers.

Table 4.4.2: Languages which learners are able to read by the time they finish Standard 7

Language	Setswana	Sign language	English	Afrikaans	Other	None	Total
Frequency	0	6	15	0	0	0	21
Percentage	0	29	71	0	0	0	100

15 (71%) respondents, as shown on Table 4.4.3, indicate that the majority of learners leave their primary school with good reading skills in English. They attributed this to their well-planned remedial teaching approaches. No respondent indicated that learners leave their primary schools without any reading skills in Setswana.

It is not surprising that the learners finish Standard 7 and leave primary school without any reading skills in Setswana because according to Kisanji, (2003) the learners do not learn Setswana at school (i.e. Setswana is not part of the curriculum for the hearing-

impaired learners). In addition, the signs they use in Sign language to support English are not necessarily Setswana orientated. 75% of the signs are American (Kisanji, 2003).

Table 4.4.3: Components of the English language that give the learners difficulties when reading

Competent	Phonemic awareness	Vocabulary	Syntax	Semantics	Others	Total
Frequency	5	8	5	3	0	21
Percentage	24	38	24	14	0	100

When asked to choose one area which often gives the hearing-impaired learners difficulties during reading, 5 (24%) of the respondents indicated the area of phonemic awareness, 8 (38%) of them indicated the area of vocabulary, 5 (24%) indicated the area of Syntax while 3 (14%) indicated that the majority of the learners have problems with Semantics (Table 4.4.3). From this data presentation, it is evident that the majority of teachers who took part in this study think that learners have problems with vocabulary.

This was also indicated by the literature reviewed. Loeterman et al. (2002) and Webster and Webster (1997) have strong views that children with hearing-impairments have significant problems with vocabulary. This could be due to the fact that most of these children are born with the impairment. Therefore, they do not hear words being said or even hear the sounds of such words. As a result learners grow up lacking experience and use of words.

The respondents have indicated that all the four areas they were choosing from (i.e. Phonemic awareness, Vocabulary, Syntax and Semantics) pose problems to children with hearing impairments. Webster and Webster (1998: 70-89) also indicate that these areas all give hearing-impaired learners difficulties during reading.

4.4.4: Remedial approaches that teachers of the hearing-impaired often use to develop the reading skills of the learners

Approach	Matching	Segmenting	Cloze exercise	Cued speech	Other	Total
Frequency	13	1	1	4	2	21
Percentage	62	5	5	19	9	100

The respondents' choices were informed, first by the list of approaches provided by the questionnaire (i.e. they had no other alternative but to select from the list of approaches provided), and then by their personal experiences and practice (i.e. their choice was influenced by what they have been doing and the method they have found to be effective).

13 (62%) respondents, as shown on Table 4.4.4, have indicated that they often use matching in the remediation of hearing impaired learners with reading difficulties. The second largest number is 4 (19%) who say they often use the cued speech approach to premeditate these learners.

One remedial approach found to be good is the matching approach (Gregory et al. 1998:101 –118; Bamford & Sounders, 1991:203-205). Matching is said to be a useful approach in giving hearing-impaired learners visual experience of words. For example, when a picture is presented to the learner, the learner registers it in his or her memory and when finally the word (i.e. either the name or noun of the picture) is presented, the learner will thereafter always remember the word as a representative of the picture.

1(5%) of the respondents indicated that they use segmenting; 1(5%) use cloze exercise; 4 (19%) use Cued speech and 2 (9%) use the language experience approach (LEA).

The language experience approach is considered to be very effective for developing reading skills in hearing-impaired learners (for example see LaSasso, 1983:122) the approach according to LaSasso (1983:95-125) uses learners dictated, teacher recorder stories in teaching reading. The aim is to develop sight vocabulary, word attack and

comprehension skills using teacher made materials generated from the reader. Only 2 respondents indicated that they use the approach.

4.5 How are the remedial approaches used?

For this section three most outstanding approaches listed by the respondents will be discussed. These are the matching, the cued speech and the language experience approaches. The matching approach is selected because the majority of the respondents indicated that they often used it while the LEA is selected because Moores and Sweet (1990:39-59) strongly recommends that the method should be used more often as it tends out to be more effective with hearing-impaired learners.

4.5.1 Matching

Respondents who selected this approach have described its procedures as follows:

Step 1: look for a text which is relevant to the learner's environment and which has illustrations or pictures. The texts should be simple at the beginning and the level of difficulty should be enhanced as the learners acquire new words or phrases.

Step 2: cut the words and or phrases that learners should learn and stick them on the small manila cards. Also cut pictures and illustrations that go with the words and phrases.

Step 3: Jumble the words/ Phrases with the pictures and in pairs the learners should pick the words or phrases and look for a matching picture or illustration.

Step 4: Always reward learners who get the correct match and encourage those struggling to keep looking.

Step 3 can always be done in a reverse order. That is, learners can first pick pictures or illustrations and then look for a matching words or phrases.

These procedures are very similar to the procedures outlined by Webster and Webster (1997:293). They further suggest that the method is highly effective if properly used.

4.5.1.1 How easy/difficult is it to use the ‘matching’ approach?

In order to analyze the response to this question the researcher thought it would be more meaningful to look at the responses of the respondents who indicated that they often use Matching and those who often use the LEA approach. This was done to make the difficult task of analyzing qualitative information less complex, particularly because these two approaches are the ones discussed in the previous section.

From the 13 respondents who indicated that they often use ‘Matching’ approach 8(62%) expressed that the method is easy to use while 4(31%) thought that the method is very easy to use. 1(7%) of 13 respondents did not respond. Therefore, this method can be recommended for use as a remediation approach for hearing impaired learners with reading difficulties.

4.5.2 The cued speech approach

The 4 respondents who indicated that they use the cued speech approach outlined the procedure of using the approach as follows:

Step 1: List and evaluate the needs of the learner, then take time to envision yourself as the learner.

Step 2: Begin with individual sounds such as /a/ and /ah/, and then go to short words like “mama” and “dada”.

Step 3: Practice going from cueing and saying “ah” to cueing and saying “mama’ for example.

Step 4: Let the learner participate in your cueing by letting him/her grasp each of your hands with his/her hands as you say and cue sounds and words

.

4.5.2.1 How easy/difficult is it to use the cued speech approach?

The 4 (19%) respondents who indicated that they often use this approach all (100%) suggested that it is easy to use. Thus, it can be concluded that the approach is easy to use.

4.5.3 Language experience approach (LEA)

Two respondents indicated that they use this method and they have outlined procedures for using the approach as follows:

Step 1: introduce a stimulus to the learners e.g. a Poster familiar to the child.

Step 2: Ask the learner to make a story about the stimuli. It is helpful to ask for repetitions and clarity as the child is telling or signing the story.

Step 3: As the child repeatedly is making the story, record it.

Step 4: Read back the story to the learner until the learner can sign or read it carefully very well.

It is important that sentences or phrases that prove to be difficult for the learner(s) are noted. These words could be later broken down into words, syllables and phonemics for example. One respondent has cited an example that in a sentence "*I can see a monkey on a tree,*" the key word monkey can be broken into /m/ /æ/ /n/ /k/ /ea/. The respondent stresses that the learner should be taught the words, then the syllables, followed by the individual sounds. Thereafter the learner is encouraged to use the sounds learnt to come up with new words with similar sounds.

Just like the 'Matching' approach the language experiences approach described here is described similarly by LaSasso (1983).

4.5.3.1 How easy/difficult is it to use LEA approach

The 2 (9%) respondents who indicated that they often use the language experience approach have indicated that the approach is very difficult to use. It is possible that the 2 respondents chose the approach only because it was mentioned.

4.6 Involvement of other professionals in the remediation of the hearing impaired learners with reading difficulties.

This section looked at the respondents' views on:

- ❖ Specialists available within the school
- ❖ Specialists often contacted from outside the school
- ❖ Specialists who should be based within the school full time

Table 4.6.1: Specialists available within the school

Specialist	Audiologist	Speech and language specialist	Reading specialist	Resource specialist	None	Total
Frequency	0	0	0	0	21	21
Percentage	0	0	0	0	100	100

The results from table 4.6.1 indicate that there are no specialists based in the two schools that took part in this study. This should be a worrying situation because like Kavale (1988:203-215) suggests there should be specialists nearby such that if there is need for emergency action can be done immediately and swiftly. He further alludes to the fact that the language and speech pathologist should always be part of any school.

Table 4.6.2: Specialists often contacted from outside school

Specialist	Audiologist	Speech and language specialist	Reading specialist	Resource specialist	None	Total
Frequency	17	4	0	0	0	21
Percentage	81	19	0	0	0	100

Table 4.6.2 also indicates that from outside school, the teachers often contact specialists. 17(81%) have indicated that they often contact the Audiologist. Kavale (1988:103:111) indicates that audiologist is always an important specialist who should be part of any remedial program. The audiologist is very critical as the learner's hearing and hearing aids/equipments should be checked daily and maintained if necessary. 4(19%) of the respondents indicated that they often contact the speech and language pathologist (see the above paragraph for discussion on language and speech pathologist).

It is interesting to read from the table that no respondent indicated that he/she ever contact reading specialist. How would the approaches help if the reading specialist's input is never invited? It would be very helpful if the respondents could start involving reading specialists in the remediation programs for learners with hearing-impairment.

Table 4.6.3: Specialists who should be based in the school full time

Specialist	Audiologist	Speech and language specialist	Reading specialist	Resource specialist	Other	Total
Frequency	2	4	4	0	11	21
Percentage	9	19	19	0	53	100

For the column 'other', the respondents specified other to be all specialists listed in the question.

Table 4.6.3 indicates that 4 (19%) of the respondents suggest that reading specialists should be based in schools. In view of the difficulties hearing-impaired learners face when attempting reading texts, the researcher finds this suggestion disconcerting, when considering the findings in table 4.6.2 that reading specialists outside school are not contacted.

4.7 Findings in the light of research questions and literature review

4.7.1 Research question 1:

Are there any remedial approaches for reading targeting hearing-impaired learners with reading difficulties?

The results of this study indicate that there are remedial approaches for reading targeting hearing-impaired learners with reading difficulties. Table 4.4.4 indicate that:

- ❖ 1 teacher out of 21 use segmenting;
- ❖ 1 teacher out of 21 use cloze exercises;
- ❖ 4 out of 21 teachers use cued speech;
- ❖ 13 out of 21 teachers use matching and;
- ❖ 2 out of 21 teachers use language experience.

These approaches are also used in the UK and the US and they have been found to be effective and efficient (Schleper, 2004; Webster & Webster, 1997; LaSasso & Metzger, 1988). This in a way indicates that teachers here in Botswana use the same approaches as those in the UK and US. Of course there will be variations as the approaches largely depend on the availability of resources and, most importantly, the learners' needs and life experiences. The approaches in the UK and US may be based on cultures different from Botswana learners' culture and experiences. Therefore, it is advisable that teachers should always modify the activities they use when engaging the approaches.

For example, teachers in Botswana could use video cameras instead of Polaroid cameras when documenting experiences through language experience approach. Still, in the language experience approach, for example, the teachers could concentrate on growing vegetables than on growing flowers because though growing flowers would be relevant to Botswana context, it is not common to schools in Botswana. The Primary school curriculum puts more emphasis on growing of field crops and vegetables so as to equip learners with relevant skills that they could use even after school.

4.7.2 Research question 2:

How are the approaches used?

Chapter 2 of this study has fully described procedures and guidelines of how to use the approaches (cf. pars. 2.7.1, 2.7.2 & 2.7.3). Paragraph 4.6 has further elaborated on how the ‘matching and language experience approaches are used from the point of view of the respondents.

Again, the way the procedures of using these approaches has been described by the respondents tallies very well with procedures explained in the literature review (cf. pars. 2.7.1, 2.7.2 & 2.7.3).

4.7.3 Research question 3:

Are there any professionals (other than teachers) involved in the remediation of hearing-impaired learners with reading difficulties?

The research findings indicate that teachers often contact audiologists as well as speech and language therapists from outside school (cf. Table 4.4.8). This is commendable because remediation programs for all learners require all professionals to collaborate. The collaboration should not be a dyad in which only the teacher and the parent are involved, but a triad where even specialists are involved. Kavale (1988) recommends that

classroom teachers should work with a team of specialists if remediation programs for learners with special educational needs have to be efficient and effective. In fact Kavale strongly recommends that there should be multi-disciplinary teams if remediation programs have to work effectively.

The greatest concern about the findings is that there is no specialist based in the schools. In addition, table 4.6.2 indicates that even reading specialists from outside the school are never consulted. This makes the implementation of remediation programs difficult.

Chapter 5

Summary, conclusions and recommendations

5.1 Introduction

The purpose of this chapter is to draw conclusions on the research findings and then make recommendation relevant to the research topic. The chapter will first reiterate the purpose of the study for focus. Secondly the chapter will discuss conclusions of the research finding and then the recommendations.

5.2 Purpose of the study

The purpose of the study was four fold: Firstly, the study intended to find out the remedial approaches teachers used to remedy reading difficulties experienced by hearing-impaired children.

Secondly, the study intended to find out how the methods were used (if any) and thirdly, to find out if there are any other professionals involved in the remediation of hearing-impaired children with reading difficulties (cf.1.4).

Lastly, the study made possible recommendations guided by the research questions and results.

5.3 Literature review. (c.f. par. 2)

In summary, the review was done on the following areas:

- ❖ The nature of reading difficulties in hearing-impaired learners.
- ❖ Reasons why many hearing-impaired learners tend to have difficulties in reading English texts.

- ❖ Areas proving to be difficult for hearing-impaired learners while reading English texts.
- ❖ Remedial approaches targeting hearing-impaired learners with reading difficulties and how they are applied.
- ❖ Involvements of other professionals in the remediation programs of hearing-impaired learners with reading difficulties.

5.3.1 Remedial approaches targeting hearing-impaired learners with reading difficulties

Remedial approaches discussed in this study include: cued speech, language experience approach and directed activities related to texts (DARTs).

5.3.1.1 Cued speech

Teachers of the hearing-impaired learners in the UK and US have resorted to using cued speech to remedy the learner's reading problems (Cued Speech Association UK, 2003:1-4).

According to the association, the optimum age to start using cued speech is with children under 3 years. Such children can learn to understand spoken language in much the same way as hearing children but through vision rather than listening. Early and consistent use in the home is more likely to eliminate the delayed and incomplete language, which is common amongst other hearing-impaired children of hearing parents.

Cued speech can also be used successfully with older children, but they have slightly different needs because, they already have some language delay and the optimum age for learning language has passed (LaSasso & Metzger, 1998:265-289). Early and consistent use in the home is more likely to eliminate the delayed and incomplete language, which is common amongst other hearing-impaired children of hearing parents.

Cued speech can also be used successfully with older children, but they have slightly different needs because; they already have some language delay and the optimum age for learning language has passed (LaSasso & Metzger, 1998:265-289).

5.3.1.2 Language experience approach

One other remedial approach to teaching hearing-impaired learners reading skills (also used in the UK and the US) is the language experience approach often referred to as LEA (Schelper, 2001:1).

The language experience approach is considered to be an effective strategy for developing reading skills in hearing-impaired learners (Schleper, 2002: 127-129). The most important strength of the approach is that teachers can be certain that the content is within the reader's experience and conceptual level (Helms & Schleper, 2000: 56). Nelson (1999: 213) contends that hearing-impaired reader familiarity with the content and language used in print material facilitates comprehension (cf. par. 2.7.2.4).

5.3.1.3 Directed activities related texts

Across the schools and services working with hearing impaired learners in the UK the use of Directed Activities Related to Texts (DARTs) is very common in remedial teaching for reading difficulties (Swanwick, 1993:4-9; Swisher, 1989:239-257).

Directed Activities Related to Texts (DARTS) were devised as part of a Schools Council Project for the remediation of learners with reading difficulties. (Webster & Webster, 1997:290).

Directed Activities Related to Texts are sets of strategies for encouraging learners to be active enquires of text, focused on effective question-raising, guesswork and searching for meaning. Rather than modifying readability levels of text, the idea is to help learners cope with material, which may stretch reading skill, but can still be a source of useful

information (Gregory et al. 1998: 116; Webster & Webster, 1997: 290). In this approach learners are taught how to make sense of what they read and how to relate meaning to what they know already, going beyond reading as mere decoding (Swanwick, 1993: 4-9).

5.3.2 Involvement of other professionals in the remediation of hearing-impaired learners with reading difficulties

Any remediation program for learners with disabilities should be done with input from different professionals (Davies in Kavale 1988:363). Examples of professionals given by Davies include, inter-alia: Audiologist, Reading specialist and Speech-Language Pathologist. The strong factor of involving other professionals is the holistic approach. Obviously, the whole is greater than the sum of its parts (Epstein, 1990:266-229 & Davies in Kavale, 1988:363).

The Speech-Language Pathologist is seen by researchers as an important professional who should always be involved in remediation programs of learners with reading difficulties (Frattali, 1998:1-27; Enderby, 1992:62-64; & Davies in Kavale, 1988:363).

5.4 Research design and procedure

A Literature on reading difficulties experienced by hearing-impaired learners was reviewed.

The study was carried out through the use of a descriptive survey method. The method was chosen because it fitted very well with the purpose of the study. The study looked at reports on the current practice regarding remedial approaches and, descriptive surveys are often the best in collecting such information (Ruane, 2005: 65-69).

A questionnaire was used as a data collection tool (cf.par. 1.7.2). The questionnaire was used because descriptive surveys are research methods in which data is collected through oral and or written questioning (Giles, 2002: 141).

Giles further explains that oral questioning is known as interviewing while written questioning is accomplished through the use of questionnaires (cf. par. 3.4).

The questionnaire was chosen over interviews because it has: less of the reactive effect that can be created by the presence of the researcher, less bias that can be created by the researcher who may have a vested interest in the results, and a high possibility of making the results both confidential and anonymous such that even the researcher does not know the participants by their responses (Johnson, 2002: 65).

Most importantly, questionnaires often create an atmosphere of trust and therefore lead to more truthful responses. (Gordard, 2003:93).

5.5 Research results

In summary, the respondents' views shown by table 4.4.4 indicate that: 1 teacher use the segmenting approach; 1 teacher use the cloze exercises approach; 4 teachers use the cued speech approach; 13 teachers use the matching approach and 2 teachers use the language experience approach.

The majority of the respondents (62%) indicated that they often use matching to remedy reading difficulties of the hearing-impaired learners.

However, due to the fact that the researcher did not do any interviews or observations to validate the questionnaire responses, it is very difficult to make judgments about whether the respondents do apply the approaches and how effectively. All that can be said is that the respondents seemed to know what the approaches were.

There is an indication from the results that other professionals are involved in remediation programs of hearing-impaired learners with reading difficulties. The most involved specialist is the Audiologist, who is said to be a good resource in checking and

monitoring the learner's hearing status and aids (Davies in Kavale, 1988:363). The results also reveal that there are no specialists stationed within the schools. (cf. par. 4.5).

Again all these are based on what the respondents' answers to the questionnaire and it cannot be concluded for certain that these professionals are indeed involved.

This study is concerned about remedial approaches for hearing-impaired learners with reading difficulties. It is therefore very important to highlight the findings from table 4.6.2 which, indicates that reading specialists are never consulted.

5.6 Conclusions

Looking at the research results, it can be concluded that:

There exist remedial approaches that teachers of hearing-impaired learners with difficulties seem to know. The two significantly used approaches are matching and cued speech approaches. The matching approach is relevant to learning situations in Botswana primary school classrooms as it involves activities within the context of Botswana culture and experiences. The use of the language experience approach is problematic because only 2 respondents indicated that they use it and that it is difficult. It is not going to easy to suggest that the approach could be used. The fact that it is difficult to use could imply that teachers do not know how to use it or that it is not relevant to learning situations in Botswana.

The teachers seem to be aware of how the approaches are used and there are indications that they use the approaches as they are used in the UK and US. To use the approaches as they are used in the UK and US could be problematic in the sense that they may not be relevant with the learners' culture and experiences. Therefore teachers would have to modify the activities they engage the learners in when using these approaches.

There are two specialists who are often contacted by the schools as support resource and these are the Audiologist and Speech and Language Pathologist. None of these is stationed within the schools. It is interesting that teachers in their attempt to develop hearing-impaired learners' reading skills, they never involve reading specialists. It is advisable that teachers start to involve the reading specialists in their attempt to to remediate learners with reading difficulties.

5.7 Recommendations

The recommendations are largely informed by the research questions and results.

In regard to remedial approaches targeting hearing-impaired learners with reading difficulties, this study recommends that teachers use the matching approach, as it seems to be easy to use and effective according to the 13 respondents who indicated that they use it.

To make sure that all teachers use the approach, the Ministry of Education should stage yearly regional workshop to sensitize all primary school teachers of the hearing-impaired learners about the approach.

The study further recommends that teachers should always evaluate the activities of the matching approach before they use them to ensure that they suit the culture and experiences of learners. In a case where the activities are found to be non contextual, teachers should modify the activities so that they meet the learners' needs.

In regard to the involvement of reading specialists in remedial programs of the hearing-impaired learners with reading difficulties, the study makes the following two recommendations:

The Ministry of Education should employ at least one reading specialist on permanent terms for each school with hearing-impaired learners.

Teachers of the hearing-impaired learners should consult with the reading specialists regarding the learners reading difficulties. The consultations should be done on weekly intervals.

There is a strong need for each school to have its own Speech and Language Pathologist. Thus, the Ministry of Education should employ at least one Speech and Language Pathologist for each school with hearing-impaired learners. The employment should be on permanent and terms.

5.8. Limitations of the study

The findings of this study are to remain tentative and preferably be used to initiate the necessary debate about remedial approaches targeting hearing-impaired learners with reading difficulties. This is so because the validity of the findings is debatable due to the small sample and use of only one method of primary data collection. It is the researcher's view that perhaps he should have done some interviews and or observations to validate the responses to the questionnaire (cf. par. 3.4.2).

Furthermore, the researcher wants to acknowledge the fact that due to him being a beginning researcher, it was not easy to set good questionnaire items and this could have muddled the focus of the study.

5.9. Possible Future research.

There is a need to do further research and investigate the possibility of including Setswana into the curriculum content of primary school learners with hearing-impairments.

References

Baddley, A. D. (1986). **Working Memory**. Oxford: Oxford University Press.

Bamford, J. & Saunders, E. (1991). **Hearing-impairment, Auditory Perception and Language Disability** (2nd ed.). London: Whurr.

Beard, R. (1987). **Developing Reading**. London: Hodder & Stoughton.

Beech, J. R. (1985). **Learning to Read: A Cognitive Approach to Reading and Poor Reading**. London: Croom Helm.

Bell, J. (2003). **Doing your own Research Project**. Philadelphia: Open University Press.

Berke, J. (2005). **Deaf Children with Learning Disabilities**.
<http://www.deafness.about.com/cs/multipledisab/a/learningdisab.htm>. (19-11-2006)

Bigala, J. C. B., Seboni, N. M. & Monau, R. M. (1993). **The Learning Needs of Botswana Children in Standard One and Two**. Gaborone: UNICEF.

Blachman, B. A. (1991). "Early Intervention for Children's Reading Problems: Clinical Applications of the research in Phonological Awareness. *Topics in Language Disorders, Vol: 12, n: 1, pp. 51-65*.

Blaxter, L., Hughes, C. & Tight, M. (1996). **How to Research**. Buckingham: Open University Press.

British Council. (2005). **UK Education Policy: An Overview of Current Issues**.
<http://www.britishcouncil.org/it/usa-educatio-policy-uk-overview.htm>. (12-12-2006).

Bus, A. G., & van Ijzendoorn, M. H. (1999). **Phonological Awareness and Early Reading: A Meta-analysis of Experimental Training Studies.** *Journal of Education Psychology*, *91*, 403-414.

Carolyn E. and Frieda, H. (1986). **“The Language-Experience Approach to Facilitating Reading and Writing for Hearing-Impaired Students.”** *American Annals of the Deaf*. Vol: 131, No: 4, pp. 271-274.

Catherine, E., Snow, M., Burns, S., & Griffin, P. (2005). **Preventing Reading Difficulties in Young Children - Part iii: Prevention and Intervention.** <http://www.nap.edu/readingroom/books/prdyc> (09-10-2005).

Cornett, R. O. & Daisy, M. E. (1992). **The Cued Speech Resource Book for Parents and Children** (1st ed.). Raleigh; NC: National Cued Speech Association.

Cued Speech Association UK. (2003). **Cued Speech Use with Deaf Children: Information Sheet 3.** <http://www.cuedspeech.co.uk>. (13-10-2005).

Culatta, R. A., Tompkins, J. R. & Werts, M. G. (2003). **Fundamentals of Special Education: What every Teacher Must Know** (2nd ed). New Jersey: Merrill Prentice-Hall.

Cornett, R. O. & Daisey, M. E. (1992). **The Cued Speech Resource Book for Parents and Children** (1st ed). Raleigh: NC: National Cued Speech Association.

de Villiers, P. & Pomerantz, S. (1992). **Hearing-Impaired Students Learning New Words from Written Context.** *Applied psycholinguistics*, *133*, 409 – 439.

de Vos, A. S., Delport, C. S. L., Fouche, C. B. & Strydom, H. (2005). **Research at Grassroots: For the Social Sciences and Human Services.** Pretoria: Sheik.

de Weight, W. (1998). **Speech Perception and Frequency Discrimination for Good and Poor Readers.** *Applied Psycholinguistics*, 9, 163-181.

Dixon, C. (1990). **Language Experience Approach to Reading** (And Writing) LEA for ESL. Prentice Hall.

Enderby, P. (1992). **Outcome Measures in Speech Therapy:** Impairment, Disability, Handicap and Distress. *Health Trends Vol: 24, No: 2, pp. 62-64.*

Epstein, A. (1990). **The Outcomes Movement:** Will it get us where we want to go? *New England Journal of Medicine Vol: 323, No: 4, pp. 266-269.*

Ewoldt, C & Yurkowski, P. (1986). **“A Case for the Semantic Processing of the Deaf Reader”.** *American Annals of the Deaf, Vol: 27, No: 1, pp. 243-247.*

Finnegan, M. (1992). Bilingual-bicultural Education. *The Endeavor*, 3, 1-8.

Fitzgerald, D. (2005). **Detecting Children’s Learning Disabilities.**
<http://www.disabled.world.com/artman/publish/learning-disability.shtml> (09-10-2005)

Francisco, S. (1997). **Specific Language Impairment Due to Inability to Process Sound Normally.** <http://www.pslgroup.com/dg/25b76.htm>. (14-12-2006).

Fratalli C. M. (1998). **Measuring Outcomes in Speech-Language Pathology.** New York, Thelme.

Gerber, S. E (2001). **The Handbook of Genetic Communication Disorders.** New York, Academic Press.

Giles, D. C. (2002). **Advanced Research Methods in Psychology.** East Sussex: Routledge.

Girgin, U. (2002). Do Phonetic Languages Help Hearing-Impaired Children with Reading Comprehension? http://www.isec2000.org.uk/absrracts/papers_g/girgin_1.htm. (27/01/2007).

Gonzalez, O., del Rosario, M., Garcia Espinel, A. I., & Rosquete, R. G. (2002). **Remedial Intervention for Children with reading Disabilities: Speech Perception: An Effective Component in Phonological Training?** *Journal of Learning Disabilities, Vol: 35, No: 4 – 6, pp. 334 – 342.*

Gregory, S., Kight, P., McCracken W., Powers, S., & Watson, L. (1998). **Issues in Deaf Education**. London: David Fulton.

Government of Botswana. (2005). Curriculum Development and evaluation. Gaborone: Ministry of Education.

Government of Botswana. (1994). **The Revised National Policy on education:** Government White paper No. 2 of 1994. Gaborone: Government Printer.

Government of Botswana. (1977). **Education Act**; Republic of Botswana. Gaborone: Government Printer.

Grushkin, D. A. (1998). “**Why Shouldn’t Sam Read? Toward a New Paradigm for Literacy and the Deaf**”. *Journal of Deaf Studies and Deaf Education, Vol: 3, No: 3, pp. 179 – 204.*

Harris, M. (1992). **Language Experience and Early Language Development from Input to Uptake**. London: Lea.

Harris, M. & Beech, J. (1998). **Implicit Phonological Awareness and Early Reading Development in Prelingually Deaf Children.** *Deaf Studies & Deaf Education, Vol: 3, No: 33, pp. 205 –216.*

Haslman, S. A. & McGarty, (2003). **Research Methods and Statistics in psychology.** London: Sage.

Heiman, G. W. (2001). **Understanding Research Methods and Statistics in Psychology.** New York: Houghton Mifflin.

Helms, L. L. & Schleper, D. R. (2000). **“Language Experience: Fun Projects After School, Including Writing.”** *Odyssey, 1(13), 13-16.*

Humpries, T., Padden, C. & O’Rourke, T. J. (1994). **A Basic Course in American Sign Language** (2nd ed.). Silver Spring: T.J. Publishers.

Jerkins, R. & Bowen, L. (1994). **Facilitating Development of Preliterate Children’s Phonological Awareness.** *Topics in Language Disorders, Vol: 14, No: 2, pp. 26 – 39.*

Jorm, A. F. (1983). **The Psychology of Reading and Spelling Disabilities.** London: Routledge & Klegan Paul.

Kaplan, H. et al. (2002). **Design of Effective Media, Materials, and technology for Deaf and Hard of hearing Students.** idea.uoregon.edu/-ncite/documents/techrep/techol.htm. (16-10-2005).

Kavale, K. N. (1987). **Hand Book of Learning Disabilities.** Boston: College Hill-press.

Kelley, L. (1995). **Processing of Bottom-up and Top-down by skilled and Average Readers and Implication for Whole Language Instruction.** *Exceptional Children, Vol: 61, No: 4, pp. 318 – 384.*

Kelley, L. (1996). **The Interaction of Syntactic Competence and Vocabulary During Reading by the Deaf Students.** *Journal of Deaf studies and Deaf Education, Vol: 1, No: 1, pp. 75 – 90.*

King, C. M. & Quigley, P. (1985). *Reading and Deafness.* London and Philadelphia: Taylor-Francis.

Kirk, S. A., Gallagher J. J. & Nicholus, J. (2003). **Educating Exceptional Children** (10th ed.). New York: Houghton Mifflin.

Kisanji, J. (2003). **Situational analysis for the Adaptation and Modification of the basic and Senior Secondary Curriculum for the Hearing Impaired Learners** (Draft Report). CDED: MoE.

LaSasso, C. & Davey, B. (1987). **The relationship Between Lexical Knowledge and Reading Comprehension for Prilingually, Profoundly Hearing-impaired Students.** *Volta Review, 89, 211, 220.*

LaSasso, C. J. & Metzger, M. A. (1998). **“An Alternate Route for Preparing Deaf Children for BiBi Programs: The Home Language as L1 and Cued Speech for Conveying traditionally-Spoken Languages”.** *Journal of Deaf Studies and Deaf Education, Vol: 3, No: 4, pp. 265 – 289.*

LaSasso, C. J. & Swaiko, N. (1983). **Considerations in Selecting and Using Commercially Prepared Informal Reading Inventories with Deaf Students.** *American Annals of the Deaf, Vol: 128, No: 4, pp. 449-452.*

Laybaert, J. & Algeria, J. (1990). **“Cued Speech and the Acquisition of Reading by Deaf Childern”.** *The Cued Speech Journal, vol. 4, no. 1, pp. 2 – 38.*

Laybaert, J. & Charliar, B. (1996). **“Visual Speech in the Head: The Effect of Cued Speech in Rhyming, Remembering, and Spelling”**. *Journal of Deaf Studies and Deaf Education*, Vo: 1, No: 4, pp. 234 – 248.

Lehtonen, R. & Pahkinen, E. (2004). **Practical Methods for Design and Analysis of Complex Surveys (2nd ed.)**. Chichester: John Wiley & Sons Ltd.

Lewis, S. (1986). “The reading Achievement of a Group of Severely and Profoundly Hearing-Impaired School-Leavers Educated Within a Natural Aural Approach”. *Teachers of the deaf*, Vol: 20, No: 1, pp. 1-6.

Lichtenstein, E. H. (1998). **“The Relationships Between reading Process and English Skills of Deaf College Students”**. *Journal of Deaf Studies and Deaf Education*, Vol: 3, N: 2, pp. 80 – 134.

Lindsay, P. H., Shapiro, A. & Musselman, C. (1988). **Predicting Language Development in Deaf Children Using Subscales of the Leiter International Performance Scale**: *Canadian Journal of Psychology*, Vol: 42, No: 2 pp. 144 – 162.

Ludlow, C. & Cooper, J. A. (1983). **Genetic Aspects of Speech and Language Disorders**. New York, Academic Press.

Lyon, G. R. (1998). **“Why Reading is not a Natural Process”**. *Educational Leadership*, Vo: 55, No: 6 pp. 14 – 19.

Loeterman, M., Paul, P. V. & Donahue, S. (2002). **Reading and Deaf Children**. [http://www.readingonline.org/art-index.asp? HERF=loeterman/index.html](http://www.readingonline.org/art-index.asp?HERF=loeterman/index.html). (09-10-2005).

McAnilly, P. L., Rose, S. & Quigley, S. P. (1994). **Language Learning Practices with Deaf Children**. Austin. Texas: Pro-Ed.

Mahshie, S. M. (1995). **Educating Deaf Children Bilingually**. Washington DC: Gallaudet University press.

Marschark, M. & Harris, M. (1996). **Success and Failure in Learning to Reading: The Special case of Deaf Children**. Mahwah, NJ: Erlbaum.

Matale, J. (2003b). **The Development of Deaf Education in Botswana from 1979 Todate**. Paper Presented at the 14th World Congress of the World Federation of the Deaf, Montreal, Quebec, Canada, 18-26 July 2003.

Mitchell, D. C (1982). **The Process of Reading**. Chichester: John Wiley.

Maxwell, M. M. (1986). "Beginning and Deaf Children. *American Annals of the Deaf*, Vol: 27, No: 3, pp. 14-20.

Mouton, E. B. J. (2001). **The Practice of Social Research**. Oxford: Oxford University press.

Mousttafa, M. (1997). **Beyond Traditional Phonics: Research Discoveries and Reading Instruction**. Portsmouth, NH: Heinmann.

Musselman, C. (2000). **How Do Children Who Can't Hear Learn to Read an Alphabetical Script?** A Review of the Literature on Reading and deafness. *Journal of Deaf Studies & Deaf Education*, 5, 9 – 31.

Nelson, O. G. and Linek W. M. (1999). **Practical Classroom Applications of Language Experience: Looking Back, Look Forward**. Boston, MA: Allyn & Bacon.

Nougaret, A., Scruggs, T. E. & Mastropieri, M. A. (2005). **Does Teacher Education Produce Better Special Education Teachers?** *Exceptional Children*, Vo: 1, No: 3, pp. 127 – 229.

Oney, B. & Goldman, S. R. (1984). "Decoding and Comprehension Skills in Turkish and English: Effects of the Regularity of Grapheme-phoneme Correspondences". *Volta Review*, Vol: 76, No: 4, pp. 557-568.

Paul, P. (2001). **Language and Deafness** (3rd ed.) San Diego: Singular.

Paul, P. (1998). Literacy and Deafness: **The Development of Reading, Writing and Literate Thought**. *Volta Review*, 99, 73-78.

Paul, P. & Quigley, S. (1994). **Language and Deafness**. California: Singular Publishing Group.

Pike, K. (1997). **New Connections: An Integrated Approach to Literacy**. (2nd ed.) New York: Longman.

Pudlas, K. A. (1987). **Sentence Reception Abilities of Hearing Impaired Students Across Five Communication Modes**. *American Annals of the Deaf*, Vol: 132, No: 1, pp. 232-236.

Quigley, S., McAnally, P. & Rose, S. (2002). **Syntactic Structures in the Language of the Deaf Children** <http://www.edrs.com/webstore/detail.CMF?> (09-10-2005).

Rack, J. P., Snowling, M. J. & Olson, R. K. (1992). The Nonword Reading Deficit in Developmental Dyslexia: A Review. *Reading Research Quarterly*, Vol: 27, No: 1, pp. 29 – 53.

Republic of Botswana (2002a). Curriculum Blue Print: The Primary Education Programme. Gaborone: Curriculum Evaluation and Evaluation.

Rose, D. (2000). **Universal design for Learning**. *Journal of Special Education Technology*, Vo: 15, No: 1, pp. 67 – 70.

Ruane, J. (2005). **How to Succeed in Your Masters and Doctoral Studies: A South African Guide and Resource Book**. Pretoria: Van Schaik.

Ruane, J. (2001). **Essentials of Research Methods**. Australia: Blackwell.

Sarantakos, S, (1988). **Social Research** (2nd ed.). New York: Palgrave.

Schirmer Language and Literacy Development in Children Who are Deaf. New York: Macmillan Publishing co.

Schleper, D. (2004). **Leading from Behind: Language Experience in Action**. Ullaudet University, Laurent Clerc National Deaf Education Center.
<http://clerccenter.gallaudet.edu/Literacy/programs/language.html> (23-10-2003).

Schleper, D. (2002). **Leading from Behind: Language Experience in Action**. Washington, DC: Gallaudet University, Laurent Clerc National Deaf Education Center.

Schrimer, B. R. (1994). **Language and Literacy Development in Children who are Deaf**. Merrill: Macmillan.

Scott, D. & Usher, R. (1996). **Understanding Educational Research**. London: Routledge.

Silverman, D. (2000). **Doing Qualitative Research: A Practical Hand Book**. London: Sage.

Sinder, B. D. (ed.) (1994). **Post Milan, ASL and English literacy: Issues, Trends, and Research**. Washington, DC: Gallaudet University Press.

Snow, C. E., Perlmann, R. & Nathan, D. (1997). **Why Routines are Different: Toward a Multi-Factor Model of the Relationship Between Input and Language Acquisition**. In K.

E. and A. van Kleeck (eds.) *Children's Language*, Vol. 6. Hove and London: Lawrence Erlbaum.

Stakes, R. and Hornby, G. (2000). **Meeting Special Needs in Mainstream Schools: A Practical Guide for Teachers** (2nd ed). London: David Fulton.

Strassman, B. (1997). **Metacognition and Reading in Children who are Deaf: A Review of the Research.** *Journal of Deaf Studies and Deaf Education*, Vol: 2, N: 3, pp. 140 – 149.

Strong, M. R. (Ed.). (1998). **Language Learning and Deafness.** New York: Cambridge University Press.

Swank, L. K. (1994). **“Phonological Coding abilities: Identification of Impairments Related to Phonologically Based Reading”** *Topics in Language Disorders*, Vol: 14, No: 2, pp. 56 – 71.

Swanwick, R. A. (1998). **Learning English as a Second Language: Opportunities and Challenges for sign Bilingual Deaf Children.** *The Journal of the British Association of Teachers of the Deaf*, Vol. 22, No. 2, pp. 3-9.

Swanwick, R. A. (1993). **The use of DARTS to Develop Deaf Children's Literacy Skills Within a Bilingual Context.** *Deafness and Development*, Vol: 23, No: 4, pp. 4-15.

Swisher, V. (1989). **The Language Learning Situation of Deaf Students.** *Tesol Quarterly*, Vol: 23, No: 2, pp. 239-257.

Torgesen, T. K., Alexander, A. W., Wagner, R. K., Rashotte, C. A., Voeller, K., Conway, T. & Rose, E. (2001). **Intensive Remedial Instruction for Children with severe Reading difficulties: Immediate and Long-term Outcomes from Two Instructional Approaches.** *Journal of Learning Disabilities*, Vol: 34, No: 1 – 3, pp. 33 – 55.

Wandel, J. (1989). **"Using of Internal Speech by Hearing Hearing-impaired Students in Oral, Total Communication and Cued Speech programs"** New York: Colombia University.

Webster, V. & Webster, A. (1997). **Raising Achievement in Hearing-Impaired Pupils: Supporting Teaching and Learning under the New Code of Practice.** Bristol: Avec Designs.

Webster, A. (1988). **Deafness and Learning to Read 1: Theoretical and Research Issues.** *Journal of British Association Teacher of the Deaf, Vol: 2, No: 4, pp. 77 – 79.*

Webster, A. (1996). **Deafness, Development and Literacy.** London: Menthuem.

Webster, A. (1996a). **Deafness, Development and Literacy.** London: Methuen.

Westwood, P. (2003). **Commonsense Methods for Children with Special Needs: Strategies for the Regular Classroom (4th ed.)** London: Routledge.

Wood, D., Griffiths, A. J. & Webster, A. (1992). Reading Retardation or Linguistic deficit II: Test – Answer Strategies in Hearing and Hearing Impaired School Children". *Journal of Research in Reading, Vol: 4, No: 2, pp. 148-154.*

Wolkomir, R. (1992). American Sign Language: It's Mot Mouth Stuff – It's Brain Stuff. *Smithsonian, Vol: 3, No: 4, pp 30-41.*

Wray, D. & Medwell, J. (1991). **Literacy and Language in the Early Years.** London: Routledge.

Yoshinoaga-Itano, C., Synder, L., & Mayberry, R. (1996). **"How Deaf and Normally Hearing Children Convey Meaning Within and Between Written sentences"** *The Volta Review, Vol: 98, no: 1, pp. 9-38.*

Zindi, F. (1997). **Special education in Africa**. Mogoditshane: Tassals.

Appendix A: Questionnaire for teachers

Topic: **Investigating remedial approaches for hearing-impaired learners with reading difficulties**

Definition: The term ‘remedial approaches’ is used in this study to refer to methods of removing barriers hindering successful learning of learners with reading difficulties.

Purpose of the questionnaire

The purpose of this questionnaire is to find out if there are remedial approaches for children with hearing impairments.

Particular attention is given to reading difficulties.

This information will be treated with high confidentiality and privacy.

Instructions to participants

Some questions have alternative responses. Please choose one response by making a tick on the line provided in front of the responses.

Other questions are open-ended questions. Please write your responses on the spaces provided for each question.

Section A: Biographics

(Kindly tick one to indicate your choice).

1. Gender: Male _____
Female _____

2. Age:
20 – 25 years _____
26 – 30 years _____
31 – 35 years _____
36 – 40 years _____
41+ years _____

3. Teaching qualification:

Certificate in primary education _____
Diploma in Primary education _____
Bachelors Degree in primary education _____
Masters Degree in primary education _____
Other (specify) _____

4) Teaching experience:

Less than 1 year _____
1 – 5 years _____
6 – 10 years _____
11 – 15 years _____
16 – 20 years _____
21 years + _____

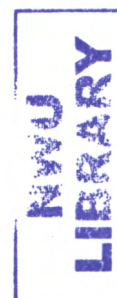
Section B: Remedial approaches for reading targeting the Hearing-impaired learners

5. Which of the following languages are the learners able to read by the time they start Standard 1? (Please tick one)

Setswana _____
English _____
Sign Language _____
Afrikaans _____
None _____

6. Which of the following languages are the hearing-impaired learners able to read by the time they finish Standard 7?

Setswana _____
English _____
Sign Language _____
Afrikaans _____
Other (Please specify) _____



7. Which of the following components of the English language often give the learners difficulties when reading?

Phonemic awareness _____
Vocabulary _____
Syntax _____
Semantics _____
Other (Please specify) _____

8. Which of the following remedial teaching approaches for reading do you often use to develop the learners' reading skills? (Please tick one)

Matching _____

Segmenting _____

Cloze exercises _____

Cued speech _____

Other (please specify) _____

Section C: How are the remedial approaches used

- 9) Explain how the approach you chose in question 9 is used

- 10) Do you think the method is:

Very easy to use _____

Easy to use _____

Not easy to use _____

Very difficult to use _____

- 11) Do you think the learners?:

Learn to read easily when using the method _____

Learning reading satisfactorily when using the method _____

Do not learn to read easily when using the method _____

Section D: Involvement of other professionals in the remediation of hearing-impaired learners with reading difficulties

12) Who, among the following specialists is available within the school?

Audiologist _____
Speech and Language Pathologist _____
Reading Specialist _____
Genetic Specialist _____
Other (please specify) _____

13) Indicate the specialist you often contact outside the school by selecting one specialist from the list below:

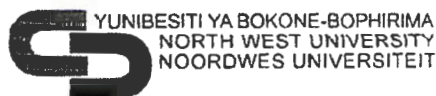
Audiologist _____
Speech and Language Pathologist _____
Reading Specialist _____
Genetic Specialist _____
Other, please specify, _____

14) Who, among the following specialists should be based within the school?

Reading specialist _____
Speech therapist _____
Resource specialist _____
Audiologist _____
Other (Please specify) _____

Please write down an explanation for your choice.

Appendix B: A letter to schools



YUNIBESITHI YA BOKONE-BOPHIRIMA
NORTH WEST UNIVERSITY
NOORDWES UNIVERSITEIT

DEPARTMENT OF FOUNDATIONS OF EDUCATION

Private Bag X2046
MMABATHO, 2735
Republic of South Africa
Tel +27 18 389 2550/2500/2191
Fax +27 18 389 2485/392 5775
Email: assant@uniwest.ac.za

Date : 1st DECEMBER, 2005

Your reference :

Our reference FOD/MED/RES.

TO WHOM IT MAY CONCERN

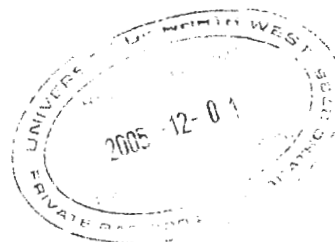
This is to certify that Mr Thusoetsile Michael Mafule, Student No 10772324 is registered with this university and pursuing an MEd degree programme in Special Education. As a requirement for the fulfilment of the academic programme, he is expected to conduct field-based research.

I would appreciate if you would accord the necessary assistance to enable him pursue the research project.

Yours Sincerely

THOMAS ASSAN

HOD, FOUNDATIONS OF EDUCATION



MAFIKENG CAMPUS
Private Bag X2046, Mmabatho, South Africa, 2735
Tel: (018)389-2111 • Fax: (018)392-5775
Internet: <http://www.nwu.ac.za>



Appendix C: Samples of the responses to section c question 11, "Explain how the approach you chose in question 9 is used".

Sample C1: Procedures for using the "Matching" approach

When using the matching approach I normally look for a text which is relevant to the learners environment. The text should have illustrations and or pictures. At the beginning I look for a text with simple words and I use a text with enhanced level of difficulty as the learners acquire new words/phrases. After securing the texts, I cut the words and or phrases and stick them on the small Manila cards. I also cut and stick on separate Manila cards illustrations/pictures to go with the ~~illustrations~~ words and or phrases. I then jumble the words together and phrases together with the illustrations and pictures. Thereafter I ask the learners to work in pairs and pick the words or phrases and look for a matching picture or illustration. I always reward learners who get the correct match and encourage those struggling to keep looking.

Sample C2: Procedures for using the "Cued speech" approach

At the beginning list and evaluate the needs of the learner. Then take time to envision yourself as the learner. Begin individual sounds such as /a/ and /ah/ and then go to short words like mama/ and /dada/. Follow this by practicing ~~from~~ going from cueing and saying "ah" to cueing and saying "mama". Let the learner practice in your cueing by letting him/her grasp each of your hands with his/her hands so you cue and say sounds and words.

Sample C1: Procedures for using the "Language experience" approach

Introduce a stimulus to the learner. E.g. a poster familiar to the learner. Ask the learner to make a story about the stimuli. Ask for repetitions and clarify as the child is telling the story. Record the story as the child is repeatedly telling it. Read the story back to the learner until he/she can sign or read it carefully very well.

Appendix D: A cover letter to schools requesting teachers to complete the questionnaire.

Molepolole College of Education
Private Bag008
Molepolole
Botswana

24, September 2005.

To:

Dear Sir/Madam

RE: Request to complete a questionnaire.

This letter serves to kindly request you to complete the questionnaire attached.

Please note that the questionnaire is used for a research study I am undertaking under the supervision of the North West University.

The study is part of my course work and your participation would go a long way into helping me complete the course.

The topic of research reads: Remedial approaches for hearing-impaired learners with reading difficulties. The study then, is geared towards finding out the approaches that you may be using in developing the hearing-impaired learners' skills of reading in particular reference to English language.

Please also note that I fully take the responsibility of making sure that the information you would give will be treated with privacy and confidentiality. Of course, the supervisor would have to read the information, as she will be marking the report.

Taking part in this study would probably help you take stock of the way you have been dealing with remediation programmes of these learners, an issue that might help you gain new ideas.

Lastly, I promise that I will make a copy of the final report available for you to read once the study is complete.

I hope you will consider taking part in this study.

Yours faithfully

Thusoetsile Michael Mafule
Lecturer in the Department of Special Education Needs
Molepolole College of Education