Guidelines to Curriculum Adaptations to support deaf learners in Inclusive Secondary Schools

by

ILIANA VIKTOROVNA SKREBNeva

submitted in accordance with the requirements

for the degree of

DOCTOR OF EDUCATION

in the subject

INCLUSIVE EDUCATION

at the

UNIVERSITY OF SOUTH AFRICA

SUPERVISOR: DR CS GOUS-KEMP

FEBRUARY 2015
DECLARATION

Student number: 3393-513-0

I declare that GUIDELINES TO CURRICULUM ADAPTATIONS TO SUPPORT DEAF LEARNERS IN INCLUSIVE SECONDARY SCHOOLS is my own work and that all the sources that I have used or quoted have been indicated and acknowledged by means of complete references.

IV Skrebneva

Date
ACKNOWLEDGEMENTS

I would like to express my most sincere gratitude to:

- My Heavenly Father;

- My supervisor, Dr Catharina Gous-Kemp, for her expert guidance, advice, encouragement, patience and valuable suggestions during every stage of the study;

- Dr Norma Nel for her support and words of wisdom through the long journey of my study at University of South Africa;

- Dr Jean Mitchell for excellent editing of this work;

- Mrs Magda Botha for her help with the final preparation of the thesis;

- Mr Hennie Gerber for analysing and presenting the research statistics;

- The principals of the schools at which the research was conducted;

- Educators who participated in this research for their support and assistance;

- The interview participants for their valuable comments and willingness to share their experiences with me;

- My parents for their dedication, support and belief in me to complete the research.
South Africa has recently made a significant move towards support for deaf learners in inclusive education settings. Educators in inclusive classrooms are considered primary resources for the development of the strengths and competencies of these learners. Successful inclusion of deaf learners often depends on the skills of classroom educators. Nevertheless, educators often have little or no knowledge regarding support for deaf learners in inclusive classrooms. The experiences of deaf learners were investigated in order to understand the unique needs of these learners. The aim of the research was to add bottom-up approaches to the range of curriculum adaptations necessary to support deaf high school learners within inclusive education in South Africa. A mixed methods approach was employed, using both quantitative and qualitative approaches in a triangulation research design. The findings that emanated from the quantitative research served to complement the findings from the qualitative study. The results of the empirical study were supported by the literature review to formulate practical guidelines for assisting educators to accommodate the curriculum in order to support deaf learners. These guidelines might enable educators to respond positively to the needs of deaf learners and ensure that their inclusion in the regular school is successful.

Keywords: inclusion, inclusive education, deaf learners, auditory oral approach, regular high schools, curriculum adaptation.
# TABLE OF CONTENTS

## CHAPTER 1: INTRODUCTORY ORIENTATION AND STATEMENT OF THE PROBLEM

<table>
<thead>
<tr>
<th>Section</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1</td>
<td>INTRODUCTION</td>
<td>1</td>
</tr>
<tr>
<td>1.2</td>
<td>BACKGROUND OF THE PROBLEM</td>
<td>3</td>
</tr>
<tr>
<td>1.3</td>
<td>PROBLEM STATEMENT</td>
<td>5</td>
</tr>
<tr>
<td>1.4</td>
<td>AIM OF THE RESEARCH</td>
<td>6</td>
</tr>
<tr>
<td>1.5</td>
<td>DEFINITION OF TERMS</td>
<td>6</td>
</tr>
<tr>
<td>1.5.1</td>
<td>Inclusion</td>
<td>6</td>
</tr>
<tr>
<td>1.5.2</td>
<td>Inclusive education</td>
<td>7</td>
</tr>
<tr>
<td>1.5.3</td>
<td>Deaf learners</td>
<td>8</td>
</tr>
<tr>
<td>1.5.4</td>
<td>Regular high schools</td>
<td>8</td>
</tr>
<tr>
<td>1.5.5</td>
<td>Early intervention</td>
<td>9</td>
</tr>
<tr>
<td>1.6</td>
<td>DEMARCATION OF THE STUDY</td>
<td>10</td>
</tr>
<tr>
<td>1.7</td>
<td>RESEARCH DESIGN</td>
<td>11</td>
</tr>
<tr>
<td>1.7.1</td>
<td>Literature study</td>
<td>12</td>
</tr>
<tr>
<td>1.7.2</td>
<td>Empirical investigation</td>
<td>12</td>
</tr>
<tr>
<td>1.7.3</td>
<td>Sampling</td>
<td>13</td>
</tr>
<tr>
<td>1.7.3.1</td>
<td>Quantitative sampling</td>
<td>14</td>
</tr>
<tr>
<td>1.7.3.2</td>
<td>Qualitative sampling</td>
<td>14</td>
</tr>
<tr>
<td>1.7.4</td>
<td>Data gathering instruments and procedures</td>
<td>15</td>
</tr>
<tr>
<td>1.7.4.1</td>
<td>Data gathering instruments and procedures for qualitative research</td>
<td>15</td>
</tr>
<tr>
<td>1.7.4.2</td>
<td>Data gathering instruments and procedures for qualitative research</td>
<td>16</td>
</tr>
<tr>
<td>1.7.5</td>
<td>Data analysis</td>
<td>16</td>
</tr>
<tr>
<td>1.7.6</td>
<td>Validation procedures</td>
<td>17</td>
</tr>
<tr>
<td>1.7.7</td>
<td>Ethical consideration</td>
<td>19</td>
</tr>
<tr>
<td>1.8</td>
<td>THE STRUCTURE OF THE STUDY</td>
<td>19</td>
</tr>
<tr>
<td>1.9</td>
<td>CONCLUSION</td>
<td>21</td>
</tr>
</tbody>
</table>
# CHAPTER 2
## DEAF LEARNERS IN INCLUSIVE EDUCATION

<table>
<thead>
<tr>
<th>Section</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1</td>
<td>INTRODUCTION</td>
<td>22</td>
</tr>
<tr>
<td>2.2</td>
<td>DEFINITION OF DEAFNESS</td>
<td>22</td>
</tr>
<tr>
<td>2.3</td>
<td>CLINICAL FEATURES OF DEAFNESS</td>
<td>23</td>
</tr>
<tr>
<td>2.3.1</td>
<td>The structure of the ear</td>
<td>23</td>
</tr>
<tr>
<td>2.3.2</td>
<td>Levels of hearing loss</td>
<td>25</td>
</tr>
<tr>
<td>2.3.3</td>
<td>Types of hearing loss</td>
<td>26</td>
</tr>
<tr>
<td>2.3.3.1</td>
<td>Conductive hearing loss</td>
<td>26</td>
</tr>
<tr>
<td>2.3.3.2</td>
<td>Sensori-neural hearing loss</td>
<td>27</td>
</tr>
<tr>
<td>2.3.3.3</td>
<td>Mixed hearing loss</td>
<td>27</td>
</tr>
<tr>
<td>2.3.4</td>
<td>The age of onset</td>
<td>28</td>
</tr>
<tr>
<td>2.3.5</td>
<td>Causes of hearing loss</td>
<td>28</td>
</tr>
<tr>
<td>2.3.5.1</td>
<td>Pre-lingual causes of hearing loss</td>
<td>28</td>
</tr>
<tr>
<td>2.3.5.2</td>
<td>Post-lingual causes of hearing loss</td>
<td>29</td>
</tr>
<tr>
<td>2.3.6</td>
<td>Identification and assessment</td>
<td>30</td>
</tr>
<tr>
<td>2.4</td>
<td>LANGUAGE AND COMMUNICATION CHOICES</td>
<td>33</td>
</tr>
<tr>
<td>2.4.1</td>
<td>The oral approach</td>
<td>34</td>
</tr>
<tr>
<td>2.4.2</td>
<td>Sign language approach</td>
<td>35</td>
</tr>
<tr>
<td>2.4.3</td>
<td>Bilingual approach</td>
<td>36</td>
</tr>
<tr>
<td>2.5</td>
<td>ASSISTIVE TECHNOLOGY</td>
<td>37</td>
</tr>
<tr>
<td>2.5.1</td>
<td>Hearing aids</td>
<td>38</td>
</tr>
<tr>
<td>2.5.2</td>
<td>Cochlear implants</td>
<td>39</td>
</tr>
<tr>
<td>2.5.3</td>
<td>Computers and related technology</td>
<td>41</td>
</tr>
<tr>
<td>2.6</td>
<td>THE NEEDS OF DEAF LEARNERS IN INCLUSIVE EDUCATION</td>
<td>42</td>
</tr>
<tr>
<td>2.6.1</td>
<td>Theoretical framework of the study</td>
<td>43</td>
</tr>
<tr>
<td>2.6.1.1</td>
<td>The medical model and its educational implications</td>
<td>43</td>
</tr>
<tr>
<td>2.6.1.2</td>
<td>The social model and its educational implications</td>
<td>44</td>
</tr>
<tr>
<td>2.6.1.3</td>
<td>Critical theory in education</td>
<td>45</td>
</tr>
<tr>
<td>2.6.1.4</td>
<td>Critical theory of disability</td>
<td>46</td>
</tr>
<tr>
<td>2.6.2</td>
<td>A framework for establishing inclusive education</td>
<td>50</td>
</tr>
<tr>
<td>2.6.3</td>
<td>Implications of inclusion for South African schools</td>
<td>53</td>
</tr>
</tbody>
</table>
2.6.3.1 Shared leadership  
2.6.3.2 Support and collaboration  
2.6.3.3 Attitudes and values

2.6.4 Characteristics of deaf learners in inclusive education

2.6.4.1 Cognitive development  
2.6.4.2 Personal and social development

2.6.4.2.1 Identity and personality  
2.6.4.2.2 Social integration and social skills  
2.6.4.2.3 Social status and roles

2.6.4.3 Emotional development

2.6.4.3.1 Self-esteem and self-confidence  
2.6.4.3.2 Self-efficacy  
2.6.4.3.3 Love and belonging

2.7 CONCLUSION

CHAPTER 3
CURRICULUM ADAPTATIONS AND MODIFICATIONS

3.1 INTRODUCTION
3.2 CURRICULUM

3.2.1 Curriculum and Assessment Policy Statements (CAPS)  
3.2.2 General aims of the South African Curriculum

3.3 CURRICULUM DIFFERENTIATION AND ADAPTATION

3.3.1 Differentiating curriculum content  
3.3.2 Adapting instructional strategies  
3.3.3 Adapting instructional materials  
3.3.4 Adapting assessment practices

3.4 ADAPTING THE CURRICULUM FOR DEAF LEARNERS

3.4.1 Adapting curriculum content for deaf learners  
3.4.1.1 Learning area: Social Science  
3.4.1.2 Learning area: Mathematics  
3.4.1.3 Learning area: English Home Language
3.4.2 Adapting instructional strategies for deaf learners 84
3.4.2.1 Social Science 86
3.4.2.2 Mathematics 86
3.4.2.3 Learning area: English Home Language 86
3.4.3 Adapting instructional materials for deaf learners 87
3.4.3.1 Learning area: Social Science 88
3.4.3.2 Learning Area: Mathematics 89
3.4.3.3 Learning area: English Home Language 89
3.4.4 Adapting assessment practices for deaf learners 89
3.4.4.1 Learning area: Social Science 91
3.4.4.2 Learning area: Mathematics 91
3.4.4.3 Language area: English Home Language 92
3.5 CONCLUSION 93

CHAPTER 4
RESEARCH DESIGN AND METHOD

4.1 INTRODUCTION 94
4.2 RESEARCH DESIGN AND METHODOLOGY 95
4.2.1 Quantitative research approach (survey) 97
4.2.2 Qualitative research approach (phenomenology) 98
4.3 SAMPLING 98
4.3.1 Sample procedures for the quantitative part of the research 99
4.3.2 Sample procedures for the qualitative part of the research 99
4.3.3 Participant description 102
4.4 DATA GATHERING PROCEDURES 103
4.4.1 Data gathering instruments for the quantitative part of the research 104
4.4.2 Data gathering procedures for the quantitative part of the research 104
4.4.3 Data gathering instruments for the qualitative part of the research 105
4.4.4 Data gathering procedures for the qualitative part of the research 105
4.5 PILOT STUDY 106
4.6 DATA ANALYSIS 107
4.7 VALIDATION PROCEDURES 108
CHAPTER 5
RESULTS AND DISCUSSION

5.1 INTRODUCTION

5.2 DESCRIPTION OF PARTICIPANTS

5.3 REPRESENTATION OF QUANTITATIVE DATA

5.3.1 Manifestations and causes of hearing loss

5.3.2 Language and communication choices

5.3.3 Cognitive skills of deaf learners

5.3.4 Social skills of deaf learners

5.3.5 Emotional skills of deaf learners

5.3.6 Adapting curriculum content

5.3.6.1 Simplifying of curriculum content

5.3.6.2 Creating new supplementary materials at a simpler level

5.3.6.3 Allowing extra time to complete the task

5.3.6.4 Differentiating content for homework assignments

5.3.6.5 Rephrasing questions and sentences

5.3.6.6 Simplifying vocabulary

5.3.6.7 Learning new vocabulary in advance

5.3.7 Adapting instructional strategies for deaf learners

5.3.7.1 Supporting listening with non-verbal cues

5.3.7.2 Allowing other learners to help (“buddy system”) 

5.3.7.3 Incorporating the use of demonstrations or role play

5.3.7.4 Using shorter sentences and breaking instructions down

5.3.7.5 Ensuring visual access to communication with others

5.3.7.6 Grouping learners for specific purposes

5.3.7.7 Using discussions before writing activities

5.3.8 Adapting instructional materials for deaf learners

5.3.8.1 Highlighting important terms

5.3.8.2 Placing non-verbal signs on the classroom walls

5.3.8.3 Providing copies of educator’s notes

5.3.8.4 Providing visual aids to assist in understanding

5.3.8.5 Providing supportive physical environment

5.3.9 Adapting assessment practices

5.3.9.1 Using projects or portfolios in lieu of tests
5.3.9.2 Providing graphic cues on answer form
5.3.9.3 Providing tasks that require short answers
5.3.9.4 Allowing extra time to complete the test
5.3.9.5 Allowing learners to make models, role-play, art projects to demonstrate their understanding of the information
5.3.9.6 Modification of exam questions

5.4 CONCLUSION

CHAPTER 6
SUMMARY, RECOMMENDATIONS AND LIMITATIONS

6.1 INTRODUCTION

6.2 SUMMARY OF FINDINGS AND INFERENCES

6.2.1 Summary of qualitative findings and recommendations

6.2.1.1 Hearing loss
6.2.1.2 Implications of inclusive education
6.2.1.3 Characteristics of deaf learners in inclusive education

6.2.1.3.1 Cognitive development
6.2.1.3.2 Personal and social development
6.2.1.3.3 Emotional development

6.2.1.4 Curriculum adaptations and modifications

6.2.2 Summary of the quantitative data

6.2.2.1 Hearing loss and inclusive education
6.2.2.2 Curriculum adaptations and modifications

6.2.3 Support guidelines

6.3 RECOMMENDATIONS FOR FURTHER RESEARCH

6.4 LIMITATIONS OF THE STUDY

6.5 CONCLUSION

BIBLIOGRAPHY
LIST OF FIGURES

FIGURE 2.1: Structure of the ear 24
FIGURE 2.2: Audiogram of familiar sounds 31
FIGURE 2.3: Behind-the-ear hearing aids 38
FIGURE 2.4: Cochlear implant 40
FIGURE 2.5: Computer technologies for deaf 41
FIGURE 2.6 Theoretical Framework of the study 49
FIGURE 3.1: Differentiated assessment process 77
FIGURE 4.1: Triangulation design 97
FIGURE 5.1: Flow diagram of the presentation of results 112
FIGURE 5.2: Gender of the participants 113
FIGURE 5.3: Age distribution of the research subjects 113
FIGURE 5.4: Teaching learners with hearing loss 114
FIGURE 5.5: Teaching experience in years 114
FIGURE 5.6: Highest educational qualifications 115
FIGURE 5.7: Special needs qualification

FIGURE 5.8: Personal experiences with hearing loss

FIGURE 5.9: Manifestations and causes of hearing loss

FIGURE 5.10: Language skills and communication choices

FIGURE 5.11: Cognitive skills of deaf learners

FIGURE 5.12: Social skills and adaptation of deaf learners

FIGURE 5.13: Emotional development

FIGURE 5.14: Adapting curriculum content

FIGURE 5.15: Adaption of instructional strategies

FIGURE 5.16: Adapting instructional materials

FIGURE 5.17: Adapting assessment practices

LIST OF TABLES

TABLE 2.1: Degree of Hearing Loss and Impact upon Communication

TABLE 4.1: Details of participants
LIST OF APPENDICES

APPENDIX 1: Permission to Conduct Research 202

APPENDIX 2: Research Ethics Clearance Certificate 203

APPENDIX 3: Principal Consent Letter 204

APPENDIX 4: Letter of Informed Consent (questionnaire) 206

APPENDIX 5: Letter of Informed Consent (interview) 208

APPENDIX 6: Questionnaire Used for Data Collection 210

APPENDIX 7: Interview Schedule 222

APPENDIX 8: Interview questions 224
## LIST OF ACRONYMS

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Full Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADD</td>
<td>Deficiency Disorder</td>
</tr>
<tr>
<td>ADHD</td>
<td>Attention Deficiency Hyperactivity Disorder</td>
</tr>
<tr>
<td>CAI</td>
<td>Assisted Instruction</td>
</tr>
<tr>
<td>CAPS</td>
<td>Curriculum and Assessment Policy Statements</td>
</tr>
<tr>
<td>DEAFSA</td>
<td>Deaf Federation of South Africa</td>
</tr>
<tr>
<td>EMS</td>
<td>Economic and Management Sciences</td>
</tr>
<tr>
<td>FM</td>
<td>Frequency Modulation</td>
</tr>
<tr>
<td>LO</td>
<td>Life Orientation</td>
</tr>
<tr>
<td>NQF</td>
<td>National Qualifications Framework</td>
</tr>
<tr>
<td>OBE</td>
<td>Outcomes- based Education</td>
</tr>
<tr>
<td>SPSS</td>
<td>Statistical Package for the Social Sciences</td>
</tr>
<tr>
<td>UNESCO</td>
<td>United Nations Educational, Scientific and Cultural Organisation</td>
</tr>
</tbody>
</table>
CHAPTER 1
INTRODUCTORY ORIENTATION AND STATEMENT OF THE PROBLEM

1.1 INTRODUCTION

Deafness is one of the largest categories of impairments in South Africa and encompasses the full spectrum of hearing loss – from mild to total deafness – yet as an invisible impairment it is often misunderstood or even underestimated in the severity of its impact upon both the child and his family (Storbeck 2005:348). Consequences of hearing loss include inability to interpret speech sound, often producing a reduced ability to communicate, delay in language acquisition, economic and educational disadvantages, social isolation and stigmatisation (Mathers, Smith & Concha 2003:1). This, in turn, can seriously influence the quality of life of deaf learners.

Although there are about four million deaf or hard-of-hearing people in the country, the overwhelming majority never reach matriculation – and only a handful reach university (Van Rooyen 2009:3). Deaf Federation of South Africa (DeafSA) reports that owing to deaf learners’ exclusion from equal education opportunities for many years, one out of three deaf people is functionally illiterate. This means that deaf adults cannot successfully be integrated into mainstream society as a result of their disempowering educational experiences (Magongwa 2010:493-496). Parkin (2010:490-493) states that deaf learners, for the most part, are fully capable of achieving the same educational outcomes expected of any other learner, but are, frustratingly, not currently achieving equal outcomes in an atmosphere of low expectations, and are perceived by the system as not being able to do so.

The human rights movement (and subsequently the drive towards inclusive education) seeks to ensure that all learners are empowered to become caring, competent and contributing citizens in an inclusive, changing and diverse society (Engelbrecht, Green, Naicker & Engelbrecht 1999:66). Consequently, the education system should be restructured in such a way that it accommodates all learners, irrespective of their diverse
needs (Department of Education 2001:6). Inclusion is concerned with a school culture which welcomes and celebrates differences and recognises individual needs (Booth & Ainscow 2000:12). The critical role of educators in the inclusive educational system has been stressed by Education White Paper 6 (Department of Education 2001:18): “Classroom educators will be our primary resource for achieving our goal of an inclusive education and training system… and (they will) focus on …. the development of learners' strengths and competencies rather than focus on their shortcomings.” This statement is particularly true for educators of deaf learners where the success of the educational process depends on educators’ skills.

South Africa is often referred to as the “rainbow nation” because of its rich diversity and multicultural/multilingual composition. It is a country that has developed significantly in the last decade in its offerings and support for deaf South Africans (Storbeck & Martin 2010:488-518). However, many educators enter the classroom for deaf learners with little or no experience with deafness. The burden of this situation is twofold on teaching and learning: first, educators are faced with learners with whom they cannot communicate, or communication is rudimentary, at best, and second, educators lack the qualifications necessary to empower them as educators in the classrooms with deaf learners (Parkin 2010:491). Educators in regular schools require sufficient training and support to develop their capacity to meet the full range of deaf learners’ unique needs.

Research shows that in the USA around 83% of the learning population with hearing disabilities find themselves in some form of the inclusive teaching system (Luckner & Muir 2001:435-436). According to Luckner and Muir (2001:435-436), this tendency is likely to increase, when the following facts are taken into consideration: early intervention, the phenomenal growth in technology, which leads to improved sound enhancement systems and hearing aids and the successful implementation of hearing implant programmers.

The implementation of the Education White Paper 6 and thus the philosophy of inclusion have meant that education is learner paced and based, and that all learners receive the necessary support in schools that are responsible for creating conditions for learners to
succeed (Department of Education 2002:4). Research conducted internationally and in South Africa mainly has focused on the experiences of educators and not directly on the experiences of deaf learners who are using the auditory oral approach. McIlroy (2010:501) believes that educators of South African mainstream schools still have considerable misinformation and lack of understanding of the needs of deaf learners (McIlroy 2010:501). Experiences of deaf learners were studied to assist educators to understand their unique needs in order to implement specific curriculum accommodations and adaptations to ensure successful inclusion of these learners in regular high schools.

1.2 BACKGROUND OF THE PROBLEM

At the Durban Primary School, a regular school where I am employed as a specialist educator for deaf learners, a special unit has been established for deaf learners attending the school. The regular classes consist of learners from both urban and rural areas, and the school recently introduced a strategy to include deaf learners in those classes. The aim is to make the transition from a specialised school setting to a regular one as smooth as possible and to ensure the learners’ successful inclusion into regular high schools. Some learners with profound hearing loss who have been educated in the unit have successfully completed their schooling at regular high schools and have subsequently graduated from universities. I try to keep regular contact with these learners. They visit the primary school on a regular basis and take part in the various school events, such as excursions, outings and school reunions. They take care of the learners who are currently being educated at the unit and also share their achievements and difficulties with the educators and the learners in the primary school. They often complain that educators in the high schools do not always address their special needs. For instance, they tend to refuse to use the FM (Frequency Modulated) system, do not repeat the material for deaf learners and often place deaf learners in a far corner of the classroom.

My interest in the topic of this study is both professional and personal. Being an educator of deaf learners and having regular contact with them has influenced my decision to investigate the effects of hearing loss on deaf learners using the auditory oral approach.
Because I know them, I understand their unique needs, their coping mechanisms and the potential devastating effect that ignorant educators can have on their future. Probably more and more learners may in future be subjected to educators with little knowledge on the treatment of deaf learners as the possibilities of technology expand. Unfortunately the attitudes of such educators play a role in the way that they treat deaf learners. However, once educators have more knowledge and some skills that can be used in inclusive classrooms, they will also become more positive towards deaf learners.

There is a dire need for up-to-date research aiming to study the needs of deaf learners in inclusive education settings, worldwide as well as in South Africa (Pottas 2005: 246). A nexus study, which was conducted by the researcher, demonstrated that most of the studies performed in South Africa explore the experiences and knowledge of educators of deaf learners within the inclusive educational context, and not directly the experiences of deaf learners. For example, the study conducted by Van Dijk (2003:317) provided valuable insight into the anticipated challenges, perceptions, fears, and needs of educators regarding the inclusion of deaf learners. She also provides baseline information and guidelines with respect to the needs of educators regarding the inclusion of deaf learners in South Africa. However, in her study, she emphasised that more specific adaptations to the curriculum, teaching materials and classroom environment to accommodate deaf learners should be investigated (Van Dijk 2003:331).

My own investigation, which focused on the region where I wanted to do my research, proved that the available statistics in terms of the inclusion of deaf learners into regular high schools in KwaZulu-Natal province was disconcerting to say the least. Provincial officials seemed to have either faulty information, (according to my knowledge), or they are totally uninformed. I know from our school’s records, for instance, that three learners passed the matriculation examinations from 2007 to 2010, while the official statistics reflected only one. One of the officials did not even believe that deaf learners are educated in inclusive schools.

Against this background the problem statement follows.
1.3 PROBLEM STATEMENT

In the light of inclusive education deaf learners are now expected to have access to the general curriculum and to master it. This calls for effective presentation of material and the organisation of opportunities for learning to close the gap between the educational outcomes for deaf learners and those of hearing learners, bearing in mind the special characteristics of deaf learners. The context in which deaf education interacts with the larger school framework is replete with challenges for educators, curriculum, learners and school in general. It is also possible for the field of deaf education to learn a great deal from the experiences of regular educators while avoiding some of the pitfalls that they have encountered (Moores & Martin 2006:11-12).

Bearing in mind the state of flux of South African inclusive education and the insufficient knowledge among educators, hearing learners and parents about this disability, the following research question was posed:

**Which bottom-up approaches to curriculum adaptations would add to the support of deaf learners in the inclusive environment?**

The purpose of this study was therefore to add bottom-up approaches to the range of curriculum adaptations necessary to support deaf high school learners within inclusive education in South Africa.

Sub-problems emerging from the above main research questions are the following:

- What curriculum adaptations need to be done to ensure the successful inclusion of deaf learners in regular high schools?
- What knowledge do educators of mainstream schools consider important to support the deaf learners in their classes?
• What curriculum adaptations strategies or guidelines can be used to accommodate deaf learners in regular high schools?

1.4 AIM OF RESEARCH

From the problem statement the primary aim of the current research was to investigate bottom-up approaches that would add to the range of curriculum adaptations necessary to support deaf high school learners within inclusive education in South Africa. In order to achieve the primary aim, the following secondary research aims are necessary:

• To study curriculum adaptations that need to be implemented to ensure successful inclusion of deaf learners in regular high schools;
• To explore knowledge that educators of mainstream schools consider important to support the deaf learners in their classes.
• To formulate guidelines to assist the educators in adapting curriculum in order to accommodate deaf learners in regular high schools.

1.5 DEFINITION OF TERMS

In order for the reader to understand what the researcher attempted in this study, it was necessary to define the principal terms and relevant concepts that were used throughout this research:

1.5.1 Inclusion

According to the White Paper 6, inclusion refers to recognising and respecting the differences among all learners, and building on the similarities. This system acknowledges and respects the following differences among learners: age, gender, ethnicity, language, class, disability or HIV status (Department of Education 2001:17).
Ainscow (2005:9) states that the approach to inclusion involves “a process of increasing the participation of learners in, and reducing their exclusion from, school curricula, cultures and communities”. In this way the notions of inclusion and exclusion are linked because the process of increasing participation of learners entails the reduction of pressures to exclude participation. The participation of all the learners is maximised by changes in attitude, behaviour, teaching methodologies, curricula and the environment to meet the needs of all the learners and to overcome barriers to learning (Department of Education 2001:17). Attention has to be given to helping practitioners to develop ways of overcoming such barriers (Ainscow 2005:9).

1.5.2 Inclusive education

Inclusive education is the practical application of the theoretical concept of inclusion. The framework for an inclusive education system is laid out in Education White Paper 6 (Department of Education 2001). The scope of this policy is broad as it attempts to address the diverse needs of all learners who experience barriers to learning. The policy calls for a significant conceptual shift that is based on the following premises:

• all children, youth and adults have the potential to learn, given the necessary support;
• the system’s inability to recognise and accommodate the diverse range of learning needs results in a breakdown of learning.

The policy asserts that in order to make inclusive education a reality, there needs to be a conceptual shift regarding the provision of support for learners who experience barriers to learning.

According to the Education White Paper 6 (Department of Education 2001:17), inclusive education is a system where all learners have the right to attend the neighbourhood schools, which is important for social reasons. All educators are responsible for the education of all learners and the curriculum must be adapted to cope with this diversity
with the purpose that all individuals who are different will feel welcomed, accepted, and encouraged to participate as equal members of a group (Blackbourn et al. 2004:19).

Gross (2002:233) confirms that restructuring the curriculum in inclusive education is the process by which a school attempts to respond to all the learners as individuals by considering and restructuring its curriculum provision and allocating recourses to enhance equality of opportunity. Through this process, the school builds its capacity to accept all children from the local community and in so doing, reduces the need to exclude learners.

1.5.3 Deaf learners

Owing to the drive towards inclusive education, researchers and practitioners worldwide are moving away from the disability labelling which includes terms such as ‘hearing loss’, ‘hearing impairment’ and ‘hearing disorder’. Rather, researchers are choosing to use the more generic term “deafness” to refer broadly to all levels of hearing loss (Marschark, Lang & Albertini 2002:11). In this study, the term ‘deaf’ and ‘hard-of-hearing’ refer to learners with severe to profound and mild to moderate hearing loss, respectively.

Deafness does not mean that an individual cannot detect any sounds. They may simply hear some frequencies of sounds much more clearly than others. Individuals are usually referred to as deaf if they are unable to detect speech sounds and if their own oral language development is disordered (Westwood 2011:45, Blackbourn et al. 2004:187).

1.5.4 Regular high schools

There are three possibilities regarding schools for learners experiencing impairments, namely special schools, full service schools and regular schools. Learners who are in need of high intensity support would be educated in special schools as resource centres, those in need of medium intensity support would be educated in full-service schools and
those in need of low intensity support in regular schools (Department of Education 2001:17).

Educators at regular high schools need to cater for all learners, but they are often not sufficiently trained to support a diversity of learners. The severity or complexity of the impairments of specific learners will determine the increase in support and resources required by the regular schools which they attend (Farrell 2001:3-9). Regular schools often lack appropriate support services and learning materials such as learners’ manuals and DVD’s, posters, games and assessment guides. The researcher believes that deaf learners cannot be included in regular schools unless the support services and learning materials necessary to support inclusion are available as and when needed, and unless educators are trained and positive about inclusion.

For the purpose of this research, the term regular school was used to refer to any mainstream high school in which deaf learners may be included in the classroom. The goal of those schools was to establish an inclusive school climate and culture that infiltrates every aspect of school life.

1.5.5 Early intervention

Early intervention is the process of providing services, education and support to the young learners who are at-risk of developing a delay or special need that may affect their development or impede their education. The importance of deaf learners receiving early intervention is critical to their long term educational and social development. Early intervention for deaf learners provides opportunities for them to interact with other (deaf and hearing) learners, offers important information and support for parents, and fosters the development of effective communication skills in both learners and parents (Marschark et al. 2002:137). Early and intensive intervention in the area of language development is imperative if deaf learner is to succeed in all academic areas. Assistance in providing concrete hearing and language experiences can serve to enrich the learner’s total fund of information, thereby enhancing intellectual and social growth (Blackbourn et al. 2004:190).
Being aware of some successful cases of inclusion of deaf learners into mainstream schools the researcher came to the realisation that there is huge potential for deaf learners to be part of the hearing world. However, to motivate educators to pro-actively support deaf learners, a knowledge base must be developed to give novice teachers in regular high schools guidelines on different aspects of such support. Part of those guidelines must come from deaf learners themselves. While deaf students who successfully completed secondary education in regular high schools are few and far in between, it is understandable that research reflecting their viewpoints is rare. The researcher managed to conduct interviews with four such ex-learners. These interviews might help to develop a comprehensive understanding of ways to support the deaf learners in regular high schools. To make the existing accommodations provided in the curriculum more meaningful, sufficient support guidelines for such accommodations of the curriculum were developed.

The researcher supports the opinion of Pottas (2005:246) who recommends that research regarding accommodations and adaptations provided in inclusive settings would shed light on the feasibility of including deaf learners in mainstream education, especially in the rural areas of South Africa. She maintains that educators should be guided and supported in trying new strategies and seeing positive outcomes; for example, educators need to know about other successful educators working in inclusive environments, specifically managing the classroom to meet the needs of deaf learners. Guidelines to adaptations and accommodations that would be developed with the help of deaf learners (who successfully completed their high school career) will lead to realistic expectations, improved attitudes and appropriate classroom demands.

1.6 DEMARCATION OF THE STUDY

The study falls within the field of Inclusive Education. Research was conducted in regular high schools, within the Durban area (urban) for practical and convenience reasons. The target group comprised educators in mainstream schools where learners with hearing
loss had been included. Data obtained during this research explored information that these educators viewed as important with regard to the inclusion of deaf learners in regular high schools.

This investigation focused specifically on deafness. It remains within the broad field of education and as such concerns itself with providing guidelines that can assist high school educators to make adaptations of the curriculum for the benefit of deaf learners in mainstream high schools.

According to UNESCO (2004:13), the curriculum encompasses a variety of aspects, namely what is learned and what is taught (context); how it is delivered (teaching-learning method); how it is assessed (examinations, for example); and the resources (e.g., books used to deliver and support teaching and learning). Effective curriculum adaptations for deaf learners therefore include the four primary categories for curriculum adaptations, namely content, instructional strategies, instructional materials and assessment. This study concentrates on those four categories with practical examples for main subject areas.

1.7 RESEARCH DESIGN

Research design refers to the plan and structure of the investigation used to obtain evidence to answer research questions. The research design describes the procedures for conducting the study, including when, from whom, and under what conditions the data will be obtained. In other words, design indicates how the research is set up (McMillan & Schumacher 2010:33).

A mixed methods approach was chosen in order to perform this research. The first stage of the research was a literature study. The second stage included the quantitative and qualitative parts. The aim of the quantitative part was to explore knowledge that educators consider to be important if deaf learners are successfully included in mainstream schools. The qualitative part was aimed to investigate the experiences of deaf learners who had
been educated in mainstream high schools. As a consequence, it is felt that these learners had accumulated vast knowledge which the researcher could utilise to outline the necessary support guidelines for the educators of these learners.

1.7.1 Literature study

A good literature review should be exhaustive in its coverage of the main aspects of the study and should be well organised (Mouton 2009:90). The literature review in a research study accomplishes several purposes. It shares with the reader the results of other studies that are closely related to the study being undertaken. It relates the study to the larger ongoing dialogue in the literature about a topic, identifying gaps and extending prior studies. It provides a framework for establishing the importance of the study as well as a benchmark for comparing the results of a study with other findings (Creswell 2009:30-31).

In this study, the literature review concentrates on the manifestations of deafness and studied the situation regarding the inclusion of deaf learners in the South African context (Chapter 2). Chapter 3 includes curriculum adaptations that are required to include deaf learners successfully in regular high schools of South Africa.

Against the background provided by the literature review, an empirical investigation was conducted to explore guidelines for the practical applications of the above mentioned curriculum adaptations as bottom-up approach from the viewpoint of deaf students who successfully completed their studies in regular high schools. (The curriculum adaptations that were identified as necessary to support deaf learners are included in the research findings outlined in the empirical part of the research in the final report.)

1.7.2 Empirical investigation

In this mixed methods study qualitative and quantitative research methods were used, although priority was given to the qualitative approach.
Quantitative research is usually driven by the researcher’s concerns, whereas qualitative research takes the subject’s perspective as the point of departure. These emphases may be brought together in a single study (Punch 2005:242).

The qualitative-quantitative nature of this research therefore ensured the achievement of the aims indicated and contributed to a specific approach in this research namely the triangulation of methods. Jones and Bugge (2006:612-621) emphasised that triangulation provides in-depth data, increases the confidence in the research results as well as enables different dimensions of the problem to be considered. A combination of methods improves the consistency and accuracy of data by providing a more complete picture of the phenomenon (Halcomb & Andrew 2005:71-82). The findings from Chapter 3 were used to determine the base-line of the guidelines that were developed from the qualitative part of the study. The aim was to enhance the validity of the findings (Punch 2005:241).

In this study the quantitative strategy chosen was survey research to collect numeric data using a questionnaire to provide a quantitative description of opinions, beliefs, trends and attitudes of high school educators towards inclusion of deaf learners into mainstream schools. In qualitative part of the research the phenomenological approach was applied to collect and analyse information. The phenomenological approach attempts to understand and interpret meaning attribution of participants in everyday life (Fouche 2005:273).

1.7.3 Sampling

Sampling can be described as a subset of measurements drawn from a population of interest. The sample is studied in an effort to understand the population from which it was drawn.
1.7.3.1 Quantitative sampling

For the quantitative part of this study a purposive sample technique was utilised. 'Purposive sampling' means sampling in a deliberate way, with some purpose or focus in mind (Punch 2005:187). Ten schools of the total number of high schools were purposively selected from the list of Kwazulu-Natal schools for participation in the survey. The schools to participate in survey were purposively selected, because all those schools had had deaf learners enrolled there at some stage and the educators of these schools had participated in workshops to acquire knowledge about deafness. As that not many learners who were enrolled in these schools were deaf, not all of the educators had the experience of teaching them. Although the educators with the related experience might perhaps have a more extensive knowledge of the deaf learners' special needs, this is not relevant of the educators in a mainstream school. In the light of early identification, intervention and advanced technology more and more mainstream educators might be exposed to teaching deaf learners within the not too distant future, therefore, it is important to obtain the information regarding the knowledge they require in this context in order to provide the guidelines which will assist them to enter an era of inclusive education.

The addition of some quantitative evidence might have helped to determine what educators in those 10 schools need to know about support techniques for deaf high school learners. The results of the quantitative research were not able to be generalised but this was not the main aim of the study. It was used to determine the most basic guidelines, so that specific knowledge from educators was not taken for granted.

1.7.3.2 Qualitative sampling

Purposive sampling was utilised in qualitative part of this study. With regard to the selection of participants, a total of four high school ex-learners who are deaf (and completed their studies at school successfully) agreed to participate in this study. The researcher aimed to obtain valuable information from these ex-learners, who had been
educated in mainstream high schools. They had successfully completed their schooling at regular high schools and some of them had subsequently graduated from universities. These ex-learners had studied in specialised units during their primary school years and had been transferred to regular high schools. The aim of the specialised units had been to make the transition from a specialised school setting to a regular one as smooth as possible for the deaf learners and to ensure their successful inclusion into the new setting. In the specialised unit the oral mode of communication had been utilised. In the classroom the ex-learners had not been supported by a sign language interpreter. For the purpose of this research, the term deaf learners was used to refer to these deaf ex-learners when describing the qualitative sampling of the study.

1.7.4 Data gathering instruments and procedures

The concurrent triangulation design that was employed in this mixed methods study necessitates the simultaneous generation of quantitative and qualitative data, to provide a better understanding of the studied problems.

1.7.4.1 Data gathering instruments and procedures for quantitative research

For the quantitative part of the research questionnaires were used to determine which knowledge the regular high school educators consider important regarding inclusion of deaf learners in the mainstream schools. A Likert-type scale with three response categories, viz. Agree, Disagree, Uncertain, was used. The three response categories allowed the researcher to measure the direction and intensity of responses. Neuman (2007:299) emphasises that a questionnaire is often relatively straightforward to analyse, can be sent to a vast geographical area, and can be conducted by a single researcher. In this project a covering letter accompanied the questionnaire in order to inform participants of the purpose of the research. Simple instructions were given regarding the way the questionnaire was to be answered.
1.7.4.2 Data gathering instruments and procedures for qualitative research

Data collection for qualitative part of the research was obtained through semi-structured interviews with deaf learners. They were prepared for the interviews by informing them of the specific aspects of the themes to be discussed. A semi-structured interview with a schedule was utilised. The topics for the interview were identified during the literature study, which brought to light relevant questions for the researcher to ask in the course of the interview with the learners. Johnson and Christensen (2004:144) emphasise that during semi-structured interviews the interviewer should cover the same general topics and questions with all of the interviewees.

Participation in this research was on a voluntarily basis and participants were allowed to terminate their participation in the research at any stage, should they have desired to do so.

1.7.5 Data analysis

The product of a qualitative report is usually a narrative report with rich description (vivid and detailed writing) rather than a statistical report (Johnson & Christensen 2004:312). In this study the researcher aimed to provide an in-depth description of the experiences of the four deaf learners in the regular high schools where they had been educated. The life worlds and perspectives of learners are seldom researched, therefore in this study the “insider perspectives of the actors and their places” (Mouton 2009:148) are explored.

Concerning data analysis, it was the researcher's intention to use the same main themes which emerged from the literature studies and attempt to discover whether these correlate with the information gained from the empirical investigation. These major themes placed the researcher in a position which allowed her to formulate the necessary guidelines for the educators of the deaf learners in mainstream high schools.
1.7.6 Validation procedures

Quantitative research methods were employed during the questionnaire survey. Special attention was given to reliability and validity as parameters of trustworthiness.

Reliability refers to the extent to which measurements of a measuring instrument are consistent across the items or stable over time (Creswell 2009:180). Reliability of a questionnaire is a prerequisite for validity of the questionnaire, although the inverse is untrue (McMillan & Schumacher 2010:250). To achieve reliability, the researcher ensured that the methods were administered in a consistent manner, in that the methods were standardised from one situation or person to the next (Leedy & Ormrod 2005:93). The reliability of the questionnaire completion was therefore determined by providing concise and simple instructions and by using reader-friendly questions.

According to Babbie and Mouton (2011:159), validity refers to the extent to which an empirical measure adequately reflects the real meaning of the concept under consideration. Neuman (2007:118) emphasises that validity is part of a dynamic process that grows by accumulating evidence over time. Without it, all measurement becomes meaningless. The validity of the quantitative part of the research was determined by using the theory to determine areas relevant to each content area. Pilot questionnaires were also provided in order to refine their content, wording, length and to gain feedback from the participants of the study (Cohen, Manion & Morrison 2007:158).

Qualitative research methods were employed during semi-structured, one-on-one interviews with deaf learners. Qualitative research draws on terms such as “trustworthiness” to refer to validity (Creswell 2009:195-196). The notion of “trustworthiness” replaces more conventional views of reliability and validity in qualitative research, and this notion is devoted on issues of credibility, transferability, dependability and confirmability (Cohen et al. 2007:158).
Credibility refers to authentic representation of the human phenomena (Reid & Gough 2000:59-90). In order to meet the criteria of credibility of the research, an in-depth literature study was done. The research aim and objectives were carefully constructed in order to form clear unambiguous goals for the research study (Reid & Gough 2000:59-90).

Transferability is the extent to which the findings can be applied in other contexts or with other respondents (Babbie & Mouton 2011:277). In order to meet the criteria of transferability of the research, a detailed description of participants and contexts were provided to assist the reader to evaluate the degree of transferability of the research. The researcher ensured that a variety of methods for obtaining data were used to strengthen the study’s usefulness in other settings. This practice of relying on multiple methods is commonly called triangulation (Glesne 2011:47). Although multiple data-collection methods are the common form of triangulation in qualitative research, triangulation also refers to the incorporation of multiple kinds of data sources (not only educators, but learners as well) (Glesne 2011:47). Through triangulation, any bias with regard to method or participants was neutralised to ensure that the research was transferable.

De Vos (2005:346) describes dependability as the attempts of the researcher to account for changing conditions in the phenomenon chosen for study as well as changes in the design created by increasingly refined understanding of the setting. During the research detailed descriptions of the method of data collection, recording and analysis were described in order to enhance the repeatability of the research. Questionnaire survey outcomes were verified with the findings in the literature study (Reid & Gough 2000:59-90).

Confirmability of the qualitative research refers to the degree to which the findings are the product of the focus of the inquiry and not the biases of the researcher (Babbie & Mouton 2011:278). In order to test the confirmability of the study the researcher attempted to take an unbiased stand during data recording and when drawing conclusions from the data in order to satisfy the confirmability criteria (Reid & Gough 2000:59-90).
1.7.7 Ethical consideration

Ethics are the concerns, dilemmas, and conflicts that arise over the proper way to conduct research. Ethics help to define what is or is not legitimate to do, or what a “moral” research procedure involves (Neuman 2007:48).

Permission to conduct the study was obtained from the KwaZulu-Natal Department of Education and from ethics committee of the University of South Africa.

To address the issue of ethics, informed consent was obtained by the researcher from the principals of the schools and participants. Participants were made aware of the purpose of the study before informed consent was obtained. Voluntary participation was a prerequisite (Leedy & Ormrod 2005:101-103). Participants in the research study were in no way disadvantaged if they chose not to participate, and this was clearly indicated to them.

Confidentiality with regard to the identities and opinions of the participants was maintained. Participants were not requested to reveal their names. The researcher thus ensured respect and mutual trust between her and the participants in the research so they were able to participate freely and willingly in the study.

The research was planned by taking all these ethical concerns into account.

1.8 THE STRUCTURE OF THE STUDY

Chapter 1

This chapter serves as an introduction. It provides a statement of the problem and an explanation of the aims and objectives of the research study. It also contains a brief rationale for the research design and methodology to be employed during the research process, and concludes with definitions of key terminology used in this study.
Chapter 2

Chapter 2 provides a theoretical framework in respect of the research study. This chapter reviews the literature consulted concerning the manifestations of deafness. The situation regarding inclusion of deaf learners in a unique South African context is discussed. New legislation and its practical applications with regard to deaf learners are also investigated.

Chapter 3

Chapter 3 examines specific curriculum adaptations necessary to ensure successful inclusion of deaf learners in regular high schools.

Chapter 4

Chapter 4 presents an explanation of the research design and the methodology utilised to conduct this study. A detailed description of the two research phases is provided in terms of the subject selection and material. Procedures relating to the collection, recording and analysis of the data are discussed.

Chapter 5

Chapter 5 presents an overview of the results obtained according to the aim and objectives formulated for the study. It includes a synthesis of the literature research (Chapter 2 and Chapter 3) and the empirical study (Chapter 4). This enabled the researcher to determine whether the results of the literature study correspond with empirical findings.
Chapter 6
The final chapter presents the conclusions and implications of the study, as well as its limitations. A critical evaluation of the research and recommendations for the further research are also presented.

1.9 CONCLUSION

This chapter serves as an introduction and provides the necessary information regarding the background to the study. It focuses on the statement of the research problem, research design and methodology. It also outlines the research programme, and provides a clarification or terms as they are applied in this research report.
CHAPTER 2
DEAF LEARNERS AND INCLUSIVE EDUCATION

2.1 INTRODUCTION

Deaf learners have certain educational needs that have to be addressed by educators during their school-going years. In view of the current transition to the inclusive educational system in South African schools, the existing general curriculum needs to be adapted to support these learners in various educational contexts. In order to determine the curriculum adaptations of deaf learners in mainstream schools one needs to take an in-depth look at deafness itself. In this chapter the focus is therefore on the concept of deafness and the situation regarding inclusion of deaf learners in mainstream South African schools. Firstly, the clinical features of deafness are discussed, and language and communication choices are explained.

Secondly, the direct impact of inclusive initiatives in South African context is studied, with specific emphasis on deaf learners. New legislation and its practical application with regard to deaf learners is also investigated.

2.2 DEFINITION OF DEAFNESS

Deafness is a general term used to describe all degrees and types of hearing loss. Individuals are usually referred to as deaf if they are unable to perceive speech sounds and if their own language development is disordered (Westwood 2011:45). Heward (2009:334) defines deafness as a hearing impairment that is so severe that the learner’s processing of linguistic information through hearing with or without amplification is compromised, so that it adversely affects the learner’s educational performance. According to Heward (2009:334) a medical definition describes the degree of hearing loss on a continuum from mild to profound. Educational definitions of hearing loss focus on the learner’s ability to use hearing to understand speech and learn language and the effects on educational performance.
A great deal of the confusion among professionals working with learners who have hearing loss may be traced to an inability to reach consensus on terminology. In the past, the term hearing impairment covered the entire range of auditory impairment, encompassing both deaf persons and individuals with a very mild loss, who may understand speech without difficulty (Moores 2001:10). In recent times the term hearing impairment has been phased out with the shift in the 1990s of disability law to place “people first” and asserts what individuals with disabilities can do rather than what they cannot do. Deaf and hard-of-hearing individuals believe that their deafness is a source of cultural identity (Blackbourn et al. 2004:183). Like other cultural groups, members of the deaf community share a common language and social practices. Thus deafness is the preferred term for reference to a state of hearing disability. Researchers give preference to the term deafness to refer broadly to all levels of hearing loss, making the distinction between deaf and hard-of-hearing only when it is necessary to do so (Marschark et al. 2002:43; Heward 2009:334).

2.3 CLINICAL FEATURES OF DEAFNESS

In order to understand the clinical features of deafness it is necessary to explain the anatomy of the ear and the way sound waves are processed.

2.3.1 The structure of the ear

Audition, the sense of hearing, is a complex and not completely understood process. The function of the ear is to gather sounds (acoustical energy) from the environment and to transform that energy into a form (neural energy) that can be interpreted by the brain (Heward 2009:334). Blackbourn et al. (2004:185), Schirmer (2001:20), Heward (2009:334-335) explain the structure of the ear and the way the auditory system functions as follows:

The many elements that make up the hearing mechanism are divided into three major sections: the outer, middle, and inner ear.
The outer ear consists of the auricle and the external auditory canal. The outer ear gathers the sound and sends it down the auditory canal, or external auditory meatus. At this point, the sound enters the middle ear and sets the eardrum, or tympanic membrane, into motion. Movements of the eardrum change the acoustical energy into mechanical energy, which is transferred to the middle ear (Blackbourn et al. 2004:185, Hallahan & Kauffman 2006:324-325, Schirmer 2001:2, Heward 2009:334).

The middle ear consists of four parts: the tympanic membrane (eardrum), the malleus (hammer), the incus (anvil), and the stapes (stirrup). The chain of the malleus, incus, and stapes conducts the vibrations of the eardrum along to the oval window, which is the link between the middle and inner ears (Hallahan & Kauffman 2006:325, Blackbourn et al. 2004:185). The Eustachian tube, which runs between the middle ear and the back of the
throat, controls air pressure in the middle ear (Schirmer 2001:3). The most critical and complex part of the entire hearing apparatus is the inner ear, which is covered by the temporal bone, the hardest bone in the entire body. The inner ear contains the cochlea, the main receptor organ for hearing, and the semicircular canals, which control the sense of balance (Heward 2009:334). When the stapes moves, it pushes the oval window in and out, causing the fluid in the cochlea of the inner ear to flow. The movement of the fluid in turn causes a complex chain of events in the cochlea, ultimately resulting in excitation of the cochlea nerve. With stimulation of the cochlea nerve, an electrical impulse is sent to the brain, and sound is heard (Hallahan & Kauffman 2006:325-326).

2.3.2 Levels of hearing loss

Knowledge of the levels or the degrees of hearing loss will help enhance the understanding of the nature of deafness. Degree of hearing loss is the quantity and quality of sound that individuals with a hearing loss are able to process that affects their ability to understand and produce spoken language. Hearing loss is measured in decibels (dB), a measure of the intensity or loudness of sound (Friend 2008:314).

Table 2.1 depicts a classification system used to describe the decibel levels associated with varying degrees of hearing loss. This system applies to both pure tone and speech results. The table has been adapted from Mahshie, Moseley, Scott and Lee (2006:27).
### Table 2.1  Degree of hearing loss and impact upon communication

<table>
<thead>
<tr>
<th>Hearing Levels (dB HL)</th>
<th>Classification (Degree)</th>
<th>Communication effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 to 10</td>
<td>Normal</td>
<td>None</td>
</tr>
<tr>
<td>11 to 25</td>
<td>Minimal</td>
<td>Difficulty hearing quiet speech in the presence of noise</td>
</tr>
<tr>
<td>25 to 40</td>
<td>Mild</td>
<td>Difficulty hearing quiet or distant speech, even in quiet</td>
</tr>
<tr>
<td>40 to 55</td>
<td>Moderate</td>
<td>Conversational speech is audible if at a close distance</td>
</tr>
<tr>
<td>55 to 70</td>
<td>Moderately severe</td>
<td>Loud conversational speech is audible</td>
</tr>
<tr>
<td>70 to 90</td>
<td>Severe</td>
<td>Conversational speech is not audible</td>
</tr>
<tr>
<td>&gt;90</td>
<td>Profound</td>
<td>Loud sounds may be audible</td>
</tr>
</tbody>
</table>

This is a very general classification system. The ability to use residual hearing varies from individual to individual and is affected by additional variables, such as age of identification, use of amplification and the auditory environment.

#### 2.3.3 Types of hearing loss

Professionals classify causes of hearing loss on the basis of the location of the problem within the hearing mechanism. There are three major classifications: conductive, sensorineural, and mixed hearing loss.

##### 2.3.3.1 Conductive hearing loss

Conductive hearing loss refers to an interference with the transfer of sound along the conductive pathway of the middle ear or outer ear. This type of hearing loss can exist if part of the external or middle ear is not fully developed or if it develops abnormally. A
conductive hearing loss can also be caused by disease within the external ear or the middle ear that leaves fluid or causes wax buildup, leading to improper movement of the eardrum or ossicles, the three small bones in the middle ear (Friend 2008:313).

If the rest of the auditory system is intact, conductive hearing losses can often be corrected through surgical or medical treatment, and amplification. Amplification (making the source of sound louder) includes personal hearing aids or other assistive listening devices, hard-wired or wireless transmitting and receiving instruments that send sound from a microphone directly to the listener, minimising the effect of distance, noise, and reverberation on clarity (Heward 2009: 338; Frederickson & Cline 2002:364; Friend 2008:313).

2.3.3.2 Sensorineural hearing loss

Sensorineural hearing loss refers to damage to the auditory nerve fibres or other sensitive mechanisms in the inner ear. As a result, the sound that travels to the inner ear and brain stem is not delivered at all or is much softer or distorted. Amplification may not help the person with a sensorineural hearing loss. Surgery or medication cannot correct most sensorineural hearing loss (Friend 2008:313-314; Heward 2009: 338-339; Schirmer 2001:5).

Hearing loss is also described in terms of being unilateral (present in one ear only) or bilateral (present in both ears). Learners with unilateral hearing loss generally learn speech and language without major difficulties. They tend to have problems localising sounds and listening in noisy or distracting settings (Heward 2009:339).

2.3.3.3 Mixed hearing loss

Mixed hearing loss involves both a conductive and sensorineural loss (Friend 2008:314; Frederickson & Cline 2002:364). Mixed hearing loss may be a result of obstruction in the conduction of sound together with sensorineural damage.
2.3.4 The age of onset

It is important to consider the age of onset – whether a hearing loss is congenital (present at birth) or acquired (appears after birth). The terms *pre-lingual hearing loss* and *post-lingual hearing loss* identify whether a hearing loss occurred before or after the development of spoken language. A child who cannot hear the speech of other people from birth or soon after will not learn speech and language spontaneously, as do children with normal hearing (Heward 2009:340). Generally, professionals agree that the longer children have had normal hearing, the greater the chance that they will maintain the knowledge and ability to use the language and communication skills they have developed (Friend 2008:312).

2.3.5 Causes of hearing loss

Professionals indicate pre-lingual and post-lingual causes of hearing loss. They differ about the dividing point between pre-lingual and post-lingual deafness. Some believe that it should be at about eighteen months; others think it should be lower, at about twelve months or even six months (Hallahan & Kauffman 2006:322).

2.3.5.1 Pre-lingual causes of hearing loss

According to Friend (2008:312) a genetic hearing loss is one caused by the presence of an abnormal gene within one or more chromosomes. Either one or both of the parents may have passed on this abnormal gene, or it may have developed as the result of a spontaneous mutation or change during foetal development.

Other pre-lingual causes of hearing loss that are not hereditary in nature include prenatal infections, illnesses, or conditions occurring at the time of birth or shortly thereafter. Examples include these:
• Intrauterine infections, including rubella (also known as German measles), cytomegalovirus, and herpes simplex virus;
• Prematurity;
• Maternal diabetes;
• Toxemia during pregnancy, a condition that includes dangerously high blood pressure in the mother;
• Anoxia (i.e., lack of oxygen) before, during, or after birth;
• Malformation of ear structures (Friend 2008:312; Heward 2009:340-341).

2.3.5.2 Post-lingual causes of hearing loss

According to Friend (2008:312), Frederickson and Cline (2002:366) and Heward (2009:341), a post-lingual hearing loss usually happens as the result of a disease or an injury. Examples of conditions that can cause acquired hearing loss in children and youth include the following:

• Bacterial meningitis – an infection of the fluid of a person’s spinal cord and the fluid that surrounds the brain;
• Otitis media – a temporary, recurrent infection of the middle ear. Nearly 90% of all children will experience otitis media at least once, and about one third of children under age five have recurrent episodes. Antibiotics are usually an effective treatment; but if untreated, otitis media can result in a buildup of fluid and a ruptured eardrum, which causes permanent conductive hearing loss;
• Measles;
• Encephalitis – an inflammation of the brain caused by a virus that, in severe cases, is accompanied by high fever, severe headache, nausea and vomiting, stiff neck, double vision, drowsiness, and disorientation;
• Chicken pox;
• Influenza (i.e., the ‘flu);
• Mumps;
• Head injury.
Repeated exposure to loud noise and reactions to ototoxic drugs can also cause hearing loss.

An understanding of the causes of hearing loss will lead to a better understanding of the identification and assessment of deaf learners.

### 2.3.6 Identification and assessment

The earlier a hearing loss is identified, the better a child’s chances are for receiving early intervention and treatment and for developing good language and communication skills (Heward 2009:342). Hearing loss may be identified through neonatal screening or by the parent, health visitor or later by educators at school (Farrell 2006:31).

All infants, hearing and deaf alike, babble, coo, and smile. Later on, children who are deaf tend to stop babbling and vocalising because they cannot hear themselves or their parents, but the baby’s increasing silence may go unnoticed for a while and then be mistakenly attributed to other causes (Heward 2009:342). Hearing tests determine whether hearing is impaired, the extent of the impairment, and what part of the ear may be implicated (Farrell 2006:31). In addition, results of audiologic evaluation help to direct the diagnosis of hearing loss, to make appropriate referrals, and to guide treatment and management decisions (Paul & Whitelaw 2011:43).

The two most widely used methods of screening for hearing loss in infants measure psychological reactions to sound. With auditory brain stem response, sensors placed on the scalp measure electrical activity as the infant responds to auditory stimuli. In otoacoustic emission screening, a tiny microphone placed in the baby’s ear detects the “echoes” of hair cells in the cochlea as they vibrate to sound (Heward 2009:342).

A procedure called pure-tone audiometry is used to assess the hearing of older children and adults. The examiner uses an audiometer, an electronic device that generates sounds at different levels of intensity and frequency. The results of the test are plotted on
a chart called an audiogram (Heward 2009:342). The sounds are transmitted through an earphone into one ear while the other ear is prevented from hearing. First the sound is reduced in intensity until it cannot be heard, then the intensity is gradually increased until the person signals that they can detect it (Farrell 2006:31). Figure 2.2 shows familiar sounds (speech, leaves rustling and traffic sounds) and where they are situated on an audiogram in terms of pitch and loudness, giving the audiologist an idea of the sounds that deaf learners miss.

Figure 2.2 Audiogram of familiar sounds (Spencer 2013:12)

Educators within an inclusive environment need to be observant and vigilant in getting to know their learners in order to meet their unique needs.
Kochkin (2011:1) emphasises that it is incumbent upon educators to stay alert to the signs of hearing loss in children. If an educator suspects that a learner is having difficulty hearing, he/she should bring this to the attention of the learner’s parents and school administrators so that the learner can undergo a thorough hearing assessment by an audiologist.

Signs of a learner’s unaddressed hearing loss in the classroom are frequently associated with attention seeking behaviour and poor language skills. The following behaviours and characteristics are some of the manifestations of deafness and some form of hearing loss:

- Learners who may not seem to pay attention to instructions; have a short attention span; drift off or daydream frequently are usually labeled as learners with ADD (Attention Deficiency Disorder) or ADHD (Attention Deficiency Hyperactivity Disorder); however, this may be due to their inability to hear discussions or activities effectively.

- Learners with unaddressed hearing loss may seem to lack the motivation to learn and exhibit either overactive or aimless behaviours.

- Learners with hearing loss may act in an aggressive or withdrawn manner and frequently show excessive fear or anxiety owing to the frustration they feel at not understanding what is going on inside or outside the classroom.

- Learners may show delayed language development (e.g. immature use of syntax, limited vocabulary). Often this may come across as lisping or mumbling, or a refusal to speak during lessons.

- Learners may find it difficult to repeat words or sounds or to remember the names of people and places.

- Learners may make speech errors (e.g. omit the consonants from the end of words, miss out s, f, th, t, ed, en) or confuse words that sound similar (e.g. hat, fat, vat).

- Learners with hearing loss may become dependent, thus fearful to do anything without the educator’s permission or advice.
• Learners may come across as the talkative or disruptive learners, as they may be watching others to see what they are doing and then follow or constantly ask others to repeat what they have said.
• Learners may often shout without apparently realising that they are being noisy.
• Learners with hearing loss may be missing out on information and thus display gaps in their learning (e.g. giving poor or incomplete answers) (Kochkin 2011:1; Storbeck 2005:15; Frederickson & Cline 2002:366).

An inability to hear places a young child at risk of delay in many areas, including the acquisition of spoken language, literacy skills and social development. If a child is language-delayed in any way, it is important to conduct a hearing test and to organise and implement an intervention plan as early as possible (Storbeck 2005:358). A priority goal in the education of all learners with hearing loss is to advance their language skills as much as possible. Any improvement in language will allow each learner to make better use of his or her intellectual potential, understand much more of the curriculum, and develop socially (Westwood 2011:46).

While listening and speaking remain the preferred method of communication for learners with mild and moderate degrees of hearing loss, for those who are severely to profoundly deaf, alternative manual methods might be needed. These methods include gestures, sign language and finger spelling. Deaf learners from deaf families will almost certainly have been exposed to, and become competent in, manual communication even before entering formal education (Westwood 2011:48).

2.4 LANGUAGE AND COMMUNICATION CHOICES

The biggest decision that parents of deaf learners need to make is the decision regarding communication and the related educational method. This can cause immense frustration and stress to parents and learners alike and, owing to the impact on their lives, should be an informed decision. The two approaches (which are on opposing sides of the
communication continuum) are the oral approach and the sign language approach to communication and education (Storbeck 2005:353).

2.4.1  The oral approach

The oral approach to communicating with and educating deaf learners advocates the auditory-oral approach to communication. The oral approach termed oralism virtually places a ban on manual communication and stresses instead the use of residual hearing, supplemented by lip reading and speech training. The primary goal of this approach is the “normalisation” of deaf learners to fit more comfortably into a hearing world by making them oral (Westwood 2011:49; Storbeck 2005:353).

Farrell (2006:35) underlines some common features within the oral approach:

- Residual hearing is used and enhanced (for example, by hearing aids).
- Learners who are unable to comprehend speech using hearing alone can gain information from lip reading.
- Cochlear implants may be used.
- There is an emphasis on communicating and the rules of language are assumed to be learnt over time though using language.
- Every effort is made to provide favourable listening conditions.
- Active listening skills are encouraged.
- The learner is encouraged to use contextual clues and knowledge of the world actively to aid communication and understanding.

One benefit of the oral approach is that parents and educators do not need to learn a new language and can thus rely on the spoken language of the community. An additional benefit is that these learners are said to fit into the hearing community (by being able to speak and lip-read) without the community having to adapt to their unique needs; this however, is in contradiction to the inclusive approach to education (Storbeck 2005:354).
Marschark *et al.* (2002:111) emphasise that for learners with greater hearing loss, exposure only to spoken language often falls short of giving learners the linguistic tools they need for academic and social purposes. Through the oral approach the deaf learner’s social environment is often restricted and emotional frustration can result (Storbeck 2005:354).

Although access to English or other languages may be essential for literacy, it is most important that deaf learners, like hearing learners, be able to communicate with their parents from the beginning. From babbling and gestures, to first words and signs, to more complex language, it has been shown that normal language development depends on frequent and regular communication between deaf learners and those around them, regardless of whether it is through signed or spoken language (Marschark *et al.* 2002:111).

### 2.4.2 The sign language approach

The sign language approach (also known as the manual approach) argues that sign language – the natural, barrier-free language of deaf people – is the first language of a deaf child, and that the language of the hearing majority (spoken language) is the second language of deaf children. Consequently the manual method encourages the use of and exposure to sign language from as early an age as possible, thus recognising the importance of a critical period in language acquisition (Storbeck 2005:354). Considerable evidence indicates that deaf children reach the same language development milestones in sign language as hearing children do in spoken language and do so at about the same time. For example, they manually “babble” at about the same time as hearing infants verbally babble. In addition, deaf infants sign their first words and two-word phrases at about the same time that hearing infants verbalise their first words and two-word phrases (Hallahan & Kauffman 2006:332).

Sign language remains a controversial issue in the field of deaf education. Often the use of sign language is the only thing that attracts the attention of others to the fact that a
person is deaf. Many educators and hearing parents feel that to encourage manual forms of communication will cause the child to be accepted only in the deaf community rather than in the wider community of hearing persons (Westwood 2011:49). The manualist argument in contrast says that to prevent a deaf child from using sign language isolates him from the deaf community. Thus the social isolation that an orally educated deaf person can suffer comes from not feeling comfortable or fully capable in either deaf or the hearing community (Storbeck 2005:355). Supporters of the manual approach also emphasise that sign language is fully appropriate for all purposes of day-to-day life (Marschark et al. 2002:104).

Despite the fact that these approaches (oral and manual) are clearly at opposite ends of the communication continuum, they both have strengths and weaknesses. A strategic combination of these strengths and weaknesses has made way for a new approach to communicating with deaf learners and educating them (Storbeck 2005:356). This approach is known as the Bilingual Approach to Deaf Education.

### 2.4.3 Bilingual approach

The bilingual approach works from the premise that first language competency is necessary in order to develop normal cognitive processes and for second language development (Storbeck 2005:356).

Although there are several variations of the bilingual approach, most of them contain these three features:

1. Sign language is considered the primary language, and English, or any other language of the community, is considered the second language.
2. Deaf people play an important role in the development of the programme and its curriculum.
3. The curriculum includes instruction in Deaf Culture (Storbeck 2005:356; Hallahan & Kauffman 2006:344;).
Since the introduction of bilingual programmes in the education of deaf learners, one of the principal claims has been that, as a consequence of using a natural sign language as the primary language of instruction, learners will not only have greater and easier access to curricular content, but will also develop higher levels of literacy, even without exposure to the language in its primary form through speech or alternatively through signed forms of that language. Some proponents of this position go so far as to suggest that the goal would be to achieve levels of literacy commensurate with that of hearing peers. However, as yet there is not a body of research to convincingly make the case for any position. The research directly bearing on the efficacy of bilingual programmes is still in its infancy (Hallahan & Kauffman 2006:344; Marschark & Spencer 2003:136).

Schirmer (2001:203) emphasises that no success-guaranteed method exists for educating deaf learners, though periodically through the history of deaf education various methods have been proposed as the pedagogical solution. In the 1980s and 1990s, bilingual education was considered to be the answer. However, with the increase in cochlear implants, greater numbers of learners are being educated orally, and the oral approach has seen renewed interest. Ultimately, only a range of approaches can meet the needs of a range of deaf learners.

In order to effectively meet the needs of deaf learners within the educational context, educators need to be aware of how the assistive technology can be integrated into the context of instruction.

### 2.5 ASSISTIVE TECHNOLOGY

Several technological advances have made it easier for deaf learners to communicate with and/or have access to information from the hearing world. This assistive technology offers support for receptive and expressive communication, access to visual instruction, and individualisation of instruction critical for their success. This technological explosion has involved the following: hearing aids, cochlear implants, computers and related technology.
2.5.1 Hearing aids

A hearing aid is an amplification device; it makes sound louder. There are three main types of hearing aids: those worn behind the ear, those worn inside the ear, and those inserted farther down in the canal of the ear. The behind-the-ear hearing aid is the most powerful and is therefore used by those with the most severe hearing loss (Hallahan & Kauffman 2006:347). A hearing aid consists of a microphone, a receiver/amplifier with volume control, a miniature speaker, a battery, and an acoustically designed earmould (Figure 2.3).

![Figure 2.3 Behind-the-ear hearing aids](Ashley 2013:14)

 Amplified sound picked up by the microphone passes from the receiver to the speaker, through a tube, and into the plastic earmould, which is custom-moulded for each user to ensure a snug fit (Marschark 2007:42).
The earlier in life a child can be fitted with an appropriate hearing aid, the more effectively he/she will learn to use hearing for communication and awareness. For learners with some residual hearing, the use of hearing aids can be very important. The improved listening conditions become an important part of the young child’s speech and language development. Hearing aids must be approached cautiously with very young children, because too much amplification can damage the young ear, perhaps speeding up or causing more hearing loss (Marschark 2007:42; Heward 2009:346).

Most audiologists recommend starting learners with hearing aids immediately after diagnosis of hearing loss, or as soon as possible, so that they can become used to them and be exposed to auditory information as early as possible. Early use of hearing aids is typically associated with better language development in learners, although research is less clear on this issue in the case of learners with congenital hearing loss (Marschark et al. 2002:50). However, many deaf learners do not like to be seen wearing hearing aids, especially in mainstream situations and particularly in high schools. Some of these learners report that they feel more socially at ease, and thus able to fit in more easily with their peers, if they do not wear the hearing aids. Educators of these learners have a responsibility to make sure the hearing aids are used and are maintained in good order (Westwood 2011:50).

Another electronic amplification device that has provided an alternative to deaf learners is the cochlear implant.

### 2.5.2 Cochlear implants

A cochlear implant is a device used to produce the sensation of sound by electrically stimulating the auditory nerve. The device has two main parts, the internal component (electrodes implanted into or on the cochlea) and an external receiver embedded in the temporal bone (Westwood 2011:50). Cochlear implantation involves surgically inserting electronic elements under the skin behind the ear and in the inner ear. A small microphone worn behind the ear picks up sounds and sends them to a small
computerised speech processor worn by the person. The speech processor sends coded signals to an external coil worn behind the ear, which sends them through the skin to the implanted internal coil. The internal coil then sends the signals to electrodes implanted in the inner ear, and these signals are sent on to the auditory nerve (Figure 2.4) (Marschark \textit{et al.} 2002:5; Hallahan & Kauffman 2006:344).

![Diagram of cochlear implant](image)

(1) sound processor  (3) electrode
(2) transmitter coil  (4) inner ear

**Figure 2.4 Cochlear implant** (Manning 2010:41)

Cochlear implants are normally recommended only for learners who are profoundly deaf and cannot benefit at all from other forms of hearing aid. While the learner can begin to perceive the electrical stimulation soon after surgery, it normally takes at least a year for gains in the learner’s language skills to become evident. The learner’s effective adaptation to the cochlear implant needs much support and encouragement from educators and parents. Educators need to understand that learners with cochlea implants may have speech that is difficult to understand, and they need receiving intensive speech and language therapy (Westwood 2011:50).

Educators working with learners with cochlear implants need to know how to monitor the cochlea implant. Daily monitoring requires that educators and the learner (depending
upon the learner’s age) know the part of the implant and how they work (Mahshie et al. 2006:39).

Another important consideration in assistive technology for deaf learners includes the use of computers and related technologies. The explosion of computers and related technologies (videodiscs, CD-ROMs) is expanding learning capabilities for deaf learners and offers opportunities for educators and parents to transform their education.

2.5.3 Computers and related technology

There is increasing evidence that integrating various forms of technology and software into the education of deaf learners can bring positive results (Westwood 2011:348). For example, visual displays of speech patterns on a computer screen can help deaf learners to learn speech. Videodisc programmes showing people sign are also available for use in learning sign language. Another example of computer-based technology is C-Print. With C-Print, a hearing person transcribes on a computer what is being said by, for example, someone lecturing. The learner who is deaf reads a real-time text display on his or her computer and also receives a printout of the text at a later time (Hallahan & Kauffman 2006:348).

Figure 2.5 Computer technologies for deaf (Ma 2013:11)
The information superhighway has opened up a variety of communication possibilities for deaf learners. The World Wide Web offers a gateway to countless sources of information. It provides a rich opportunity to learn new skills and knowledge, to network with others, and to take advantage of multimedia aids to enhance reading and comprehension (Marschark et al. 2002:211). For example, electronic mail allows deaf people to communicate with one another as well as with hearing individuals. People who are deaf may also subscribe to email lists, connect to newsgroups or Web-based boards, and participate in chat rooms devoted to deafness, along with a multitude of other subjects (Hallahan & Kauffman 2006:348-349).

The use of technology thus should be viewed not as an end in itself, but as a means for helping deaf learners become aware of their own ideas and to engage in activities that will lead them to search for answers, make connections, see patterns, and become independent learners (Marschark et al. 2002:212).

The abovementioned technological advances have provided new opportunities to include deaf learners in regular schools. The inclusive education philosophy focuses on accommodating the diverse needs of the learners, as opposed to fixing or remediating deaf learners (Mahshie et al. 2006:29). This does not mean, however, that all deaf learners will be accommodated in regular schools, as inclusive education empowers and respects the rights of learners and parents to make decisions regarding their own future. There are thus two broad educational options available to parents based on their choice of communication and language: the regular mainstream school setting and a specialised school setting. The following section will focus on the needs of deaf learners in inclusive education.

2.6 THE NEEDS OF DEAF LEARNERS IN INCLUSIVE EDUCATION

Throughout history, changes in society are frequently paralleled with alternative ways of thinking, or with new paradigms about human nature. These paradigms possess the potential of being restrictive when still applied in the light of new theories and knowledge.
that attempt to better explain the nature of the world. A succession of the paradigms leads to the acceptance of inclusivity as the current view of the place of learners with disabilities, including learners experiencing deafness.

2.6.1 Theoretical framework of the study

The political and social nature of inclusion should be understood in the light of the paradigms that shaped the concept of inclusivity (Ballard 1997:245). For instance, inclusive education is informed by a wider paradigm in which disability is understood (UNESCO 2001:21). Being a guide to our world view, paradigms influence the attitudes and actions of people on disability issues and the services needed.

2.6.1.1 The medical model and its educational implications

Schools do not function in isolation, but are influenced by economic, political and social developments. What happens in schools is a reflection of the developments and changes in society. The shift to inclusion is underpinned by the shift in paradigms that occurred in the early 1970s and 1980s. In education this led to a radical shift from a medical model to a social model approach. The medical model is the traditional model of disability that focuses on disabled people’s impairments and explains the difficulties they experience in their lives in terms of those impairments (McCarthy & Hurst 2001:4; UNESCO 2001: 21). According to this model, disability is described as a result of genetic or biological dysfunctions (Avramidis & Skidmore 2004:66; Peters 2007:99), and impaired learners are expected to cope with existing situations rather than making adjustments to the environment (Powney 2002:28). The medical or within-child model is ultimately a model of diagnosis and treatment. When applying this model in the field of education, learners with any type of difference or, more specifically, disability are singled out and the origin of the difference is looked for within the learner. Thus, learners who do not “fit into” the existing education programme are often moved to special schools or classes, in order to “fix” them and alleviate their differences (Swart & Pettipher 2005:5). It became increasingly evident that a paradigm shift was required that involved a refocusing away
from the “specialness” of learners and the “special” forms of provision they were seen to “need”, towards the removal of stumbling blocks within society and the participation of all people, especially those with differences, in the everyday life of society (Florian, Rose & Tilstone 1998:1-9).

The development of specialised education in South Africa has followed trends similar to those in most other countries. However, a distinguishing aspect in the history of South African specialised education is the extent of political and philosophical influence. This resulted in gross inequalities and inconsistencies in provision between the previously racially segregated state and provincial departments, as the apartheid era categorised and officially classified people in terms of race (Lomofsky & Lazarus 2001:303-317). As a result, segregation was promoted and many learners did not have access to adequate educational and support services.

Over the last twenty years education in South Africa has undergone numerous radical changes. The first important shift towards inclusive education occurred when the move from the medical model utilised for so long in the field of special education, changed to the social model (Hay 2003:135).

2.6.1.2 The social model and its educational implications

The social model explains impairment either in terms of the individual’s physical and social environment or the relationship between people with disabilities and their environment (Kinsella & Senior 2008:658). Therefore, this model sees the whole educational system, rather than the disability of the person, as a possible source of educational difficulties and poor academic achievement (McCarthy & Hurst 2001:4).

The social model recognises that while some people have physical, intellectual, or psychological differences from a statistical mean, which may sometimes be impairments, these do not have to lead to disability. Instead, disability is seen as a complex collection of conditions, many of which are created by the social environment. Therefore, the
management of the problem requires social action, and it is the collective responsibility of the society to make the environmental modifications necessary for full participation. This requires an attitudinal or ideological social change, which at the political level becomes a question of human rights (Vayrynen 2008).

As conceived in the Salamanca Statement, inclusive education is linked to the social model of disability based on the principle of social equality (UNESCO 2001:22). According to this statement, the system or the environment, rather than the individual, needs to be changed to transform inclusive institutions so that the individual can be supported. In addition, the systems might need to be modified through the identification and elimination of barriers (Jacklin, Robinson, O’Meara & Harris 2007:47). Inclusive education shifts the focus from learners having to adjust to “fit into” the systems, to the schools transforming themselves to be capable of accommodating and addressing the diverse needs of all learners so that each individual learner receives a learning experience that “fits”. Furthermore, secondary schools can adopt the social model of disability to transform their curriculum, educational practices, staff development, teacher education, and school structures (Puri & Abraham 2004:42).

One of the models that is based on social theory is critical theory that has been developed recently as a theoretical tool to explain the personal identities and experiences of impaired people in a society (Cameron & Tossel 2011:2).

2.6.1.3 Critical theory in education

Critical theory helps to recognise the power struggles and power dynamics that help create more socially just societies (Kincheloe 2008:26). Informed by social theories, critical theory specifically supports individuals in their understanding of issues regarding inequity, power and oppression.

Since it was first proposed, the critical theory has come to include a wide range of descriptive and normative bases for social inquiry which have the practical aim of
maximising human freedom and ending the domination of some groups by others defined by class, power, race or other social constructs. Unlike traditional theory, critical theory makes no claim to be normatively objective – its purpose is to explain oppression and to transform society with the objective of human emancipation. Despite the extensive variation in the critical theory tradition, any adequate critical theory must be explanatory, practical and normative, all at the same time (Hosking 2008:3).

A critical theoretical perspective opens one’s eyes to injustices, highlighting the need to help educators examine practices within their educational contexts in the hopes of constructing an education that is robust and transformative and that promotes social reform through individual and collective activism (Kincheloe 2008:28). Given these characteristics, the use of a critical theoretical lens can help educators question injustices that marginalise different populations such as deaf learners. One of the applications of critical theory in education is critical disability theory. Underpinned by social justice, democracy and emancipation (McLaren 2007), the critical disability theory plays an advocacy role for the equal treatment of all kinds of disabilities, also deaf learners in mainstream secondary schools.

2.6.1.4 Critical theory of disability

Critical disability theory explains disability as a social construct rather than the consequence of impairments (Hosking 2008:7). It tends to question the entrenched notion of disability as an inherent personal tragedy or biological deficiency (Goodley 2013:631-644).

Critical disability theory challenges the approach that describes disability as a disaster and privileges normalcy over the abnormal (Pothier & Devlin 2006:2). In particular, critical disability theory opposes the medical model that sees disability as a misfortune and implies prevention and cure or rehabilitation, rather than equality and inclusion (Pothier & Devlin 2006:9-10). For those people, such as deaf learners, who continue to experience social marginalisation, despite interventions responding to their biomedical
circumstances, the appropriate policy response is to change the social environment, in other word, to change the schools to adapt to the needs of deaf learners. However there is an inherent dialectical tension between the medical model which seeks to abolish disabling impairments and a social model which accepts and truly values disabled people as equal, integrated members of society (Creswell 2009:9). Critical disability theory probes this tension by questioning, among other things, concepts of personal independence and interdependence, the social construction of ‘non disability’ as well as disability, the concept of normalcy, fundamental values of individual dignity and respect in democratic societies, and issues at the intersection of disability with class, gender, race, ethnicity and other socially constructed categories (Pothier & Devlin 2006:12).

Therefore, the critical disability underpins the motivation of this study to identify the activities in the system which can help ensure the full inclusion and participation of people regardless of their differences. The researcher agrees with (Pothier & Devlin 2006:12) that differences in disability cannot be simply ignored: such as is the case with this study, an action agenda for reform that may change the lives of deaf learners in mainstream secondary schools, as well as the staff of those schools (Creswell 2009:9).

According to critical disability theory, deaf learners in secondary schools should be engaged with empowering strategies at every level, such as at the level of the self in the family, as well as in socio-cultural areas (Pinto 2000:11). But the critical disability theory goes further in the sense that it is intentionally political in that its objective is to support the transformation of society so that disabled people in all their diversity can be equal participants and fully integrated into their communities. The critical disability theory provides a conceptual framework to understand the relationship between impairment, disability and society and to inject disability interests into all policy arenas. Therefore, to answer the research questions the researcher applied the critical disability theory as the theoretical framework of the current study.

Since a democratic dispensation was introduced in South Africa in 1994, the country has been in the process of social, political, economic and educational transformations. (Hay
et al. 2001:213). Associated with this socio-political shift has been an emphasis on important values such as equity, non-discrimination, liberty, respect and social justice which have provided the framework for the Constitution. Policy documents and subsequent legislation have emerged that reflect these values. Integrated with the international movements, the following policy documents relate directly to the development and implementation of an inclusive educating system (Lomofsky & Lazarus 2001:303-317):

- White Paper on Education and Training in a Democratic South Africa (1995);
- The South African Schools Act (1996);
- White Paper on an Integrated National Disability Strategy (1997);
- The National Commission on Special Educational Needs and Training and The National Committee on Education Support services (1997);
Figure 2.6 Theoretical framework of the study

Theories
  ↓
Social Theory
  ↓
Critical Theory
  ↓
Critical Disability Theory

New Curriculum

Inclusive Education

Enriched Curriculum adaptation

Curriculum adaptations (theory)

Voices of the educators

Voices of deaf learners
2.6.2 A framework for establishing inclusive education

The White Paper 6 provides a framework for establishing the inclusive education and training system, details a funding strategy and lists key strategies to be adopted in establishing the system in South Africa (Department of Education 2001:5). These strategies include aspects such as the following:

- Emphasising capacity building at leadership and managerial levels and fostering intersectorial collaboration at all levels;
- Strengthening education support services, with the focus on the conversion of special schools into resource centres and developing support teams at district and institutional level;
- Expanding access to and provision of education;
- Developing a flexible curriculum, curriculum support, institutional development, appropriate assessment, appropriate development of materials, and assistive devices;
- Launching a national advocacy and information programme in support of inclusion.

The White Paper 6 recognises that learning is broader than formal schooling and that learning also occurs in the home and community. It also emphasises that in an inclusive education system, education structures need to be enabling, and attitudes, teaching and learning methodologies, and the curriculum changed to reflect inclusive values. All of the above is not possible without supporting the diverse learning needs of all learners, educators and the school system as a whole (Swart & Pettipher 2005:18).

According to White Paper 6 (Department of Education 2001:3), South Africa historically had mainstream schools and special schools for learners with special education needs. These schools specialised in a particular category of special need such as schools for the deaf or schools for children with learning disability or schools for the blind (Department of Education 2001:3). Special schools would cater for the severely disabled and as part of
the district support services, play a role as resource centres for all schools. Primary schools would be designated for conversion to full service schools so that provision can be expanded and accessibility improved for those learners with special needs. The full service schools would be provided with improved and suitable resources so that a wide range of learners would be accommodated. Full service schools should be incrementally developed and thus the development of models for inclusion would characterise first steps in the implementation of inclusion (Department of Education 2001:4).

The intention is that all learners need to be accommodated in appropriate settings (Department of Education 2001:19). Urgent attention should be given to the role of the classroom educators. They are considered as the primary resource for achieving the goal of an inclusive education and training system. This means that educators need to improve their skills and knowledge, and develop new ones.

- In mainstream education, such as where this research is conducted, priorities include multi-level classroom instruction so that educators can prepare main lessons with variations that are responsive to individual learner needs; co-operative learning; curriculum enrichment; and dealing with learners with behavioural problems.

- In special schools/resource centres, priorities include orientation to new roles within district support services of support to neighbourhood schools, and new approaches that focus on problem solving and the development of learners’ strengths and competencies rather than focusing on their shortcomings only.

- In full-service schools, priorities include orientation to and training in new roles focusing on multi-level classroom instruction, co-operative learning, problem solving and the development of learners’ strengths and competencies rather than focusing on their shortcomings only (Department of Education 2001:19).
According to White Paper 6 (Department of Education 2001:29), norms and standards for educator training would include competencies in addressing barriers to learning as well as provide specialised competencies such as life skills, counselling and learner support. Education support personnel within district support services are orientated to and trained in their new roles of providing support to all teachers and other educators. Training focuses on supporting all learners, educators and the system as a whole so that the full range of learning needs can be met.

The White Paper emphasises that one of the most significant barriers to learning for learners in special and ‘ordinary’ schools is the curriculum. In this case, barriers to learning arise from different aspects of the curriculum, such as:

- The content (i.e. what is taught).
- The language or medium of instruction.
- How the classroom or lecture is organised and managed.
- The methods and processes used in teaching.
- The pace of teaching and the time available to complete the curriculum.
- The learning materials and equipment that is used.
- How learning is assessed.

The most important way of addressing barriers arising from the curriculum is to make sure that the process of learning and teaching is flexible enough to accommodate different learning needs and styles. The curriculum must therefore be made more flexible across all bands of education so that it is accessible to all learners, irrespective of their learning needs (Department of Education 2001:19). The researcher acknowledges that this calls for a radical rethinking of the curriculum practices to assist educators in mainstream schools in creating greater flexibility in their teaching methods and in the assessment of learners. But she is also of the opinion that, such as it happens in this study, deaf learners’ voices should be heard. They should have a say in the way they are supported.
2.6.3 Implications of inclusion for South African schools

According to Swart and Pettipher (2005:19), inclusion is not just about disability, but means responding to all learners’ individual needs. It requires changing the culture and organisation of the school so as to create sustainable systems and structures which develop and support flexible and adaptable approaches to learning. It demands that educators and the school community possess knowledge and skills in educational change and school reform. The elements of educational change include shared leadership, support and collaboration, and attitudes.

2.6.3.1 Shared leadership

The success of any innovation aimed at the improvement of educational programmes and learning depends not only on the active involvement but also on the leadership capabilities of key participants. In the unique South African context, for inclusive education to be effective, leadership must be exercised by all who are involved with learners and their families. Critical elements of effective leadership include the ability to establish direction, align key participants, motivate and inspire others, and produce useful changes in the organisation (Walther-Thomas, Korinek, McLaughlin & Williams 2000:30). Shared leadership acknowledges that every school community member, including educators and parents, can be a leader and that leadership roles need to be acknowledged and developed (Swart & Pettipher 2005:19). The understanding of the researcher, emanating from long involvement with deaf learners, is that it is presumptuous to think that everybody else will know how to support deaf learners, without taking their opinions into account.

2.6.3.2 Support and collaboration

When inclusive education is provided in the regular classroom, it cannot be successful if the notion of support does not take centre stage. This implies that no educator, parent, education support professional, learner or volunteer should have to handle significant
challenges alone (Mittler 2005:11, Swart & Pettipher 2005:19). Collaboration is an important strategy of support for inclusive education and, according to Sands, Kozleski and French (2000:120) “… is at the heart of the inclusive school community”. According to Friend and Cook (2003:5), collaboration is “a style of direct interaction between at least two co-equal parties voluntarily engaged in shared decision-making as they work towards a common goal”. Collaboration and communication go hand-in-hand. Collaboration is essentially a process whereby participants develop shared meanings and/or a shared agenda and then, in a cooperative way, set out to implement that agenda. This can be achieved through positive interactions and communication. High-quality communication is extremely important and is related to the success of any collaboration (Loreman, Deppeler & Harvey 2005:82).

In spite of the fact that in South Africa a number of attempts have been made at government level to support and train educators in this critical phase of implementing inclusion, they still feel threatened by new demands and experience a sense of powerlessness and of not being in control of their situation (Prinsloo 2001:345). Therefore, it is important to move beyond disciplinary based approaches to the development of collaborative partnerships in education support, where the involvement of all parties as full partners is recognised and the unique perspectives, experiences, knowledge basis and personal belief systems of all hold equal weight and value (Engelbrecht & Green 2007:179). The researcher is of the opinion that collaboration should also take into account that the learners themselves could also be valuable collaborators in this process. It is important that their input is obtained so that the support given can actually be the support that they need. Nobody will know better than themselves what they need in the classroom.

2.6.3.3 Attitudes and values

A comprehensive study conducted by Hay et al. (2001:213) revealed that South African educators have a definite lack of knowledge about issues relating to inclusive education. Other specific concerns associated with attitudes included the lack of educational and
educator support, insufficient facilities, infrastructure and assistive devices (Swart, Engelbrecht, Eloff & Pettipher 2002:185).

However, educators’ feelings are fundamental and need to be taken seriously. Attitudes about diversity and change can be both a barrier as well as a strong positive force in implementing inclusive education. Educators need opportunities to reflect on proposals for change that touch on their values and beliefs as well as affecting their day-to-day professional practice (Mittler 2005:134). Downing (2002:147) emphasises that some educators are more naturally inclined than others to regard inclusion in a positive light. These educators recognise that the presence of deaf learner presents unique problem-solving situations to other learners. They also use cooperative learning strategies and encourage learners to work together. These educators can ease the transition into mainstream education classes by convincing their colleagues of the beliefs about having deaf learners in their classes. The view of the researcher is that such educators could also value the input of deaf students as collaborators in the teaching and learning in the classroom.

The negative attitude towards inclusion of learners with barriers to learning, however, was found to decrease with educator experience and further training. Additional training leads to improvements in individual attitudes and then improvements in the school ethos towards educating learners with diverse learning needs (Loreman et al. 2005:6). Therefore, it is obvious that serious consideration should be given to the proper training and support of educators in the South African context. The principle of adult-learning that existing experience should be taken into account, and that the teacher should have a say in the contents of such training, is valid also in the case of this study.

2.6.4 Characteristics of deaf learners

From the discussion above it is clear that developing an inclusive educational environment for a deaf learner is not a simple process. In order to analyse the different
aspects that have to be changed in the educational system to provide inclusion of deaf learners, careful attention needs to be paid to the unique characteristics of these learners.

### 2.6.4.1 Cognitive development

Cognitive development refers to the increasing knowledge and mental abilities that are seen in learners as they get older. Over time, the mind grows in both its contents (that is, knowledge) and in the ability to understand, remember, and use those contents. Such growth results from maturation, learning, experience, and the adoption of an increasingly analytic or problem-solving approach to the world. As more complex thinking develops, mental abilities become increasingly inter-linked and learners are able to use them with increasing flexibility (Marschark 2007:186).

Many of the basic issues concerning the development of cognitive and intellectual skills in deaf learners are subject to ongoing debate in various disciplines (Moores 2001:162). Some people in the field of deaf education believe that this is an inappropriate issue to compare deaf learners to hearing learners, and we should instead focus on the strengths of deaf children and perhaps variability among deaf children as a function of school placement, language skills, and so on. However, Marschark (2007:184) emphasises that such an approach might make sense if we were dealing with deaf learners in isolation, but the reality of mainstream education today is such that we have to understand the ways in which deaf learners learn and how their knowledge and skills differ from hearing children who share the same classrooms.

Moores (2001:172) identified three historical stages of research investigating cognition among deaf individuals. The first stage was described as “deaf as inferior”. This stage is seen to be largely a consequence of the work in the early twentieth century by investigators of intelligence who demonstrated a variety of apparent deficits in deaf children’s cognitive performance relative to hearing age-mates (Marschark 2007:184). The second stage was termed “deaf as concrete”. During the 1960s, research on problem-solving and literacy skills was interpreted to indicate that deaf learners are
doomed to be concrete and literal, living in the here and now, with little capability for “higher” levels of functioning. At the time, however, most psychologists saw deaf people as having little if any language at all and failed to recognise that early language and experiential impoverishment - not hearing loss per se - was responsible for many of the findings suggesting “cognitive poverty” (Moores 2001:172; Marschark 2007:185).

The third stage refers to “deaf as intellectually normal”. In a series of studies beginning in 1968, McCay Vernon, a pioneering researcher and clinical psychologist working with deaf individuals, demonstrated that given the impoverished language environments and relatively high incidence of multiple disabilities among deaf children, they did remarkably well, relative to hearing peers (Moores 2001:173; Marschark 2007:185). Marschark and Spencer (2003:466) maintain that deaf learners can be different from hearing learners without being “deficient.” They state that deaf and hearing individuals may vary in their approaches to cognitive tasks and their means of communication.

Moores (2001:184) maintains that the most parsimonious conclusion to draw from the available evidence is that deaf and hearing learners are similar across a wide range of areas traditionally related to the study of cognitive and intellectual abilities. However, it is frequently reported that the academic attainment level of deaf learners lags well behind their hearing peers. Deaf learners often do not have the depth and breadth of conceptual knowledge, problem-solving skills, and cognitive organisation that their hearing peers demonstrate (Westwood 2011:47; Marschark 2007:351; Hallahan & Kauffman 2006:334).

Schirmer (2001:102) emphasises that deaf learners’ progress through the same stages of cognitive development and perform in a similar fashion to hearing learners, but somewhat later on certain tasks. Deaf learners exhibit cognitive differences as a result of language delay and experiential deficit as well as the mismatch between the demands of spoken and written language, and not cognitive capacity (Blackbourn et al. 2004:190; Heward 2009:336).
On the other hand, Marschark (2007:188) assumes that cognitive differences of deaf learners may be the result in different styles of processing information, some of which may be beneficial (for example, focusing on visual-spatial information) and some of which may not (focusing on individual items rather than relations among them). Marschark (2007:188) further emphasises that deaf learners might have a different configuration of intellectual abilities than what hearing learners do, and that these abilities might well demand particular kinds of educational experiences to optimise deaf learners’ academic and intellectual growth. The lack of such experiences might explain some shortcomings in the academic achievement of deaf learners even when they obtain normal scores on intelligence tests (Blackbourn et al. 2004:190). Further investigation of this possibility would help educators to understand the interrelations among language, cognitive development, and social functioning of deaf learners (Marschark 2007:189). Moores (2001:184) concludes: The great difficulties deaf learners encounter in academic subject matter most likely are not caused by cognitive deficiencies. In fact, it is safe to say that educators of deaf have not capitalised on the cognitive strengths of deaf learners in the academic environment.”

Marschark et al. (2002:114) stress that early access to effective language is essential for normal cognitive development and academic success in both deaf and hearing learners. It was noticed that early use of sign language is a good predictor of cognitive development and academic success among deaf learners (Hallahan & Kauffman 2006:334). The contribution of developing language skills, and especially automatised (unconscious) language skills such as the activation of word meaning has also been shown to be an essential contributor to other complex cognitive abilities (Marschark et al. 2002:115).

Marschark (2007:205) also notices that in both nonverbal and verbal areas, deaf learners appear just as creative as their hearing peers. Factors negatively impacting deaf learners’ creativity and flexibility, however, include over-control by adults, lack of communication and interaction with educators and parents, and less diversity in early experiences relative to hearing age-mates. Nevertheless, families that are more involved in their child’s education seek knowledge about their child’s condition in order to provide guidance, have
high expectations for achievement, do not try to overprotect their children and are likely to have higher-achieving children (Hallahan & Kauffman 2006:334).

From the above discussion it is clear that knowledge of differences in cognitive development and social functioning of deaf learners will allow educators in regular high schools to appropriately design instructional methods and make appropriate accommodations to the curriculum to include these learners in high mainstream schools.

2.6.4.2 Personal and social development

“According to Hallahan and Kuaffman (2006:335) social development and personality development in the hearing population depend heavily on communication, and the situation is no different for those who have hearing loss. The hearing person has little difficulty finding people with whom to communicate. A deaf person, however, can face problems in finding others with whom he or she can converse. Porter (2002:142) adds that hearing impairment does not, in itself, affect learners’ acquisition of social skills. However, where the development of communication skills is delayed, regardless of whether speech or sign is used, interactions with parents and other people can become more difficult, and the acquisition of some social skills may be delayed.

Marschark et al. (2002:82) further emphasise that the establishment of effective social communication strategies contributes to academic success, better mental health and positive self-esteem of deaf learners. In order to address the unique needs of deaf learners in mainstream high schools, the personal and social dimensions of deafness need to be observed.

2.6.4.2.1 Identity and personality

Identity is the representation of the self. The self is a social construction because we develop a sense of who and what we are by observing and interpreting the responses of others (Crocker & Quinn 2000:153-183). Therefore, the development of one’s identity is
a socially constructed process, which emerges through present and past experiences and interactions between oneself and the surrounding social environment.

The identity of deaf learners is multifaceted, including a set of unique, as well as culturally shared, characteristics and attitudes (Scherer 2004:120). The social and psychological adjustment of these learners in the regular school is not easily achieved, since it depends mainly on the opportunities offered to these learners to interact with hearing peers and educators. Israelite, Ower and Goldstein (2002:134-148) point out that deaf learners in regular schools often experience exclusion from activities engaged in by their hearing peers and, because of this, fail to gain full and immediate access to the educational and social opportunities offered in the regular school and in the regular classroom environment.

Historically, research studies in the field of identity of deaf learners indicate that the school environment is one of the primary agents for learners’ eventual development of identity (Maxwell-McCaw 2001:16). Hadjikakou, Petridou and Stylianou (2005:205) emphasise that support services provided to deaf learners attending regular schools is a factor that should be taken into account when these learners are being included. Deaf learners in regular schools with the supportive environment generally describe positive interactions with their hearing peers and educators. Thus, these learners should be given appropriate support so that they can develop “healthy” identities and operate as effectively as possible within society.

2.6.4.2.2 Social integration and social skills

According to Stinson and Antia (1999:163-175), social integration can be defined as the ability to interact with, make friends with, and be accepted by peers. In other words, the learners need to be able to participate in social activities and develop close and emotionally secure relationships with peers. Having a friend means having someone to play with, to learn from, to teach, to nurture, and to be nurtured by (Luckner & Muir 2002:25).
In inclusionary settings, very little interaction typically occurs between deaf learners and their hearing peers (Hallahan & Kauffman 2006:335). As a result, deaf learners often feel lonely, emotionally insecure, and isolated in mainstream classes (Marschark 2007:161).

Some proponents of educating deaf learners in mainstream education settings contend that this is the best environment for developing social skills because deaf learners have opportunities to interact with peers who are both hearing and deaf. However, research has demonstrated that deaf learners are unlikely to form good relationships with hearing peers unless efforts are made by professionals to bridge the communication barrier and to structure situations where positive interactions can occur (Friend 2008:320).

2.6.4.2.3 Social status and roles

The research suggested that recently there was greater sensitivity and acceptance of deaf learners than previously (Schirmer 2001:114). Luckner and Muir (2002:23-30) state that helping deaf learners to become more self-aware and also providing them with information about friendship and social rules will allow them to develop more positive social roles. It will also help them to become actively involved in identifying and meeting their educational, socio-emotional and career goals. Learners who form positive social roles are aware of their strengths and weaknesses and the potential impact of them on their performance.

Maxwell-McCaw (2001:11) highlights that the study of the social development of deaf learners shows that hearing learners and deaf learners do not significantly differ from one another in terms of their personal identity, satisfaction with life, or overall well-being. Deaf awareness and sign language courses could be offered to hearing learners in order to enable them to build strong relationships with their peers who are deaf. Educators in regular schools also need to develop special knowledge in order to provide appropriate support to deaf learners to develop better manual and oral communication skills and p
Positive social interactions that would enable them to immerse themselves successfully in both the hearing and deaf worlds in adult life (Hadjikakou & Nikolaraizi 2007:398-414).

2.6.4.3 Emotional development

According to Skuse (2003:77) parental responses, language delay, and difficulties in accessing incidental learning are the major factors that can adversely affect the emotional development of deaf learners. The academic performance of these learners could be enhanced by attendance in regular schools, but emotional development may be negatively affected (Polat 2003:325-339).

Rieffe and Meerum Terwogt (2006:1261-1273) further emphasise that the emotional development of deaf learners is a severely understudied area. They also state that deaf learners often seem to overlook the effect that emotion displays in the interactions with their peers and caregivers.

Educators in regular schools have to address the unique needs of deaf learners by promoting the learners’ self-esteem and self-confidence. These main components of emotional development will be discussed in the next section.

2.6.4.3.1 Self-esteem and self-confidence

Self-esteem is a principal component of emotional development. The definition of self-esteem includes a person’s summary evaluation of his or her worthiness as a human being. In this delineation, self-esteem is global as it refers to the totalities of personal attributes rather than to a single dimension. Self-esteem is an important concept since it is shown to have a pervasive and powerful impact on human cognition, motivation, emotion, and behaviour (Jambor & Elliott 2005:63-81).

Regardless of whether deaf learners grow up in a hearing or deaf family, they all have to go through similar life experiences as they try to find their way in the majority society
(Jambor & Elliott 2005: 63-81). Marschark (2007:209) further emphasise: “Because deaf learners typically receive (or understand) fewer explanations for the causes of other people’s social and emotional behaviours, they may have more difficulty controlling their own behaviour and learning from social experience. Communication barriers may also result in deaf learners having less knowledge about social rules, and their lack of social skills in turn may impede the development of independence and self-esteem”. These learners are likely to have faced frustration, embarrassment, misunderstanding, and the loneliness of being left out of oral conversations (Jambor & Elliott 2005:63-81). Verkuyten (2003:543-564) suggest that factors such as family support and school experience can significantly influence the self-esteem of any school learner.

Recent research shows that attending schools with mostly hearing learners, while having the opportunity to interact with other deaf learners, is beneficial since it gives these learners the chance to learn how to function in the hearing world (Kluwin 1999: 339-344). Marschark (2007:161) also emphasises the importance of providing opportunities for deaf learners to interact with other deaf learners and adults in order to help them appreciate that they have a rich and supportive community in addition to their hearing family. This suggests that school settings where deaf learners are among similar others but also interact with hearing educators and learners would be ideal for the developing self- esteem and self-confidence of deaf learners (Jambor & Elliott 2005:63-81).

2.6.4.3.2 Self-efficacy

According to Marschark et al. (2002:201), motivation, interest, and a positive attitude are helpful qualities in the learning process. Similarly, self-efficacy, the ability to engage in a task and successfully complete it, can be reinforcing in itself, while contributing to self-esteem and a sense of mastery.

Schirmer (2001:160) indicates that deaf learners could be characterised as immature and dependent on others, particularly by hearing learners and educators, however many deaf learners could also be characterised quite differently. The variance can be found in the
different ways that these learners are encouraged to be self-motivated and to develop their leadership and independence capacities.

Schirmer (2001:161) mentions that deaf learners tend to attribute their academic success to external factors and therefore demonstrate less motivation to work on improving specific academic areas. Deaf learners were also found to be more impulsive than hearing learners regardless of the communication used by the learner, they become less impulsive with age, but so do hearing learners, and the differences between them seem to remain.

Marschark et al. (2002:201) further emphasise that deaf learners as well as hearing learners need to be motivated to perform successfully. Educators need to assist deaf learners to become aware of their strengths and find ways to take advantage of the context to maintain interest and enjoyment. They also need to motivate deaf learners to learn more in order to develop self-efficacy.

2.6.4.3.3 Love and belonging

Schools represent microcosms of society and provide opportunities for learners to develop and use skills that are necessary for a healthy lifestyle (Kent 2003:315-324). The sense of belonging to a school community is extremely important and has far-reaching implications for motivation and behaviour (Osterman 2000:323–367).

Deaf learners are at risk of alienation and a range of adverse outcomes including low academic achievement, delays in cognitive and social-cognitive processing, social maladaptation, and psychological distress or disorder. They may also begin to identify themselves as helpless individuals and avoid participating in school activities. The perception of being “left out” or undesirable is a characteristic of the social relationships of deaf learners (Kent 2003:315-324). Additionally, the prevailing negative social stigma of deafness may influence the individual personal perceptions of deafness common among deaf learners, further increasing the likelihood of isolation. Motivation, peer
relationships, and identity are areas in which deaf learners are particularly vulnerable (Stinson & Whitmire 2000:58-72).

Luckner and Muir (2002:23-30) suggest that active participation in extracurricular activities helps these learners to develop their leadership and decision-making abilities, organisational skills, time-management skills, and interpersonal communication skills.

Moores (2001:204) concludes that the social-emotional adjustment of deaf learners is similar to that of hearing learners, with great individual variation. Most deaf learners cope with the reality of deafness as a lifelong condition and lead normal, productive lives. This fact supports the contention that deafness itself has no direct impact, either negative or positive, on the development of a mentally healthy individual. Consequently, an integrated approach to development that emphasises multiple skills including communication and language, socio-emotional, motor and adaptive or functional skills is considered to be the best practice in deaf learners’ education (Calderon & Greenberg 2003: 69).

The above discussion discloses that educators need to consider all aspects of human development in order to include deaf learners successfully in regular schools. It is important for educators to develop the appropriate attitude and skills for interacting with deaf learners in the regular classroom. They need to know which possible strategies to use and how to adapt the current curriculum in order to correctly identify and appropriately address the unique needs of these learners in regular schools.

2.7 CONCLUSION

This chapter begins with a discussion of the concept of “deafness”. A discussion of the aetiology of deafness as well as types and causes of hearing loss was also conducted in order to provide appropriate information about deaf learners. Auditory access and assistive technology, which include sensory devices such as hearing aids, cochlear implants, computers and related technologies were discussed in an attempt to address the successful inclusion of deaf learners in regular schools.
Inclusive education requires changing the culture and organisation of the school so as to create sustainable systems and structures which develop and support flexible and adaptable approaches to learning and development of all learners including those with deafness. The theoretical framework of the study was explored, followed by an overview of some of the elements of educational change.

Curriculum adaptations and differentiations need to be individualised for deaf learners based on their unique needs and learning styles. In the next chapter the curriculum adaptations that are appropriate for deaf learners are outlined as well as how to make those adaptations to support their learning in regular classrooms.
CHAPTER 3
CURRICULUM ADAPTATIONS AND MODIFICATIONS

3.1 INTRODUCTION

The previous chapter addressed the concept of deafness and reviewed the literature consulted concerning the manifestations of deafness. The situation regarding inclusion of deaf learners in unique South African context was also discussed.

Chapter 3 presents a discussion of effective curriculum adaptations for deaf learners in Grade 8 for the learning areas Social Science, Mathematics and English Home Language, which are closely linked to other disciplines. Social Science is linked to Natural Science, English Home Language is linked to Life Orientation and Second or Additional Language (Afrikaans or isiZulu), Mathematics is linked to Economic and Management Sciences as well as Natural Science. The need to adapt the curriculum in inclusive classrooms is currently widespread and involves careful decision-making by educators. At present the Department of Basic Education does not provide educators in mainstream schools with practical examples based on the curriculum, for example, in a workbook format. Therefore, in the light of inclusive education there is a need for educators to have worked out practical examples that they can use to assist deaf learners in mainstream schools. These examples may especially help those educators who are not adequately trained to be less overwhelmed by all the challenges. The discussion begins by addressing the concept “curriculum”, which leads to an exposition of the implementations of the new curriculum, which is now combined in a single document known as Curriculum and Assessment Policy Statements (CAPS). Thereafter, the general aims of the South African curriculum are discussed.

Adapting the curriculum involves differentiating instruction to provide learners with a variety of ways to process information and demonstrate what they have learned, in order to "match" the way in which each learner learns most effectively (Bashinski 2002:1). Effective curriculum adaptations for deaf learners which include four primary categories
(content, instructional strategies, instructional materials and assessment) are examined in detail.

3.2 CURRICULUM

According to Power and Leigh (2003:38), the term curriculum is used frequently by almost everyone with an interest in education but often with little agreement on its meaning. Often curriculum is narrowly considered as being only the syllabus or other documents that shape teaching processes and content. Alternatively, curriculum can be seen broadly as being everything that happens in schools.

The curriculum is more than a mere document or syllabus; it is much more than a collection of predetermined learning objectives and experiences. Curriculum refers not only to those elements, but also to the actual effects on the learning of a variety of planned and unplanned arrangements and the interactions between participants in the educational process (Power & Leigh 2003:38).

Bertram, Fotheringham and Harley (2000:3) emphasise that a curriculum could further be understood in the following two ways: “firstly, as a plan (which may be written in a document). This plan reflects the knowledge, skills and attitudes that any society chooses to pass on their children.” In their view curriculum should secondly be seen as the learning and teaching experiences that happen in any site of education.

According to UNESCO (2004:13), the curriculum is what is learned and what is taught (context); how it is delivered (teaching-learning method); how it is assessed (examinations, for example); and the resources (e.g., books used to deliver and support teaching and learning). The curriculum has many meanings. A formal curriculum is often referred to as planned learning experiences and can include the content to be learned as prescribed by the authority. An informal curriculum is an unplanned curriculum, the interactions and experiences that happen daily in the classrooms. A hidden curriculum is about attitudes and beliefs that are attached to what educators learn and teach. Thorough
assessment of participation and learning progress at home, at school and in the community will determine the strengths that can be developed and the supports that need to be in place in order to make the curriculum accessible to each and every child (Bornman & Rose 2010:43).

3.2.1 Curriculum and Assessment Policy Statements (CAPS)

According to the Minister of Basic Education, Angie Motshekga, a new South African curriculum has been implemented within a five-year period from 2010 to 2014 to replace both Curriculum 2005 and the Revised National Curriculum Statement. It is intended to replace the Outcomes-based Education (OBE) curriculum with one that will provide systematic support to educators to strengthen their teaching while at the same time relieving educators from their current high administrative burden (Bornman & Rose 2010:243).

The minister's remarks were precipitated by the report on the implementation of the National Curriculum Statement in South African schools (Report of the Task Team for the Review of the Implementation of the National Curriculum Statement). The report found that educators were confused, overloaded, stressed and demotivated, and as a consequence, were underperforming (Department of Education 2011a:14).

According to the Curriculum News of May 2011 (Department of Education 2011a:14), the report detailed a number of recommendations for addressing and improving the situation. These included:

- Producing one clear and accessible policy document;
- Writing a more streamlined curriculum;
- Reverting to subjects and essential subject knowledge;
- Ensuring there is progression and continuity across grades;
- Standardising assessment.
As the result of ongoing implementation challenges, the two National Curriculum Statements, for Grades R-9 and Grades 10-12 respectively, are combined in a single document and will simply be known as the National Curriculum Statement Grades R-12. The National Curriculum Statement for Grades R-12 becomes effective from 2012, and builds on the previous curriculum but also updates it and aims to provide clearer specifications of what is to be taught and learnt on a term-by-term basis.

3.2.2 General aims of the South African Curriculum

According to the Curriculum and Assessment Policy Statement (Department of Education 2011b:3), the National Curriculum Statement Grades R-12 gives expression to the knowledge, skills and values worth learning in South African schools. This curriculum aims to ensure that learners acquire and apply knowledge and skills in ways that are meaningful to their own lives. In this regard, the curriculum promotes knowledge in local contexts, while being sensitive to global imperatives.

The National Curriculum Statement Grades R-12 serves the purposes of The Department of Basic Education by:

- Equipping learners, irrespective of their socio-economic background, race, gender, physical ability or intellectual ability, with the knowledge, skills and values necessary for self-fulfilment, and meaningful participation in society as citizens of a free country;
- Providing access to higher education;
- Facilitating the transition of learners from education institutions to the workplace;
- Providing employers with an adequate profile of a learner’s competences (The Department of Education 2011b:3).

The National Curriculum Statement Grades R-12 is based on the following principles:
• Social transformation. Ensuring that the educational imbalances of the past are redressed, and that equal educational opportunities are provided for all sections of the population;
• Active and critical learning. Encouraging an active and critical approach to learning, rather than rote and uncritical learning of given truths;
• High knowledge and high skills. Specifying the minimum standards of knowledge and skills to be achieved in each grade and setting high, achievable standards in all subjects;
• Progression: Showing the progression of context for each grade from simple to complex;
• Human rights, inclusivity, environmental and social justice: Sensitising learners to the principles and practices of social and environmental justice and human rights as defined in the Constitution of the Republic of South Africa that include diversity issues such as poverty, inequality, race, gender, language, age, and disability to which the National Curriculum Statement Grades R-12 is sensitive.
• Valuing indigenous knowledge systems: Acknowledging the rich history and heritage of the Republic of South Africa as important contributors to nurturing the values contained in the Constitution;
• Credibility, quality and efficiency: Providing an education that is comparable in quality, breadth and depth to those of other countries (Department of Education 2011b:3).

The National Curriculum Statement Grades R-12 (Department of Education 2011b:4) also highlights that inclusivity should become a central part of the organisation, planning and teaching at each school. This can only happen if all educators have a sound understanding of how to recognise and address deafness as a barrier to learning, and how to plan for diversity, including the execution of curriculum adaptations.

The key to managing inclusivity is ensuring that deafness is identified and addressed by all the relevant support structures within the school community, including educators, District-Based Support Teams, Institutional-Level Support Teams, parents and Special
Schools as Resource Centres. To address the barrier such as deafness in the classroom, educators should use various curriculum differentiation strategies such as those included in the Guidelines for Inclusive Teaching and Learning of the Department of Basic Education (Department of Education 2011b:4).

3.3 CURRICULUM DIFFERENTIATION AND ADAPTATION

According to the Department of Education (2002:137), key concepts of the curriculum include the style and tempo of teaching and learning, what is taught, the way the classroom is managed and organised, as well as materials and equipment which are used in the learning and teaching process. Therefore, flexibility could be regarded as a key component of the curriculum.

The Guidelines for Inclusive Teaching and Learning (Department of Education 2010:10) explore the two key curriculum processes of curriculum adaptation and curriculum differentiation. Adaptation is presented as a strategy for ensuring effective curriculum delivery to all learners, particularly learners with disabilities. Differentiation is presented as a key strategy to cater for the different levels of ability, and to mitigate the effects of various barriers to learning. Adaptation refers broadly to modification and/or adjustment of lessons, activities and materials to make them suitable for different learner needs.

Differentiation, on the other hand, assumes that learners may vary in their cognitive abilities. It is the responsibility of educators in inclusive schools to plan lessons in such a way that they range from the most basic level to the most complex level. All learners are exposed to the same concept. The content may be presented in a multimedia format to enable learners with different “intelligences” to access it. Learners are given different options in presenting their work, so that every learner is assessed in terms of his or her strengths. At the level of the lesson plan, for example, differentiation implies adjusting tasks to appeal to the various interests, needs, aptitudes, experiences and previous achievements of individual learners (Department of Education 2010:10)
The Department of Education (2011c:7) maintains that curriculum differentiation is a key strategy for responding to the needs of learners with diverse learning styles and abilities. It involves processes of modifying, changing, adapting, extending, and varying teaching methodologies, teaching strategies, assessment strategies and the content of the curriculum. It takes into account learners’ ability levels, interests and backgrounds. Westwood (2011:202) states that differentiation is also a strategy for accommodating learners with disabilities by removing some of the barriers to learning and development. UNESCO (2001:101) adds that curriculum adaptation takes place within the context of the curriculum which all other learners access. It usually involves personalised teaching supported by relevant materials or teaching aids. Curriculum adaptations can be done at the level of content, instructional strategies, instructional materials and assessment. Each of these levels will be discussed below.

3.3.1 Differentiating curriculum content

The content of a curriculum includes what educators teach and what the learners are expected to learn, that is, to know, understand or be able to do. It includes facts, concepts, and skills that learners will acquire within their learning environment. Sometimes educators are able to select the content to suit the learners’ needs. Sometimes it is the authority of the school that prescribes the content of the curriculum; sometimes it is a combination of educator and authority (Department of Education 2011c:8).

Bashinski (2002:1) states that adapting curricular content might involve applications as straightforward as: reducing the number of vocabulary words assigned to an individual learner; having a learner complete only the odd-numbered problems on a mathematics assignment; holding a learner responsible for learning three facts about one animal, instead of two facts about each of five different species; or affording learners the choice of taking a spelling pre-test to opt out of spelling for a particular week. Individualised adaptations of content can also be achieved by restructured concept-based teaching.
According to Department of Education (2011c:8) educators can differentiate the content at the following levels:

- **Abstractness.** A curriculum includes many facts, definitions, descriptions, patterns, relationships, key concepts and generalisations. Example: Depending on learners’ levels of functioning, they might access the content at a concrete or abstract level; certain learners might need to work with objects, such as small stones as counters before they are ready to work with abstract numbers. It is the responsibility of educators to ensure that the content is adapted at the level of the individual learner.

- **Complexity.** Many aspects of the curriculum can be very complex and difficult to understand for some learners; for example, understanding the different characters in a story is a more complex task than just relating the plot of the story. Educators need to contextualise topics rather than use facts in isolation.

- **Variety:** To cater for learners’ levels of functioning and their interests the curriculum needs to be expanded; for example, learners who have excellent reading skills might be given new and varied material to stop them from getting bored.

Adjustment of the cognitive demand in a lesson typically involves an adaptation to the attention, thinking, and/or memory requirements associated with a particular content. In partnership with hierarchical questioning techniques, this approach can result in a larger number of learners meaningfully participating in a lesson drawn from the general curriculum (Bashinski 2002:1).

Adaptations usually require more educator effort and time than simply changing instructional method or access. An adaptation is a goal-driven process. In order to decide on an adaptation of a curriculum, educators first need to specify intended goals for individual learners, as each learner has individualised learning outcomes that may be at different levels (below, at or above grade level) within the same curriculum area (Bornman & Rose 2010:243; Koga & Hall 2004:5).
3.3.2 Adapting instructional strategies

Adapting instructional strategies is a method that allows educators to meet the needs of all learners according to their strengths, ability levels, and needs, without separating learners homogeneously (according to their ability levels). Educators are able to create lesson plans based on educational objectives for the entire class, while modifying the delivery, product, or assessment for classroom learners. By providing instruction in this situation, learners recognise that they are all learning the same material; however, it is presented in the way that meets their unique needs (Gartin, Murdick, Imbeau & Perner 2002:12).

Adapting instructional strategies also involves the method of instruction, how learners are grouped, the nature of their participation in the lesson, and the interactions between educators and learners, and among the learners themselves (Westwood 2011:210).

The task of the educator is to adapt instructional strategies for deaf learners while they are still following a common curriculum with the rest of the class. For this reason, instructional strategies are regarded as the most feasible adaptations for educators to make. They certainly provide a very sound starting point for any educator moving from a formal, whole-class method of instruction to a more personalised approach (Westwood 2011:211).

3.3.3 Adapting instructional materials

The process of adapting instructional strategies provides for additional, or simply different, materials, in a variety of modalities that the learners might use during the course of instruction. Most material adaptations fall into one of four groups:

- Adjusting the readability level of written materials;
- Enhancing critical features of the content within the materials themselves;
• Designing materials with features that appeal to sensory modalities other than visual or auditory modalities;
• Selecting alternate instructional materials for their durability or safety features (Bashinski 2002:1; Luetke-Stahlman 1998:388-391).

Adapting instructional materials involves making changes to the equipment and/or supplies to which learners have access during the course of instruction. This involves a change in the formats through which information is represented to the learner or the learner’s engagement with the curriculum during the course of instruction (Bashinski 2002:1).

Adapting instructional materials includes strategies such as adapting and modifying existing print material, for example by re-writing it in a simpler form, or by creating new supplementary materials at a simpler level around the same theme or topic. Naturally, this is a demanding and time-consuming process for educators, although it is frequently recommended as best practice in professional literature on differentiation (Westwood 2011:10).

There are differences of opinion as to how far educators should go in making the task of reading easier for learners with barriers to learning and development. Some writers argue that at all times educators should use only texts that represent authentic literature and ‘real’ language from a wide range of different genres, even though the vocabulary, style and language patterns may be quite challenging for learners with disabilities (Day & Bamford 2002:136-141). The suggestions above are provided, however, for those educators who do see some merit in simplifying materials for the early stages of reading and comprehending (Westwood 2011:11).

3.3.4 Adapting assessment practices

The final category of curricular adaptations refers to alterations in the way in which educators receive information from learners in the classroom. These involve a change in
the learner’s instructional output (Bashinski 2002:1). Within a differentiated curriculum, assessment of learners and their learning is integral to the teaching and learning process. As with differentiated instruction, differentiated assessment is based on the thinking that the needs of learners cannot all be met in the same way (Department of Education 2011c:23).

Differentiated assessment will enable learners of various abilities and with varied experience to best demonstrate what they know. As the educator gets to know the learner, and as learner differences emerge, assessment needs to become more differentiated. The goal is to meet learners where they are and to help them progress to the next step in their learning. Thus, it is a cyclical process: assessment and instruction support and inform each other (Department of Education 2007:46).

![Differentiated Assessment Process](Department of Education 2007:46)

Figure 3.1: Differentiated Assessment Process (Department of Education 2007:46)

Offering learners the opportunity to respond to instruction in a nontraditional manner, in some way(s) other than through typical oral recitation or written expression, is also encompassed in the curriculum adaptations category. Alternative learner responses might include: collage, sculpture, pantomime, dramatic portrayal, musical composition, motoric demonstration, photographic presentation, or graphics display (Bashinski 2002:1).

Educators might find that there are certain learners for whom a different or alternate form of assessment is called for. The National Protocol for Recording and Reporting (Grades R–12) (Department of Education, 2011c:28) allows for three key types of alternate assessment that can be used to assess learners experiencing barriers to learning:
Alternate assessments based on alternate attainment of knowledge (content, concepts and skills) for learners with a significant cognitive disability. These assessments are based on the grade-level content covered by the general assessment, but at reduced depth, breadth, and complexity. These assessments describe achievement based on what is determined as a high expectation for these learners. Target learners can include learners with intellectual disabilities, some of whom are currently enrolled in special schools or schools of skill.

Alternate assessment based on modified attainment of knowledge (content, concepts and skills) for learners with disabilities who are working on grade-level content that is covered in the general assessment. However, because of their disability, they may require more time to master the content. These assessments measure a learner's mastery of grade-level content with reduced load or at a more functional level. Target learners can include learners with moderate intellectual disability, learners who are deaf, some learners on skill programmers and so on.

Alternate assessments based on grade-level attainment of knowledge (content, concepts and skills) for learners with disabilities or learning difficulties that need testing formats or procedures that provide them with equal opportunities to demonstrate their attainment of content which is at the same grade-level as the general assessment. Target learners can include learners who are blind, have communication difficulties, physical disabilities, learners who are dyslexic or with hearing loss and who need additional time, alternate formats, readers, amanuensis, electronic equipment and so on, as outlined in the policy document, National Policy on the Conduct, Administration and Management of the National Senior Certificate: A qualification at Level 4 on the National Qualifications Framework (NQF).

The Department of Education (2011c:29) maintains that every learner will therefore have access to the standard of assessment that is suited to his or her needs. No learner will be disadvantaged by the system in as far as that there will be a lowering of expectations or that he/she is not assessed at all. All learners will also have the opportunity to receive a school leaving certificate. Learners who experience significant barriers to learning must
also have the possibility of straddling grades which allows them to take certain subjects at grade level and others at a different level.

3.4 ADAPTING THE CURRICULUM FOR DEAF LEARNERS

According to Power and Leigh (2003:42), currently, more than four out of every five deaf learners are educated in regular mainstream schools, either in regular classrooms or special classes within regular schools. Hence, the influence of and need to conform to general curriculum standards is increasing. In most western countries, standards provide the basis for curriculum design for all learners. Nevertheless, there is ample evidence that deaf learners have specific needs as learners that require some adaptation of both objectives and the learning experiences designed to achieve standardised outcomes (Marschark et al. 2002:193).

For deaf learners, effective curriculum design involves determining additional or alternative educational objectives and experiences required to achieve the same overall outcomes as for other learners. Determining the requirement for, and nature of, such specialised objectives and learning experiences involves considering the specific characteristics of deaf children as learners (Power & Leigh 2003:42).

3.4.1 Adapting curriculum content for deaf learners

The curriculum needs to be differentiated in order to provide a variety of learning experiences to meet deaf learners’ different learning needs. In this way, all learners in the class can be included, and can participate and learn. The primary way an educator can include deaf learners in the class lessons is by adapting the curriculum content; how the educator presents information to the learners; how the learners practise and use the newly taught information; and how the learners show that they have learned the information. Deaf learners can benefit from inclusion if adaptations to curriculum content, which can take many different forms, are made. Modifying curriculum content usually implies that:
Deaf learners are required to cover less material in the lesson.
The tasks or activities they attempt are usually easier to accomplish.
The objectives set for the lesson might involve mastery of fewer concepts and the application of easier skills.
The nature of the learning tasks set for deaf learners will be matched to their learning rate and abilities; some tasks may take a longer time to complete than others.
Differentiated content for homework assignments could be used as a way of meeting the needs of deaf learners.
Educators should rephrase questions and sentences rather than merely repeating them.
Educators should use concise statements or simplified vocabulary.
The present tense could be used to simplify the sentences.
New vocabulary is introduced at the beginning of a new theme. Special attention needs to be paid to abstract concepts (e.g., summarise, measure).
Educators should allow deaf learners to make models, role-play, develop skits, and create art projects to demonstrate understanding of the information. They may be given extra time to complete these tasks (Westwood 2011:207; Department of Education 2010:59; Bornman & Rose 2010:178; Friend 2008:332).

Bornman and Rose (2010:37) emphasise that curriculum content should be adapted to facilitate participation and learning, but educators should guard against limiting or “watering down” the outcome. Often deaf learners are described as passive, a state frequently referred to as “learned helplessness”. This is the result of low expectations and a compulsion of parents, educators and helpers to do everything for the learner. This may be well meaning, but the result can be disastrous. The challenge is to look at the curriculum through the “eyes of the learner” rather than to look at the learner through the “eyes of curriculum”. It is about seeing the bridges that were already in place and planning how and where to build new ones. Differentiated teaching is a powerful way to dismantle barriers (Bornman & Rose 2010:38).
Adaptations to the curriculum content can be applied to different learning areas. In this study, the Grade 8 curriculum will be used to present practical examples of curriculum adaptations to specific learning areas, such as Social Science, English (Home Language) and Mathematics. These are main learning areas which are closely linked to other disciplines. For example, mathematics can be linked to science as practical work and problem-solving across all the sciences requires the capacity to organise and represent data in a range of forms such as plotting, interpreting and extrapolating graphs, estimating and solving ratio problems, performing unit conversions, and so on. In turn, language and literacy skills in English reinforce economic and management sciences (EMS). When studying EMS learners need to describe objects and events, interpret descriptions, read and give instructions, explain ideas to others, write reports and procedural accounts, participate in group discussions and provide expositions. The skills taught in English for communication with others, comprehension and researching texts and creating new texts can reinforce learning in Life Orientation (LO) and Social Science (History and Geography). Language skills and literature, with its emphasis on studying texts from a range of historical and cultural contexts, can help learners understand the perspectives and contributions of people from around the world and from both the past and present. In history, learners use their English skills to undertake research, read texts with critical discernment and create texts that present the results of historical understanding clearly and logically. When knowledge, skills and comprehension from three main areas (English, Science and Mathematics) are meaningfully applied to other learning areas, learning becomes more relevant and understanding deepens (ACARA 2012:2) The practical examples from these three main learning areas, which are closely linked to other disciplines, will be discussed further.

### 3.4.1.1 Learning area: Social Science

Deaf learners should be provided with new vocabulary such as *colonisation, conference, governor, genocide and concentration camp* at the beginning of a theme. Educators should rephrase questions and sentences during the lesson in order to help deaf learners
to understand the questions. Educators should use simplified vocabulary; for example the word *colonised* can be replaced by the words *taken over* or *occupied*, which are more recognisable by deaf learners at this age. They can allow deaf learners to create an art project; for example, deaf learners can draw a poster, “The time of genocide”, where suitable pictures will be drawn in order to demonstrate understanding of the information, instead of writing an essay (Department of Education 2011d:18).

### 3.4.1.2 Learning area: Mathematics

Mathematics task directions can be simplified for deaf learners. When presenting deaf learners with problem-solving tasks that involve for example, geometric shapes, (such as finding perimeter and area of polygons or circles), deaf learners can be allowed to show their knowledge with hands-on materials. Special attention must be given to important algebraic terminology, such as *variables*, *constants*, *coefficients*, *powers*, *base of the power and like and unlike terms*. This terminology should be used on a permanent basis to develop their understanding and help them to memorise concepts (Department of Education 2011d:35).

### 3.4.1.3 Learning area: English Home Language

When deaf learners are required to write a narrative or descriptive essay, they should be allowed to make use of a scribe. They need to learn the new vocabulary and academic language in advance. The skill of writing needs to be divided into smaller steps. The learners need to be taught to do each step systematically. When, for example, they are asked to write imaginative descriptive essays, like “A fight between a lion and an elephant”, they should be provided with an appropriate picture. They also need to learn the new vocabulary (verbs, adjectives, relative pronouns). Educators can ask the learners to make note cards for each paragraph. Then the learners should write information in point form for each note card. An example would be:

1. Description of the lion;
2. Description of the elephant;
3. Description of the surroundings;
4. Reason for the fight;
5. Behaviour during the fight;
6. Outcome of the fight.

Then the learners can start to elaborate the information and make sentences from each point. They can write brief draft paragraphs and leave spaces for corrections. Then learners can make sentences to fit in between paragraphs to make the ideas flow more easily. After that they need to read a whole story and do final editing with the assistance of a hearing classmate or educator. Writing essays in such a manner would help educators to start with work that deaf learners can do before attempting more difficult activities. If the learner encounters problems, educator must return to the lower levels of work. Writing exercises for deaf learners can range from one or two descriptive sentences to paragraphs. These activities should keep pace with the learners’ ability and interest level.

At the later stage, when the learners master making shorter sentences in essay writing, they should be encouraged to use longer sentences that include clauses with: *so that, that, then, after, before*. They need to be introduced to abstract nouns such as *love, hate, jealousy*; and various kinds of verbs, for example: *came to get, went to see*. Comparisons of adjectives that can be used are: *as white as snow – snow-white; as red as blood – blood-red*. They also need to know new adverbs as they occur in the course of work. Sequences may need to be supported with visual and descriptive representations of the steps required to complete the task. Deaf learners should be allowed more time to complete their tasks (Department of Education 2011d:22; Department of Education 2010:51).
### 3.4.2 Adapting instructional strategies for deaf learners

Lessons should not be presented in only one way to all learners. Methods of presentation should be adapted to learners’ learning styles, levels of thinking, and levels of participation. In order to reach all learners, material should be adapted and the method of presentation should be differentiated. This also involves a change in the learners’ instructional input. Effective adaptation of instructional strategies can be done if the educator creates a more positive learning environment in which deaf learners feel valued and encouraged to take risks (Department of Education 2010:59).

Adapting the instructional process can be accomplished through a number of specific strategies. An educator of deaf learners should:

- Support listening with non-verbal cues; for example, gestures, signing, lip-reading, facial expressions and pictures to assist with comprehension of vocabulary and concepts.
- Ask the learner to repeat the instruction back to him or her.
- Rephrase questions and sentences rather than merely repeating them.
- Not discourage translations by other learners.
- Incorporate the use of demonstrations or role play.
- Utilise educator presentation cues (e.g., gestural, visual, or verbal) to emphasise key points.
- Scaffold key concepts to be learned.
- Let learners become more actively involved in the learning process through the implementation of learner response techniques (e.g., response cards, thumbs up/thumbs down) or the incorporation of manipulators for learners’ use.
- Use shorter sentences, less information per sentence (not too many words), and increase the length of pauses between sentences.
- Gain eye contact and lower the body to the learner’s eye level.
- Break verbal instructions down to two or more steps at a time.
• Show the learner what the educator wants him or her to do, rather than simply telling.
• Encourage learners to ask questions to gain clarity and meaning.
• Communicate through facial expressions, gestures and body language.
• Group learners for specific purposes (e.g. by ability, interest, friendships). The aim should be to encourage cooperation and peer assistance; grouping may facilitate the matching of learning tasks to learners’ ability levels or may help the educator to give more assistance to specific learners.
• Set up classroom learning centres. Individual contract systems can be established, and computer-assisted-instruction (CAI) may be used.
• Enhance story reading by initially reading while facing the learner, thereby enabling him or her to look alternately at the educator and the book.
• Ensure that the learner is able to follow the aims, structures and intended outcomes of instructions. Both visual information and gestures should be used effectively.
• Develop reading comprehension as it is strongly related to language proficiency that is pivotal to all educational activities; for example reading textbooks, completing worksheets, following instructions, and so forth (Westwood 2011:211; Luetke-Stahlman 1998:388-391; Bashinski 2002:1; Department of Education 2010:81-82).

According to Power and Liegh (2003:43), educational objectives and instructional methods that are appropriate for hearing learners may often not be appropriate for deaf learners. Consideration of these differences gives rise to a range of possible alternative objectives and strategies for deaf learners relative to those for their hearing peers. The nature and range of these possible differences also highlights the potential for diversity among deaf learners and the imperative to consider their learning needs on an individual basis.
3.4.2.1 Social Science

When explaining new concepts such as “Causes of colonisation in Africa”, educators should use pictures, portraits, photographs and newspaper articles to ensure that learners are able to understand the new theme. Learners can be grouped to study “The Results of Colonisation”. Deaf learners could be allowed to write essays instead of performing oral presentations (Department of Education 2011d:18).

3.4.2.2 Learning area: Mathematics

Educators need to provide opportunities for deaf learners to work with true problems, for example, when working with data and graph analysis, in-depth analysis of solution strategies must be employed. Deaf learners can be grouped with hearing learners and presented with a graph that represents the distribution of real test scores for their group. Working with real data will help the learners to understand the task and will help them to reduce confusion and frustration often associated with problem-solving tasks (Department of Education 2011e:18).

3.4.2.3 Learning area: English Home Language

Learners in the senior phase are expected to write a range of creative and informational texts independently. Deaf learners should be allowed to use writing frames as support. They also need to be provided with formats or examples of the required layout. Discussion should always precede any writing activity. Educators should start by discussing experiences, thoughts, feelings and events. The learners need to be encouraged to use shorter sentences, i.e. less information per sentence. Educators should help the learners to brainstorm words, develop sentences using the words, order sentences, and then write out the final copy (Department of Education 2011f:38).
3.4.3 Adapting instructional materials for deaf learners

Having acknowledged the importance of adapting teaching strategies, it is also important to identify adaptations of instructional materials that involve a change in the formats through which information is represented to deaf learners or deaf learners’ engagement with the curriculum during the course of instruction. This requires mainstream educators to understand these learning characteristics and the particular communication and social needs of deaf learners.

If educators do wish to produce differentiated material for their mixed-ability classes, some of the following principles could be applied for re-writing or augmenting text passages, worksheets, exercises, activity cards, or supplementary notes:

- Simplifying vocabulary;
- Providing clear illustrations or diagrams;
- Highlighting important terms;
- Improving the layout and format of the sheets;
- Placing non-verbal signs on the classroom walls;
- Appointing a note-taker, when notes need to be taken during the lesson, as deaf learner cannot watch educator and the interpreter at the same time;
- Providing a copy of educator’s notes, if possible;
- Highlighting key words or concepts in printed material;
- Using boards, pictures, posters with words and/or pictures, overhead projectors, and signs;
- Providing concrete resources which will assist the learner in speaking about a given topic;
- Providing visual aids to assist in understanding and feedback (Westwood 2011:10; Department of Education 2010:81-82; Bornman & Rose 2010:243; Friend 2008:332).
The physical environment can also create barriers to learning. This includes factors such as classroom spaces, classroom infrastructure, arrangement of furniture, level of noise and class size. It is critical for educators to consider these factors when trying to meet the learning needs of deaf learners.

In order to respond to the needs of deaf learners in the class, educators should make the following adaptations to the physical classroom environment:

- Place the learner near the front of the class to minimise distractions; educators may consider placing desks in a circle or horseshoe formation.
- Stand where the student can lip-read.
- Face the student when talking.
- Eliminate or reduce background noise with carpeting, draperies, acoustic ceiling tiles, and acoustic wall treatments.
- Position deaf learners strategically in relation to the educator, or another learner who is speaking.
- Ensure that the position and source of light are suitable for deaf learner.
- Minimise visual distractions (visual pollution) such as classes that are too full.
- Incorporate assistance by a person or by using a technological device (e.g. hearing aid and FM system) (Department of Education 2010:81-82; Bornman & Rose 2010:243; Friend 2008:332).

3.4.3.1 Learning Area: Social Science

Educators should provide deaf learners with educator’s notes. A copy of the notes which need to be taken during the lesson can also be offered. When studying the colonisation of Namibia by Germany, hearing learners can, for example, perform role-play to help deaf learners to picture the events that happened in concentration camps in Namibia in 1904. Pictures of the concentration camps can also be provided. Instructions can be broken down into two or more steps at a time to ensure the participation of deaf learners in class activities (Department of Education 2011d:18).
3.4.3.2 Learning area: Mathematics

Educators can place non-verbal signs on the classroom walls, such as “+”, “-”, “×” or “π”, “a” for the area and “P” for the perimeter, to help deaf learners to understand what operation they require to perform within given the categories. The like terms in the sum: $2x + 5y - 3y + 7x$ can be highlighted on worksheets to assist deaf learners to operate with algebraic expressions (Department of Education 2011e:35).

3.4.3.3 Learning area: English Home Language

In order to help deaf learners to develop reading and writing skills, educators need to provide the class with a pre-reading activity to introduce new vocabulary. They should encourage the learners to highlight the important words or sentences, summarise the story’s main points and rewrite the story in shorter sentences and simpler language. Educators should teach deaf learners grammar, visually, by using pictures, or concrete objects, or signs or gestures, and the written words (Department of Education 2011f:36).

3.4.4 Adapting assessment practices for deaf learners

The Department of Education (2010:36) states that assessment strategies should be adapted to meet the learning needs of individual learners. Through the assessment, educators can identify what kind of intervention or form of support is needed to address the existing barriers to learning. This could imply various interventions with the learner or educator; transformation of some aspects of the curriculum; or addressing family or social factors.

All assessment procedures should be appropriate and relevant to the realities of the learners or school concerned and should be built into the teaching and learning process. Assessment should thus identify learning needs and determine whether learning occurs successfully (Department of Education 2002:106).
The Department of Education (2011c:23-24) highlights some procedures that educators can follow when adapting assessment for deaf learners. These include:

- Design assessment tasks which will allow for different learning styles or intelligences;
- Allow for group assessment tasks;
- Pace or scaffold the assessment activities;
- Allow for tests and assignments to be taken orally as well as in written form;
- Modify the vocabulary used in test items to match the learner’s abilities;
- Use projects or portfolios in lieu of tests;
- Provide graphic cues (e.g., arrows, stop signs) on answer form;
- Give alternative forms of the same test;
- Provide tasks which require short answers from deaf learners;
- Teach test-taking skills;
- Allow deaf learners extra time to complete tasks;
- Use technological aids or make other special arrangements to undertake assessment tasks;
- Keep a record of materials and assessment tasks used;
- Keep educators’ observation books for learners who need additional support;
- Focus only on key concepts for deaf learners;
- Focus on the positive aspects or talents of deaf learners;
- Vary assessment activities;
- Exclude some marks collected early in the semester for a learner who performed poorly at the beginning of the year but subsequently made good progress;
- Allow learners to make models, role-play, develop skills, and create art projects to demonstrate their understanding of the information;
- Allow written or drawn responses to serve as alternatives to oral presentations;
- Allow learners to use computers or word-processors.
Westwood (2011:212) states that assessment is a very important process that provides an indication of how effective a particular episode of teaching and learning has been. The process of assessment also highlights anything that may need to be taught again, revised, or practised further by some learners. Assessments of learners’ characteristics such as interests, prior knowledge, and learning styles help educators to provide learning activities that engage and encourage learning. Assessment is an integral part of curriculum adaptation. It helps educators to identify what learners need so that they can appropriately adapt the content, and teaching methods and activities (UNESCO 2004:83).

3.4.4.1 Learning area: Social Science

In order to assess the skills of deaf learners, educators can provide tasks that require short answers. For example, when the learners study the factors that affect location of settlements (geography), such as climate, vegetation, natural features, laws, etc., they do not need to describe the factors, they need only list them. They can be allowed extra time to complete the tasks. They can also be provided with alternative forms of assessment, such as multiple-choice questions, fill-in-the-blank questions, true-false questions or essay questions (Department of Education 2011d:30).

3.4.4.2 Learning area: Mathematics

In order to assess the geometric skills of deaf learners, the learners can be provided with real shapes (models). Cut-out shapes of rectangular, square and rhombus can also be provided when educators evaluate their knowledge of special kinds of parallelograms. The modification of the vocabulary used in test items will help educators to make the assessment procedures fair and effective. For example, “the instruction “find the fraction of the whole number” can be replaced by the instruction “multiply the fraction and the whole number”, where the word multiply can be accompanied by the respective sign (“x”) (Department of Education 2011e:33).
3.4.4.3 Language area: English Home Language

Educators can allow deaf learners more time to complete assignments and tests. They can be allowed to present written essays instead of oral presentations, for example. They can get help from their classmates to complete the essay outline before they write it. Educators can also allow deaf learners to create, for example, a pictorial collage to represent the themes of each section of the outline. Discussion should always precede any writing activity (Department of Education 2010:53).

When educators prepare language tests for deaf learners, they can reduce the number of options for multiple-choice questions to focus on major concepts, and provide options for short-answer questions. They can also help deaf learners to identify the key content, but keep the remainder of the assignment the same. Deaf learners could be allowed to use the dictionary during tests or assessments (Department of Education 2010:53).

The researcher feels that the study of Grade 8 curriculum policies revealed that the existing documents (Senior Phase) do not hold appropriate strategies and guidelines for educators in high schools to adapt the curriculum to the needs of deaf learners. Deaf learners are not likely to be exposed to all relevant material at a level similar to that of hearing peers. This means that while deaf learners are exposed to classroom activities and the curriculum, they are often not able to benefit. Interactions with educators and the classmates are often inadequate, as deaf learners often have limited vocabulary.

The researcher also believes that it is important to realise that educators of the regular schools must be appropriately supported to maintain their continuous involvement with deaf learners and learn strategies for working effectively with these learners in the inclusive classrooms. They need to know how to differentiate instructions in order to make the curriculum more accessible for deaf learners through adaptations and accommodations. Therefore, it is important to provide information to educators of mainstream schools about the types of curriculum adaptations that could be considered in developing the appropriate strategies for a particular deaf learner.
3.5 CONCLUSION

In Chapter 3 the term *curriculum* was described. The general aims of the new South African National Curriculum Statement Grades R-12, which builds on the previous curriculum, but also updates it and aims to provide clearer specification of what is to be taught and learnt on a term-by-term basis, were discussed. Four levels of curriculum adaptations which include the level of content, instructional strategies, instructional materials and assessment were determined. Effective curriculum adaptations for deaf learners which include these four categories were discussed in detail with practical examples for main subject areas.

Chapter 4 focuses on explaining the research design and methodology utilised to conduct this study.
CHAPTER 4
RESEARCH DESIGN AND METHODOLOGY

4.1 INTRODUCTION

In an attempt to address the shortcomings in the education of learners experiencing barriers to learning and development, the South African government proposes the inclusive education system. Establishing this type of system does, however, result in a unique set of challenges for educators and learners. Inclusion requires changing the culture and organisation of the schools so as to create sustainable systems and structures which develop and support adaptable approaches to learning and development. This does not happen automatically as it demands that educators and the school community possess the appropriate knowledge and skills as they play a key role in the implementation of this change.

Chapter 1 presented the context and outlined the aims of the research. In Chapter 2 the nature of deafness was discussed. A variety of sources had been used to identify areas in the development of deaf learners which, if not attended to, could pose problems in a mainstream setting. Chapter 3 focused on curriculum adaptations for deaf learners in mainstream settings.

The aim of this chapter is to provide a complete exposition of the research methodology followed in the study. A mixed methods approach is selected to explore the adaptations that could be made to the curriculum in order to include deaf learners successfully in mainstream settings. Both quantitative and qualitative methods are used concurrently in this study. A discussion of the sampling strategies for both quantitative and qualitative data collection is provided. This is followed by a description of data generation procedures and data analysis for quantitative and qualitative methods. Finally, validation procedures and ethical issues of the research are explained.
4.2 RESEARCH DESIGN AND METHODOLOGY

Research design is a plan or blueprint of how the researcher intends conducting the research (Babbie & Mouton 2011:74). Johnson and Christensen (2004:275) describe research design as the outline or strategy to use in order to seek an answer to the research question. This refers to all the decisions made by the researcher in planning the study, such as the overall design to be used, the sources and procedures for collecting data, the measurement issues and how the findings will finally be put together (Henning, Van Rensburg & Smit 2004:30; Fouche 2005:133). Henning et al. (2004:30) emphasise that research design is very important because certain limitations and cautions in interpreting the results are related to each design and because the research design determines how the data should be analysed.

The current research was conducted by means of mixed methods research designs, which combine quantitative and qualitative methods; this research design is becoming increasingly popular because the use of both approaches together can provide a more complete investigation (McMillan & Schumacher 2010:25).

Mixed methods designs have been classified in numerous ways by various authors from different disciplines. A functional classification including three major types of mixed methods designs have been advanced by McMillan and Schumacher (2010:25); these include explanatory design, exploratory designs and triangulation design.

In an explanatory design quantitative data are collected first and, depending on the results, qualitative data are gathered second to elucidate, elaborate on, or explain the quantitative findings (McMillan & Schumacher 2010:25). The rationale for this approach is that the quantitative data and results provide a general picture of the research problem; more analysis, specifically through qualitative data collection, is needed to refine, extend, or explain the general picture.
The next design is similar to the explanatory research design except that the phases are reversed. The **exploratory design** involves a first phase of qualitative data collection and analysis, followed by a second phase of quantitative data collection and analysis that builds on the results of the first qualitative phase (Creswell 2009:211). The purpose of this kind of study is typically to use the initial qualitative phase with a few individuals to identify themes, ideas, perspectives, and beliefs that can then be used to design the larger-scale quantitative part of the study. Often, this kind of design is used to design a survey (McMillan & Schumacher 2010:25).

In current research mixed methods study called a **triangulation design** was used. In this design, both qualitative and quantitative data were collected at about the same time and then it was determined whether the findings generated by analysis of each type of data corroborate the other (Gall, Gall & Walter 2010:470). Triangulation is normally used when the strengths of one method offset the weakness of the other, so that together, they provide a more comprehensive set of data. To the extent that the results from each method converge and indicate the same result, there is triangulation and thus greater credibility in the findings (McMillan & Schumacher 2010:26).

The triangulation design was used to generate quantitative and qualitative data concurrently to explore the experiences of deaf learners as well as the knowledge and skills that educators consider important to successfully include deaf learners in mainstream schools. The integration of these methods took place during the analysis and interpretation stage of the research to integrate the quantitative and qualitative findings side-by-side in a discussion so as to present a comprehensive analysis of the research problem. For the sake of representation the quantitative results from the survey are presented first to provide an outline of the trends, opinions and attitudes, followed by the qualitative data and quotations from the transcripts of interviews. The triangulation design (Figure 4.1) illustrated below is adapted from Creswell (2009:210). The uppercase letters (QUAL) indicate weight or priority on the qualitative method, while the lowercase letters (quan) represent less priority or emphasis on the quantitative method. Boxes highlight the quantitative and qualitative data collection and analysis.
4.2.1 Quantitative research approach (survey)

The quantitative strategy allows for experimental as well as non-experimental designs, such as surveys. A survey design provides a quantitative or a numeric description of trends, attitudes, or opinions of a population by studying a sample of that population (Creswell 2009:145). Random sampling is frequently used in survey research in which questionnaires or interviews are used to gather information (Johnson & Christensen 2004:197).

In this study the quantitative strategy chosen was survey research to collect numeric data using a questionnaire to provide a quantitative description of opinions, beliefs, trends and attitudes of high school educators towards inclusion of deaf learners into mainstream schools. The purpose of the survey design was to complement the qualitative data in order to obtain a broader outlook of the issues surrounding inclusion of deaf learners into mainstream high schools.
4.2.2 Qualitative research approach (phenomenology)

Qualitative research designs use methods that are distinct from those used in quantitative designs. Qualitative designs are just as systematic as quantitative designs, but they emphasise gathering data about naturally occurring phenomena. Phenomenology is one of the approaches or strategies of qualitative inquiry. It refers to the description of one or more individuals’ consciousness and experience of a phenomenon. The purpose of phenomenological research is to obtain a view into research participants’ life-worlds and to understand their personal meanings constructed from their “lived experiences” (Johnson & Christensen 2004:19).

The intention of this study was to explore the phenomenon of deaf learners being educated in high mainstream schools and research knowledge and skills that educators consider important for inclusion of deaf learners in mainstream high schools. This is best undertaken using mixed methods, which combine the quantitative and qualitative approaches, giving priority to the qualitative approach. Qualitative research involves the use of empirical methods and materials that provide insight into “routine and problematic moments and meanings in individuals’ lives”. This could result in a more accurate understanding of the meanings people attach to their lived experiences (Denzin & Lincoln 2003:5). The researcher collects data from individuals who have experienced the phenomenon being studied, which then leads to the development of a composite description to capture the essence of all the participants’ experiences (Fouche 2005:270).

4.3 SAMPLING

Sampling refers to the process of drawing a sample from a population. When the researchers sample, they study the characteristics of a subset (called the sample) selected from a larger group (called the population). After the researchers determine the characteristics of the sample, they generalise from the sample to the population; that is, researchers make statements about the population based on their study of the sample (Johnson & Christensen 2004:197; Gall et al. 2010:34).
Mixed methods sampling, used in this research, involving both probability and purposive sampling method, allows the researcher to gather complementary sets of data that can give both breadth and depth of information pertaining to the phenomenon being explored. Positivist and interpretive research typically designs do not draw large or random samples (Terre Blanche, Durrheim, Painter 2006:49). A researcher usually chooses between either comprehensive sampling or purposeful sampling. Teddlie and Yu (2007:89) have identified four types of probability sampling for mixed method studies: stratified purposive sampling, purposive random sampling, concurrent triangulation sampling, multilevel mixed method sampling. In this research multilevel mixed method sampling was used. This approach can be used to combine a variety of different methods (quantitative and qualitative) in order to investigate and describe the specific phenomenon.

4.3.1 Sample procedures for the quantitative part of the research

For the quantitative part of this research a purposive sample of 10 schools was selected. All purposefully selected schools have deaf learners enrolled there at some stage; therefore, educators of these schools participated in workshops to get the knowledge about deafness. As that not many learners who are enrolled in these schools are deaf, not all of the participants have the experience of teaching them, however, there is a strong possibility that these educators might be exposed to teaching the learners with hearing loss within the not too distant future. Those schools were selected as they were geographically accessible to the researcher, making it possible to deliver and collect questionnaires personally. Being an educator herself, the researcher had first-hand knowledge of the teaching standards of these schools, as well as their willingness to participate in the research study.

4.3.2 Sample procedures for the qualitative part of the research

In quantitative studies, the emphasis is more on relying on the judgment of the researcher to select a sample that is representative of the population or that includes subjects with the needed characteristics. Here the emphasis tends to be on representatives, whereas
qualitative researchers are more interested in selecting cases that are information rich (McMillan & Schumacher 2010:138). Creswell (2009:220) adds that in qualitative data collection purposive sampling involves the selection of individuals who have experienced the central phenomenon under investigation, and that the purposive selection of participants represents a key decision point in qualitative study.

Johnson and Christensen (2004:215) emphasise that purposive sampling has the same limitations as any non-random sampling method. Specifically, the ability to generalise from a sample to a population on the basis of a single research study is severely limited. The optimal situation would be when the researcher specifies the criteria potential participants must meet to be included in a research study but then attempts to obtain a random sample of these people. However, this is not always possible or practical (Johnson & Christensen 2004:215). The purpose of conducting semi-structured, one-to-one interviews with four deaf learners was aimed at finding answers to the main research questions.

A total of four deaf individuals agreed to participate in this study. A long-term relationship with the participants (the researcher is employed as the specialised educator at the abovementioned Partially Hearing Unit) was advantageous to their willingness to participate in the study. They were friendly, easily accessible and willing to share their personal experiences with the researcher. Participation was voluntary.
<table>
<thead>
<tr>
<th></th>
<th>Participant A</th>
<th>Participant B</th>
<th>Participant C</th>
<th>Participant D</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>Male</td>
<td>Female</td>
<td>Female</td>
<td>Female</td>
</tr>
<tr>
<td>Age</td>
<td>21</td>
<td>25</td>
<td>25</td>
<td>26</td>
</tr>
<tr>
<td>Degree of hearing loss</td>
<td>profound</td>
<td>profound</td>
<td>profound</td>
<td>profound</td>
</tr>
<tr>
<td>Year of matriculation</td>
<td>2010</td>
<td>2006</td>
<td>2006</td>
<td>2004</td>
</tr>
<tr>
<td>Qualification</td>
<td>BSc (Civil Engineering)</td>
<td>BCom (Management)</td>
<td>BCom (Accounting)</td>
<td>BCom (Accounting)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>BCom Honours (Management)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>UNISA (2012 – to date)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Current occupation</td>
<td>Student</td>
<td>Student</td>
<td>Student</td>
<td>Audit manager (Anglo American)</td>
</tr>
</tbody>
</table>

Table 4.1 Details of participants
4.3.3 Participant description

The following section contains the profiles of the four participants.

Participant A

The first participant in this research is referred to as Participant A in order to ensure his anonymity. This participant is a profoundly deaf male who started his school career in 1998 in the special unit for deaf learners which was attached to a mainstream school. The classes of the unit were not as large as some mainstream classes, and also not as diverse. The educators teaching in those classes were experienced educators who had received specialised education training at the University of South Africa. They had worked with deaf learners for many years and their education and experience had helped them to acquire valuable expertise in this field. The participant was placed in a regular Grade 7 class in the same school for one year to enjoy the greater academic stimulation of the mainstream environment. During the same year he received his cochlear implant.

In 2005 he was transferred to a regular government high school. He matriculated in 2010 with four distinctions. In 2011 participant A was enrolled at the University of KwaZulu-Natal to study towards a BSc degree in Civil Engineering. He is currently studying at the university.

Participant B

The second participant in this research is referred to as Participant B. This participant is a profoundly deaf female who also started her school career at the specialised unit in 1995. During this time her cochlear implant was surgically installed. When she was in Grade 6 she was transferred to a mainstream government school. The participant matriculated in 2006 with three distinctions. She entered the University of KwaZulu-Natal in 2007 and subsequently graduated in 2011 with a Bachelor’s degree in Commerce. She will soon graduate with a BCom (Honours) degree in Management.
Participant C

The third participant in this research is referred to as Participant C. This participant is a profoundly deaf female who also spent the beginning of her school career at the specialised unit. She underwent surgery during her primary school years to receive a cochlear implant. At the end of Grade 7 she went to a private high school. Classes in that school were quite small. There were about 15-18 learners in the class. She matriculated from the high school in 2006 and entered the University of KwaZulu-Natal a few years later. She will soon graduate with a Bachelor’s degree in Commerce.

Participant D

The fourth participant in the research is referred to as Participant D. She also received her foundation education at the specialised unit and was transferred to a private mainstream high school. She matriculated in 2004 with five distinctions, including two for languages. She graduated with a Bachelor of Commerce degree from the University of KwaZulu-Natal, as its first deaf graduate. This participant then completed an Honours degree at the University of South Africa and graduated within one year with a second degree in Accounting Science in 2008. Soon after that she completed her articles and become the first deaf chartered accountant in South Africa. She is currently working in business assurance services at the Anglo-American Corporation. The participant uses only hearing aids; a cochlear implantation has never been performed. She has impressive skills in lip-reading and comprehending facial expressions.

4.4 DATA GATHERING

The concurrent mixed method procedures that were employed in this mixed method study necessitates the simultaneous collection of quantitative (less dominant) and quantitative (dominant) data, to provide better informed understanding of the phenomenon of inclusion of deaf learners in mainstream high schools.
4.4.1 Data gathering instruments for the quantitative part of the research

The quantitative data collection instrument used in this study was a structured questionnaire. According to McMillan and Schumacher (2010:195) the questionnaire is relatively economical, has the same questions for all subjects, and can ensure anonymity. Questionnaires can use statements or questions, but in all cases, the subject is required to respond to something written for specific purposes.

For the quantitative part of this study multiple questionnaires was used to identify the knowledge that educators consider important with regard to inclusion of deaf learners in regular high schools. A Likert-type scale with three response categories, viz. Agree, Disagree, Uncertain, was utilised. The three response categories allowed the researcher to measure the direction and intensity of responses. The findings from the quantitative data were used to complement support to the qualitative enquiry which was the dominant research method used.

4.4.2 Data gathering procedures for the quantitative part of the research

After obtaining permission to conduct research at ten high schools in KwaZulu-Natal, 210 questionnaires were personally delivered to the principals of selected high schools on the agreed date and time. Their assistance was enlisted to distribute the questionnaires to the high school educators. School administrators were informed of the reasons for conducting research via written communication. The letters sent to the principals explained the finer detail of the research and thanked them for their co-operation. Principals received follow-up calls to inquire whether educators had completed the questionnaires. A return rate of 51% completed questionnaires was achieved. This is considered a good return rate, taking into account that a well-planned survey is normally expected to yield at least a 40% response rate (Cohen et al. 2007:345-346). The good return rate could indicate the need of high school educators for assistance in supporting deaf learners in mainstream schools.
Two covering letters addressed to the principals and educators (Appendices 3 and 4), in which ethical issues were also addressed, accompanied the questionnaire. These letters informed principals and educators of the purpose and potential benefits of the study. Participants were assured of anonymity and confidentiality. Relevant information regarding the completion of the questionnaire was also given. The estimated time for completion of the questionnaire was thirty to forty minutes.

4.4.3 Data gathering instruments for the qualitative part of the research

Since the qualitative approach to inquiry in this study is located in phenomenology, the data collection instrument believed most appropriate was interviews with the participants. An interview is a data-collection method in which an interviewer (the researcher) asks questions of an interviewee (the research participant). The interviewer collects the data from the interviewee, who provides the data (Johnson & Christensen 2004:178). According to McMillan and Schumacher (2010:205) the interview technique is flexible and adaptable. It can be used with many different problems and types of persons.

A semi-structured interview with a schedule was utilised in this study. The topics for the interview were identified during the literature study, which revealed relevant questions for the researcher to ask in the course of the interview with the learners. Johnson and Christensen (2004:144) stress that semi-structured questions have no choices from which the respondents select answers. Rather, the question is phrased to allow for individual responses.

4.4.4 Data gathering procedures for the qualitative part of the research

During the semi-structured interviews the interviewer covered the same general topics and questions with all the interviewees.

The purpose of the interviews in this study focused on the generation of information regarding participants' thoughts, beliefs, knowledge, reasoning, motivations, and feelings
about a topic. During the interviews the researcher attempted to establish trust and rapport, making it easy for the interviewees to provide information about their inner world (Johnson & Christensen 2004:183). Denzin and Lincoln (2003:25) recommend the use of interpretive, open-ended approaches as means of gathering “thick descriptions” of particular events, so as to make sense out of a local situation, is valuable. Non-verbal as well as verbal behaviour can be noted in face-to-face interviews, and the interviewer has an opportunity to motivate the respondent. However, the primary disadvantages of the interview are its potential for subjectivity and bias, its higher cost and time-consuming nature, and its lack of anonymity.

Greeff (2005:294) maintains that the researcher and the participants have some degree of flexibility, and the researcher is able to follow up interesting areas that emerge from the responses. Participants are also able to provide greater detail, thereby furnishing an in-depth account of their life experiences, as questions are open-ended.

An additional advantage of this approach was that it helped build a positive relationship between the interviewer and respondents. This was helpful as the interviewer was following up initial interviews and was involved in a continuing evaluation of study (McMillan & Schumacher 2010:206).

4.5 PILOT STUDY

Cooper and Schindler (2006:76) describe the aim of the pilot study as an investigation of the feasibility of the planned project.

It was important to perform a pilot study in order to determine the usefulness and feasibility of the questionnaire in terms of the clarity of the terminology, relevance of the content, intelligibility of instructions, the format of the questionnaire and the ease of coding. Questionnaires were handed to five high school educators for pilot testing. After the completion of the questionnaires, they were discussed in relation to specific criteria. Subsequent adaptations were based on recommendations of the participants.
The interview questions were also pilot tested. They were given to two learners with hearing loss who were not included in the research. The pilot study of the interview questions was conducted to ensure that the meanings of the questions and statements were easily understandable, to gauge their level of difficulty, to develop suitable code values and to ensure reliability and validity (Jankowicz 2005:250). Initial analysis of the data collected from the pilot test data was undertaken to ensure that data addressed the research questions.

4.6 DATA ANALYSIS

According to Creswell (2009:218-219), data analysis in mixed method research relates to the type of research strategy chosen for the procedures. However, analysis occurs both within the quantitative (descriptive and inferential numeric analysis) and the qualitative (description and thematic text or image analysis) approach and often between the two approaches. The current approach includes a concurrent embedded model for the triangulation design. In this model, a survey was conducted at one level (with the school educators) to gather quantitative results about a sample (deaf learners). The next step included data collection through qualitative interviews (with deaf learners) to explore the phenomenon with the inclusion of deaf learners in mainstream schools. The following step included presenting specific quotations or information about a theme which was followed up by descriptive statistical outcomes for comparison to either confirm or disconfirm results.

According to Mouton (2009:108), 'analysis involves breaking up the data into manageable themes, patterns, trends and relationships'. To carry out this process successfully, it is necessary that transcriptions of all the recordings be made (Holloway & Wheeler 2002:236).

Data analysis of the qualitative part of the research was performed in accordance with the following steps:
• Descriptive words in the transcribed interviews were assigned to themes, which were colour coded according to previously determined categories.
• The categories were also grouped together.
• Units of meanings that did not fit into the existing categories were also categorised and colour coded.
• The categories were organised into themes which reflected the major findings.
• The information was rechecked against the coding.

The final stage according to De Vos (2005:339) is the writing of a report in which the data is interpreted and more is meaning given to it.

Quantitative data analysis was analysed by means of Statistical Package for the Social Sciences (SPSS) software. Bar graphs representing responses to each of the questions were drawn up. The quantitative data on each diagram were interpreted descriptively as the main purpose of the questionnaire was to obtain background information into the attitudes and experiences of educators of regular high schools.

4.7 VALIDATION PROCEDURES

The techniques of triangulation are especially helpful in establishing the credibility of mixed data. In data triangulation, the researcher uses multiple sets of data to cross-validate and corroborate findings. When mixing data and method, the researcher uses the fundamental principle of mixed research; that is, the weaknesses of one method or a set of data are minimised by the use of another method or set of data (Johnson & Christensensen 2004:426).

4.8 ETHICAL ISSUES

McMillan & Schumacher (2010:117) maintain that ethics generally are concerned with beliefs about what is right or wrong from a moral perspective. Research ethics are focused
on what is morally proper and improper when engaged with participants of the research. In this research study informed consent was achieved by providing subjects with an explanation of the research.

Permission was sought from the Department of Education, deaf learners, the principals and educators to conduct the survey at their schools. Participants were made aware of the purpose of the study before informed consent was obtained. They were informed that no harm would be inflicted on them, and that their identities would not be revealed.

The participants were assured that their responses would be treated in a confidential manner. The principles of voluntary participation and the right to withdraw without penalty were adhered to. Permission was sought from the participants to tape-record the interviews. All participants were asked, at the beginning, whether they would be comfortable having the interview tape-recorded. All participants were willing to be tape-recorded. In this study every effort was made to maintain mutual trust between the researcher and the participants to ensure their freedom and willingness to participate in the study.

4.9 CONCLUSION

This chapter further clarified the research problem, the aims of the research and the demarcation of the field of study. It explained the nature of mixed method research and the mixed method concurrent triangulation research design that were utilised in this research. This approach was chosen to gain insight into the experiences of deaf learners and the regular school educators regarding inclusion of these learners into mainstream high schools. Detailed descriptions of the quantitative and qualitative research phases were provided in terms of the subject selection and material. This was followed by a discussion of data analysis and validation procedures for mixed method design, as well as quantitative and qualitative approaches. Finally, ethical measures taken for the study were also explained. Chapter 5 presents a discussion and an interpretation of the results with regard to each form of data collected.
CHAPTER 5
RESULTS AND DISCUSSION

5.1 INTRODUCTION

The move towards inclusive education in South Africa has resulted in the realisation that a range of needs exists among learners within the education system and other systems in the environment. These needs need to be met or addressed if effective learning and development are to be provided and sustained. Therefore the education system must be structured and must function in such a way that a diversity of learner needs and system needs can be accommodated. In order to obtain information about these accommodations, research in this field is crucial.

The main aim of the current study was to investigate the wide spectrum of curriculum adaptations necessary to accommodate deaf high school learners within inclusive education. Both quantitative and qualitative methods were employed in this study for the purpose of triangulation. Within the context of a descriptive research design, questionnaires and face-to-face semi-structured interviews were utilised to obtain quantitative and qualitative data regarding the research topic. The presentation of the results includes the origin of the results, graphic representation of the results in the form of figures or tables, as well as a discussion and interpretation of the results. The quantitative and the qualitative data, as well as literature control, are integrated in the analysis and interpretation of the findings. A flow diagram depicting a presentation of results is provided in Figure 5.1.
ASPECT 1

Questionnaire survey

Hearing Loss

Inclusive Education

Participant Interview

Hearing Loss

Inclusive Education

Integration and Discussion

ASPECT 2

Questionnaire Survey

Specific characteristics of deaf learners

Cognitive development

Social development

Emotional development

Participant Interview

Specific characteristics of deaf learners

Cognitive development

Social development

Emotional development

Integration and Discussion
Figure 5.1: Flow diagram of the presentation of results

5.2 DESCRIPTION OF PARTICIPANTS

The following bibliographical information with regard to the 107 subjects is important:
• **Gender**

Figure 5.2 below summarises the gender distribution of educators.

![Gender distribution chart](image)

Sixty-five female and forty-two male educators were included in the study.

• **Age**

Figure 5.3 below summarises the age distribution of educators.

![Age distribution chart](image)
According to Figure 5.3, 12% (13 educators) were between the ages of 21 and 26, 23% (25 educators) were between the ages of 27 and 32, 9% (10 educators) were between the ages of 33 and 38, 12% (13 educators) were between the ages of 39 and 44 and 43% (46 educators) were older than 45.

- **Teaching learners with hearing loss**

Figure 5.4 indicates educators’ experiences of teaching the learners with hearing loss.

According to Figure 5.4, 9% (10 educators) stated that they had already taught learners with hearing loss and 91% (96 educators) indicated that had no experience of teaching such learners.

- **Teaching experience**

Figure 5.5 summarises the years of teaching experience.

According to Figure 5.5, 16% (<5 years), 26% (5-10 years), 6% (11-15 years), 15% (16-20 years) and 37% (20+ years) of educators had teaching experience.
Figure 5.5 stated that 16% (17 educators) had under five years of teaching experience, 26% (28 educators) had between five and 10 years of teaching experience, 6% (six educators) had between 11 and 15 years of teaching experience, 15% (16 educators) had between 16 and 20 years of teaching experience and 37% (39 educators) had in excess of 20 years of experience.

- **Highest educational qualifications**

Figure 5.6 summarises the highest educational qualifications of educators.

![Figure 5.6 Highest educational qualifications](image)

Figure 5.6 stated that 5% (five educators) had completed two years of tertiary training, 64% (67 educators) had a Bachelor’s Degree in Education, 24% (25 educators) had a Bachelor’s of Education (Honours) Degree, 6% (six educators) had a Master’s Degree in Education, 2% (two educators) had degrees in secondary education.
- **Special needs qualification**

Figure 5.7 summarises the special needs qualification of educators.

**Figure 5.7 Special needs qualification**

According to Figure 5.7, 10% (11 educators) had a qualification in Special Educational Needs (SEN) qualification; however 90% (96 educators) did not have such a qualification.

- **Personal experiences with hearing loss**

Figure 5.8 presents educators’ personal experiences with hearing loss.

**Figure 5.8 Personal experiences with hearing loss**
Figure 5.8 stated that 21% (23 educators) claimed to have family members or friends with hearing loss, 79% (84 educators) had no personal experience of persons with hearing loss.

5.3 REPRESENTATION OF DATA

The findings from the questionnaires sent to educators in mainstream high schools indicate various variables influencing understanding of the different characteristics of the learners with hearing loss their education. The descriptive statistics, as represented in the form of bar graphs, complement the qualitative data. Each of these bar graphs is followed by a description of the quantitative data, as well as an interpretation thereof, and also draws on the relevant literature.

In addition to the graphic representation, the following have been included to facilitate the interpretation of the qualitative data:

- Themes of the face-to-face semi-structured interviews were identified by selecting those themes that corresponded with certain questionnaire items.
- The themes help to clarify the curriculum adaptations and modifications that would need to be made in order to include deaf learners into mainstream settings.
- Words in brackets were added to clarify the context of the participants' responses. Non-verbal cues, such as gestures and facial expressions, were added in brackets.
- An interpretation and discussion of both the questionnaire survey and the face-to-face semi-structured interviews are provided at the end of each theme.

The data collected from the interviews of four learners with hearing loss were coded according to Tesch’s guidelines for open coding (Creswell 2009:192-194). Where relevant, a comparison of the qualitative and quantitative findings was made by including the findings of the questionnaire in the discussion of the themes. All direct quotations from the participants are reflected in inverted commas and typed in italics. Together, the
literature study and the empirical research provided a holistic outlook on the curriculum accommodations necessary to support deaf high school learners within inclusive education.

5.3.1 Manifestations and causes of hearing loss

The results consist of responses obtained from the items 1-5 in the Section B (2) of the questionnaire survey (Appendix 6). All items in this section correspond with supporting themes from the semi-structured interview schedule that are presented in Appendix 7. The objective of this section was to determine whether the educators of the mainstream high schools consider the knowledge about manifestations and causes of hearing loss important if deaf learners are to be included in mainstream schools. Figure 5.9 illustrates the results of the participants’ responses.

![Figure 5.9 Manifestations and causes of hearing loss](image)

The quantitative data show that a high number of participants (60%) regarded knowledge about the manifestations and causes of hearing loss as important for educators in inclusive education settings and 18% of participants strongly agreed with this implication. The findings revealed that 11% of the participants were neutral about whether educators in high schools require knowledge regarding the manifestations and causes of hearing loss. Furthermore, only 10% of the participants disagreed with this statement and only
1% of the respondents indicated that they strongly disagreed with the idea that knowledge of the manifestations and causes of hearing loss is essential for educators in mainstream schools.

The findings of the quantitative inquiry reveal that the majority of participants consider knowledge about the manifestations and causes of hearing loss as important if deaf learners are to be included in mainstream schools. Knowledge about the fundamentals of hearing loss can make it easier for educators to understand the challenges deaf learners face in the classroom (see 2.3.3).

The participants of the qualitative part of the research agreed that educators in mainstream high schools should be knowledgeable regarding the causes and manifestation of hearing loss. Educators often seem confused or frustrated when they find out that a learner with hearing loss will be included in the mainstream class. The following remarks were made by the participants:

*Some educators can be scared, they will not know how to handle the situation, like a lot of people normally do, they can get confused or frustrated* (Participant A).

*If we are talking about educators in general, not specially trained people, I don’t think they have any idea how to identify the learners with hearing loss and how to address their needs…* (Participant B).

The participants suggested that educators need to be informed about learners with hearing loss and that they should get help from professionals. *Before I applied to high school, my speech therapist went to the school and talked to the principal and my educators of that year to make sure that they know about my problem* (Participant B). *Before I got to school my speech therapist and my parents had an interview with the principal to explain him my condition* (Participant C).
The opinions of the research participants corresponded with the literature study, where also had been highlighted that the knowledge and skills regarding deafness may help the educators to identify potential hearing loss and create supportive programmes to address the unique needs of these learners in mainstream classrooms (see 2.3.3).

5.3.2 Language and communication choices

The results reflect the responses of the participants to Questions 6-11 in the Section B (2) of the questionnaire survey (Appendix 6). All items in this section correspond with supporting themes from the interview schedule that are included in Appendix 7. The objective of this section was to determine whether the educators consider the knowledge about the language skills and communication choices of learners with hearing loss as important to include these learners in mainstream classes. Figure 5.10 illustrates the responses of the participants in this section.

![Figure 5.10 Language skills and communication choices](image)

The quantitative data, in response to Questions 6-11 in the Section B (2) of the questionnaire survey, show that more than half of the respondents (56%) agreed that the knowledge regarding the language skills and communication choices of deaf learners are important for the educators, while 36% of the respondents strongly agreed with this
assumption. The findings also revealed that 7% of the respondents maintained a neutral attitude towards the topic discussed. Only a small number of the respondents (1%) disagreed with the statement that knowledge of the language skills and communication choices of learners is essential for educators in mainstream schools.

The findings from the quantitative data indicate that the educators view the knowledge with regard to the language skills and communication choices of deaf learners as important for their successful inclusion. They also indicated that they require information about the effect of hearing loss on the speech and language development of the learners (see 2.4.1).

All four interview participants have severe to profound hearing loss, but the new technology (hearing aids and cochlear implants) is allowing them to benefit from typical oral method of instruction and assists them in language skills development. All of them are proficient using oral language. They agreed that placement in mainstream high schools was the best option for them. In this regard the following remarks were made by the learners:

*You have deaf learners that use sign language and learners, like me, who still have some hearing and do not require sign language to communicate. I think for me the placement in a mainstream school was a sort of motivation, it was not always easy, but once you start running the race, you realise you can do it ...* (Participant A).

*It helped me a lot (ability to use oral language), because in the future I need to start working, I will need to cope in the work environment and use my ability to speak. I need to be accepted in the society of hearing people* (Participant C).

*In the mainstream school I was able to use oral language.... It taught me to be independent, to do things for myself, to basically grow up in the environment that is preparing you for outside world* (Participant B).
The participants agreed that the educators of mainstream schools require knowledge regarding the different modes of communication to assist the deaf learners in their classrooms. It corresponds with literature finding where it is also emphasised that some learners with hearing loss demonstrate excellence in using oral mode of communication, but most lag significantly behind their hearing age-mates. Therefore, there is a need to identify the characteristics and skills of those learners who are more successful so that educators can promote higher language development of learners who continue to struggle (see 2.4.1).

All of the interview participants agreed that technology plays an important role in providing both appropriate and meaningful instruction to deaf learners. They noticed that educators normally know what a hearing aid is and how to use it:

*They know what is hearing aid because a lot of old people wear hearing aids* (Participant A).

*Educators know about hearing aids, it is a common thing* (Participant B).

Two of the participants mentioned that most of educators had no idea how to use an FM system and they were often reluctant to use it in the classroom even after they had been educated about it; however they both agreed that the FM system is a very good means of communication and must be used by educators in inclusive classes.

*I had never used it (FM system), nobody wanted to use it at my school. I think my mother was offering to use FM system, but they refused. They didn’t want to use an FM system because it was going to be “a big thing” on the educator, they didn’t want that. I actually managed quite well at school, but if I had to go back I would take the FM system, it would have been better for me, I think* (Participant B).

*I have never used the FM system at school, but I am using it now at university, it really helps me, but sometimes the lecturers get a bit irritated, they don’t pin it to their clothes,*
they just leave it on the desk, but they don’t realise that when they walk away from the desk I cannot hear their voices… (Participant A).

Qualitative and quantitative findings correspond with the literature findings. According to the literature study, educators require knowledge regarding modes of communication and technology devices to support the deaf learners. The literature findings also emphasise that most of the educators in South Africa receive some form of training on the developmental aspects of learners who experience barriers to learning, but they often do not have the expertise to deal with these learners; therefore, they require support, especially in areas such as determining the level of each learner’s level of functioning in order to plan suitable intervention steps (see 2.5.1 & 2.5.2).

5.3.3 Cognitive skills of deaf learners

The results reflect responses obtained from the items 1-11 in the Section C (4) of the questionnaire survey (Appendix 6). All numbers in this section correspond with supporting themes from the semi-structured interview schedule presented in Appendix 7. The objective of this section was to determine whether the mainstream high school educators consider knowledge about the cognitive skills of deaf learners as important. Figure 5.11 illustrates the participants’ responses.
The quantitative data, in response to Questions 1-11 in the Section C (4) of the questionnaire survey, show that a majority of participants (60%) agreed that knowledge regarding cognitive skills of deaf learners is important for the mainstream school educators, while 29% of the participants strongly agreed with this idea. The results also reveal that 10% of the respondents maintain a neutral attitude with regard to the statement discussed. Only 1% of the participants indicated that they disagree with the idea that knowledge regarding cognitive skills of deaf learners is important for mainstream schools educators.

It is evident from the preceding table that the vast majority of participants believe that it is necessary for educators to be better informed about the cognitive skills of deaf learners. Deaf learners have the same intellectual abilities as their hearing peers and could receive education alongside them (see 2.6.4.1).

It was clear that the interview participants had many concerns about the perceptions of hearing people towards the cognitive development of deaf people. All participants
interviewed felt that there are a lot of misconceptions in society regarding the intellectual abilities of people with hearing loss.

*I feel that people very quickly associate physical disability with intellectual disability that assumption makes me very upset and at the same time also encourages me to work very hard... Unfortunately people often judge you by your ability to communicate, if you are very well spoken, people will assume that you are intellectually capable, but if you are not very well spoken, like a deaf person who has difficulty to express himself, they will assume that you are stupid or something...* (Participant A).

Some people think that people with hearing loss can't achieve academically. They think that they can't achieve as good as other people.... People don’t have confidence in deaf people sometimes (Participant B).

The participants also commented that intellectual abilities are individual characteristics of deaf people.

*You do get some learners who do not perform academically well, but that’s because of their own individual qualities, not because they are deaf* (participant A).

Not everybody succeeds academically, deaf learners might have different strengths, same like hearing learners, some are good at mathematics, some in English, some in Art (Participant C).

The participants indicated the importance of the role of the educators to develop the cognitive abilities of deaf learners.

*I think from my own personal experience, I have proved to my educators that deaf learners can perform very well academically, so I think they would be aware of it as long as they have experience with deaf learners and know how to support them* (Participant A).
They (educators) just need to know us better, know how to help us develop cognitively, and then they will realise that we are capable of achieving really good results (Participant C).

Very significant statements supported the idea that educators play a vital role in assisting deaf learners to develop cognitively by giving them extra time.

*Educators need to support us, not like when you go to the educator with a question and he tells you: “Go and have a look at your textbook”, instead of just explaining the material, they just need to spend a little bit of extra time to help us* (Participant B).

*I think the educators need to be responsible in taking that extra time, they get paid their salaries, and an extra half an hour would benefit deaf learners for the rest of their lives, I think it is the educator’s responsibility to support the learners* (Participant A).

*I believe that educators should find different method and approaches to help deaf learners to develop intellectually and prove themselves, but it is also the responsibility of the learners themselves to do their best* (Participant C).

*I think the educator needs to encourage deaf learners to be more focused, by asking him: “Are you listening? Are you paying attention?” The educators definitely cannot get all their attention to deaf learner, they have a lot of other learners to consider, but taking this extra minute just to make sure that deaf learner understands them, it is just a matter of responsibility of the educator, I think* (Participant A).

In the literature study it has also been indicated that deaf and hearing learners may vary in their approaches to cognitive tasks and have different knowledge organised in different ways, and educators do not need to assume that such differences are either good or bad. Thus, the question should not be about the cognitive abilities of deaf learners, but rather to determine the level of support needed to enhance their cognitive development (see 2.6.4.1).
5.3.4 Social skills of deaf learners

The exposition includes the responses to Questions 1-8 in the Section C (5) of the questionnaire survey (Appendix 6). All items in this section of quantitative research correspond with supporting themes from the interview schedule that are included in Appendix 7. The objective of this section was to determine whether mainstream high school educators view knowledge regarding the social skills of deaf learners as essential if deaf learners are to be successfully included in mainstream schools. Figure 5.12 illustrates the results of the respondents to this section.

![Figure 5.12 Social skills and adaptation of deaf learners](image)

The quantitative data, in response to Questions 1-8 in the Section C (5) of the questionnaire survey, show that more than half of the respondents (59%) agreed that they view knowledge regarding social skills and social adaptation of deaf learners as important for successful inclusion of the deaf learners, while 27% of the respondents strongly agreed with this statement. However, 13% the respondents maintained a neutral attitude towards the topic discussed. Furthermore, only a very small number of the respondents
(1%) disagreed with the idea that knowledge of the social skills and adaptation of deaf learners is essential for educators in inclusive education settings.

The findings of the quantitative data indicate a definite need for knowledge of mainstream educators with regard to social skills and adaptation of deaf learners into mainstream educational settings. Educators in mainstream schools need to know how to make deaf learners feel comfortable in inclusive settings, for which an organised and orderly classroom as well as classroom accessibility is necessary (see 2.6.4.2.2).

Interview participants also noticed that they had not always been accepted by their hearing peers. Two of the participants, however, affirmed that they had been accepted socially in high school; they had not experienced difficulties in interacting with peers and making new friends.

*When you go to the mainstream school, you learn to make new friends, and you also need to educate your friends about your problem, so when they know about your problem it causes them to want to help you* (Participant B).

*I never had a problem with social acceptance in the high school, everybody knew that I had hearing loss, but they didn't treat me differently, they treated me like I was one of them* (Participant C).

One of the participants mentioned that he experienced difficulties being accepted by hearing peers and had feelings of loneliness.

*I think for me socialisation was the most difficult thing. I got upset sometimes, because, you know, it eventually got to the stage where I couldn't hear the conversation, some people started laughing and I just laughed along, but they could've been laughing at me, but I did know that and I just laughed along just to be part of a crowd* (Participant A).
This participant also mentioned that he experienced an absence of close friendships and difficulty developing emotionally secure relationships with peers.

*It was always difficult for me to make friends, I ended up by not having one specific best friend, I was a friend to everyone in general, it was not because I was not a nice person, just because of my difficulties to communicate* (Participant A).

The participants stated that they had difficulties in participating in social activities with peers at school owing to communication difficulties. They often tended to avoid participating in school activities.

*I liked to do speech and drama at school, I really wanted to do it, I wanted to be involved in plays and performances, but it was a difficult experience for me, and eventually I could not do it because of my hearing problems* (participant sighed) (Participant C).

*I was always involved in drama, but in high school, you know, the older girls were often bullying younger girls. I didn’t feel comfortable to be there. When I used to go there, the older girls often made me look fool. You really don’t want to go through this painful experience, you know, you rather stay away and find something else to do* (Participant B).

*Sometimes there were too many people involved in one activity, it was very difficult to cope with a multitude of sounds, when the group was small I had to focus on one or two people, it was fine, but when too many people were talking I really could get lost and couldn’t take part in this activity* (Participant A).

All participants interviewed mentioned that it took them a while to adapt to a new environment; it was very stressful for them initially, but as educators and other learners became better informed and more supportive, they felt more comfortable and self-confident.
I did have a problem with adaptation; you know - new people – new voices. I was not used to all the new voices… Your hearing adapts to the person’s voice, it is much easier to understand the person who you know for a longer time than to understand a new person. I eventually adapted, but it was a problem in the beginning, but more time you spend with people getting to know them, it allows your hearing to adapt to the new sound, that’s how it works for me (Participant A).

My first week was very stressful, but as times goes and as others (educators and learners) learn about your difficulties, it gets better (Participant B).

It took me a week or two to get used to a new school, new environment and new people. As I was in the private school with very supportive educators, it did not take long time for me to adapt. It helped me a lot with my self-confidence (Participant C).

The participants not only made various suggestions regarding social integration and the adjustment of deaf learners, they also pointed out the importance of the role of educators to handle this sensitive aspect in the classroom.

In the beginning of every year, the educator should say: “We have a deaf learner here at school, just be considerate”. The educators can’t babysit and spoon feed us all the time, but just in the beginning the educators need to make sure that all the other people are aware that there will be some differences (Participant A).

I think the educator should know how to deal with you differently, and then he can set an example, we don’t really want a different treatment, but we just require a little bit more attention (Participant B).

I think the best they can do for deaf student is to lead by example. If the other students see, ok, when we are speaking to deaf learners we have to always face them, speak clearly, don’t shout or scream at them. That’s leading by example will definitely help
hearing learners understand us better and accept… (the participant smiling) (Participant A).

One of the participants also mentioned that educators should allow deaf learners to be involved in different activities with their friends to develop acceptance and positive relationships.

I think educators should allow deaf learners to choose people who they think could help them (deaf learners), I know they are going to think that we are going to choose our friends, but those people (friends) are people who understand us and can help us. I think it will also help us to develop friendships (Participant B).

According to literature study, social adaptation and integration of deaf learners in mainstream schools are major concerns for educators. To adapt socially deaf learners need educators’ encouragement and the opportunities to engage with hearing peers in different school activities. With appropriate information, educators can play an active and supportive role in the life of deaf learners (see 2.6.4.2.3).

5.3.5 Emotional skills of deaf learners

The results consist of responses obtained from the items 1-7 in the Section C (6) of the questionnaire survey (Appendix 6). All numbers in this section correspond with supporting themes from the semi-structured interview schedule that are presented in Appendix 7. The objective of this section was to determine the need of mainstream high school educators for knowledge about the emotional development of deaf learners. Figure 5.13 illustrates the results of the participants’ responses.
The quantitative data, in response to Questions 1-7 in the Section C (6) of the questionnaire survey, show that a majority of respondents (62%) agreed that knowledge regarding the emotional development of deaf learners is essential for the educators, while 31% of respondents strongly agreed with this statement. The results also revealed that 6% of the respondents had a neutral attitude with regard to the topic discussed and only 1% of the participants indicated that they disagree that knowledge regarding the emotional development of deaf learners is essential in order to successfully include these learners in mainstream high schools.

It is evident from the preceding table that the vast majority of educators believe that it is necessary for educators to be better informed about the emotional development of deaf learners. Difficulties associated with hearing loss can extend beyond the academic area. Therefore, the educator’s task is not only to develop the academic skills of the learners optimally, but also to encourage the learners to feel that they are loved and belong (see 2.6.4.3.3).
The interview participants mentioned that good relationships with educators and parents help them to develop emotionally and develop a sense of belonging.

*It was one of the reasons why I worked hard at school, because my parents and educators always encouraged me, and if there wasn’t mutual support like that, it would be very difficult for me to succeed. Once I started learning to do things by myself I became more responsible at school and more emotionally stable* (Participant A).

*Support of my educators and parents helped me to become more mature and independent in high school* (Participant C).

The participants noted that the support of educators in the high school helped them to become independent and develop positive self-esteem.

*When I finished the high school, I could do things for myself and make my own decisions. I studied away from home, I could stay by myself, I had to get my own notes, I had to make sure that I understand the work on my own, so the high school prepared me to become more independent. It helped me to develop positive self-esteem* (Participant B).

*Being a deaf learner you have to focus and listen twice as hard as a learner with normal hearing, and the thing is the more work you put in the more you get out, because by taking responsibility you develop your independence and self-confidence* (Participant A).

One of the participants also indicated that placement in mainstream schools helped him to develop leadership skills and increased acceptance by hearing peers.

*I had to work hard to develop my leadership skills in high school, you know, people often treat you differently because of your disability. I always tried to work hard to develop my leadership skills and earn the respect of other people. I am a spiritual person, I rely on my belief and motivation, it did help me a lot to become accepted by my classmates* (Participant A).
The participants stated that the involvement of deaf learners in different activities where they have to carry out different tasks could encourage the successful participation of deaf learners.

…they do not need to spoonfeed us, but just provide some form of counselling to help us to feel accepted. Help us identify a problem, and work on a problem. Sometimes in order to resolve the issue you need to know what the cause of the problem is (Participant A).

There are often some activities at school like baking, sewing, dancing…something like this, if the educator sees that deaf learner has some talent, he should encourage the learner to take part and give that learner a little bit more attention … (Participant B).

I think allowing deaf person to speak now and then during class discussions or class interactions, allowing something simple for deaf learner to carry out will develop positive social interactions in class (Participant A).

The participants also mentioned the importance of educators to utilise eye contact techniques and encourage other learners to follow their example.

The educators always have to face you when they talk to you and encourage other learners to do it as well (Participant C).

If the educator is always facing the learner, it will benefit not only deaf learner, but also other people in the class (Participant A).

In the literature review it was also emphasised that educators of the mainstream schools should create situations where deaf learners can acquire a feeling of acceptance among other learners. Educators need to assist learners to become aware of their strengths, they also need to motivate learners to access their capabilities (see 2.6.4.3.1).
5.3.6 Adapting curriculum content

The results indicate the responses of the participants to Questions 1-3 in the Section D (7) of the questionnaire survey (Appendix 6). All numbers in this section correspond with supporting themes from the interview schedule that are presented in Appendix 7. The aim of this section was to determine the need of mainstream high school educators for knowledge about adapting curriculum content. Figure 5.14 illustrates the responses of the participants in this section.

Figure 5.14 Adapting curriculum content

The quantitative data, in response to Questions 1-3 in the Section D (7) of the questionnaire survey, shows that more than half of the respondents (53%) agreed that knowledge regarding adaptation of curriculum content is important for deaf learners, while 23% of the respondents strongly agreed with this statement. It is also evident from the research that 18% of the respondents had a neutral attitude with regard to the topic discussed. Furthermore, only a small number of the respondents (6%) disagreed with the
statement that knowledge regarding adaptation of curriculum content is important for the educators of the deaf learners.

In the quantitative data there is evidence that high school educators view knowledge about the adaptation of curriculum content as important to accommodate deaf learners into mainstream schools. Deaf learners are expected to have access to the mainstream curriculum and to master it. This calls for effective presentation of material and the organisation of opportunities for learning to close the gap in educational outcomes for deaf and hearing learners.

The curriculum content needs to be differentiated in order to provide a variety of learning experiences to meet deaf learners’ different learning needs (see 3.4.1). The primary way educators can include deaf learners in the class lessons is by adapting the curriculum content. This process includes many different forms and practices.

**5.3.6.1 Simplifying of curriculum content**

The literature findings confirmed that one of the ways to modify the curriculum content for deaf learners is to cover less material in the lesson and to provide them with activities that are easier to accomplish (see 3.4.1).

Statements of the interview participants supported the fact that deaf learners do not require any simplification of curriculum content.

*I think there should be absolutely no change in curriculum content for deaf learners, it is their responsibility to study… it is just the time and the effort they put in to learn, do their homework and classwork, it helps them to develop academically (Participant A).*

*Sometimes it is hard for us to follow what is happening in comprehension, because it is too complex, but I would say it is a normal practice. Yes, maybe there are people, who*
would require such changes in the curriculum, those who weak academically (Participant B).

I think they should do exactly the same work as other children, they don’t need to do easier tasks (Participant C).

There are some deaf students that might require a little bit more assistance... I think the educator should adapt to the needs of this particular student (participant D).

**5.3.6.2 Creating new supplementary materials at a simpler level**

In order to modify the curriculum content educators need to provide deaf learners with supplementary materials at a simpler level (see 3.4.2).

Participants interviewed agreed that deaf learners often have difficulties to follow the instruction of the educator because they cannot hear and interpret them clearly, but not because they cannot understand those instructions.

There are some occasions when you battle to understand what is being said, but not the instruction itself. I might know this word, but I will not know what to do, because I cannot hear it properly (Participant A).

If I cannot hear the instruction I will have problems to follow it (Participant C).

I think you can do it (creating new supplementary materials) for everybody, not only for deaf learners. I think if some learners are weak, they need to be treated differently. Some supplementary materials can be made for them to be on par with the rest of the class to become stronger and to be more ahead (Participant D).
Therefore, the participants emphasised that they did not require special supplementary materials, educators should get their attention and provide deaf learners with verbal instructions in writing as well.

*The educator should write instructions on the board or give us the worksheet with instructions on it* (Participant C).

*The educator should write the instruction on the board, or even a few words that are new or maybe difficult to interpret, it takes half a second to write, it won’t be a major adjustment, but will help us a lot* (Participant A).  
*We don’t really need any supplementary materials, we just need to understand what is going on, then we will be able to do work on normal level* (Participant B).

### 5.3.6.3 Allowing extra time to complete the task

According to the literature findings, educators need to keep in mind that deaf learners may take a longer time to complete their tasks than other learners (see 3.4.2). All the participants agreed that they often need more time to understand the task and, therefore, to finish it.

*I think having extra time is a very good practice. I was given extra time to finish my work at school, it was really important for me to have this time. Deaf people need more time to understand what they need to do; having extra time, I think, is very beneficial for them* (Participant C).

*I believe having extra time to complete the work is less stressful for deaf learner. You know, normally, explanation of the new task includes hearing and explaining and also communicating verbally, which is problematic for deaf learner, I think it would be more purposive to have an extra time for deaf learner to complete the task* (Participant A).
It takes for deaf learner a bit longer to understand instructions; you normally lose some time (Participant D).

One of the participants expressed her concerns that allowing extra time to complete the work might negatively affect the acceptance of deaf learners by their hearing peers.

Yes, I think, it is a good idea to have extra time to complete the work, but at the same time you are writing with normal people, what are they going to think? They probably will think that you are having extra attention and, if you pass, they are not going to be happy for you, they are going to say that you had extra time that’s why you pass. At the same time you want to be accepted, you want to be part of normal people and you require special treatment at the same time, so it is good for you, but also bad for your socialisation and acceptance (Participant B).

5.3.6.4 Differentiating content for homework assignments

The literature research revealed that educators should differentiate content for homework assignments in order to meet the needs of deaf learners (see 3.4.2). The participants agreed that they need to do the same homework as other learners, but also highlighted the benefits of extra homework.

We normally do our homework at home, our parents or siblings can help us, we also can use dictionaries and Internet now, I don’t think we need to have different homework, not really, maybe something extra to do, yes, it might help (Participant A).

I think it won’t be good for our acceptance, we need to be like others, but maybe the educator can give us extra homework, extra reading or comprehension, I think it could be beneficial (Participant C).
5.3.6.5 Rephrasing questions and sentences

When giving instructions to deaf learners, educators should rephrase questions and sentences rather than merely repeat them (see 3.4.2). Participants agreed that it is really important for others who talk to them to be able to rephrase their questions or sentences.

Some people pronounce words differently, we might think they are saying something, but they are saying something else in reality, so when they rephrase it, then you think, oh, that’s what they were talking about. So, I think, it is very good practice, especially for us, because we have problems to understand different accents, everybody talks differently actually (Participant B).

The first thing that they should do is to repeat the sentence or the question, if deaf learners are not understanding the repetition, then the educators can rephrase it to see whether the learner understands it correctly. Once in a while my mom or the educator would say a word or a sentence, and I could not understand it, and even they would repeat it ten times I still will battle to hear what they are saying, then they should change it, use different words, or even write it down on the board or on the piece of paper for me to understand (Participant A).

Yes, it is a good idea to change the question or phrase, it really helps to understand it better (Participant C).

5.3.6.6 Simplifying vocabulary

The literature findings revealed that educators should use simplified vocabulary to help deaf learners to grasp the new concepts (see 3.4.2). Participants noted that educators can rephrase the sentence or instruction in a simpler form if necessary, but they should rather encourage the learners to use their dictionaries.
Some of deaf learners whose vocabulary is not extended might need it to understand the task better. Instead of saying - this is a profound statement that has been made, you can say - it is a good statement that has been made (Participant D).

It could help, especially if the questions were asked differently or if there were a few synonyms provided from where we could choose from, but I think the learners must be encouraged to use the dictionary (Participant B).

The educator could give them similar words or synonyms, but I think the learner should look the words up in the dictionary; it will really help them to develop their vocabulary (Participant A).

Deaf learners are often described as passive learners, a state frequently referred to as “learned helplessness”. This might be the result of low expectations of parents and educators who do everything for the learners (see 3.4.1). One of the participants expressed similar concerns that deaf learners might be assisted but they still need to learn to be responsible and accountable people.

This practice could help, but if you give easy words all the time, then, I feel, deaf learners will become lazy and will not want to learn the difficult words. It is life skills, you have to learn those words, you can’t always be spoon fed (Participant B).

5.3.6.7 Learning new vocabulary in advance

Literature findings revealed that deaf learners should be provided with new vocabulary at the beginning of the theme (see 3.4.1). All the participants agreed that deaf learners benefit when new terminology is given prior to the learning of new concepts.

You can be given new words beforehand, especially when the educator is going to present a new material for us to keep track of what they are saying in the class (Participant B).
It helps a lot, you need to know the meaning of the words to improve your vocabulary and also to understand new concepts (Participant C).

One of the participants emphasised that learning a new vocabulary is also learning the proper pronunciation of the new words.

Yes, providing a new vocabulary in advance it is a good idea for deaf people, but educators need to pronounce the word a few times and ask the learner to pronounce the word back to educator and keep on doing it until the learner gets it 100% correct, so learning the new vocabulary includes also learning correct pronunciation, I think it is very important for deaf learners (Participant A).

The literature findings also emphasised that educators in mainstream high schools need to be prepared to adapt curriculum content appropriately to empower deaf learners to reflect upon and build their own conceptual understanding of the mainstream curriculum (see 3.4.1).

5.3.7 Adapting instructional strategies for deaf learners

The results involve the responses of the participants to Questions 4-7 in the Section D (7) of the questionnaire survey (Appendix 6). All numbers in this segment of quantitative research correspond with supporting themes from the interview schedule that are presented in Appendix 7. The aim of this section was to determine whether the educators consider knowledge in adapting instructional strategies as important for successful inclusion of the deaf learners. Figure 5.15 illustrates the results of the respondents to this section.
The quantitative data, in response to Questions 4-7 in the Section D (7) of the questionnaire survey, show that a majority of respondents (55%) agreed that knowledge regarding the adaptation of instructional strategies is important for the educators to successfully include deaf learners in mainstream schools, while 23% of the participants strongly agreed with this statement. Almost the same number of participants (20%) had a neutral attitude with regard to the topic discussed. On the other hand, only a very small number of the participants (2%) indicated that they disagree that knowledge regarding adaptation of instructional strategies is essential for the mainstream educators.

It is evident from the preceding table that the vast majority of participants believe that it is necessary for educators to be better informed about adapting instructional strategies. Such skills will equip educators to support deaf learners in inclusive educational settings and assist them to gain their education in mainstream classes with generally positive results. Even small adjustments make a big difference to how well deaf learners are able to access the curriculum and participate in learning activities with their classmates.
The literature review revealed that in order to reach all learners, material can be adapted and the method of presentation can be differentiated (see 3.4.2). In each interview the participants cited a number of ways to adapt instructional strategies for deaf learners. These ways will be discussed separately below.

5.3.7.1 Supporting listening with non-verbal cues

Literature findings revealed that deaf learners need to be supported with non-verbal cues (gestures, signing, lip-reading, facial expressions) to assist with the comprehension of vocabulary and concepts (see 3.4.2). All of the participants agreed that in order to optimise the learners’ perception of spoken language educators need to include strategies such as gaining the learner’s attention, speaking clearly, using gestures.

As far as presenting new material, I think, educators need to have the learners’ attention, have positive body features and facial expressions, but I think it goes for everyone, not just for deaf learners (Participant A).

When the educators use facial expressions, it helps me to understand them better, I don’t know maybe it is only me, but when someone is talking to me with facial expressions and hands movement, it makes me to understand them more (Participant B).

It is important to speak face-to-face, using just simple signs, like pointing at the board, is very important to help deaf learners to understand whether they follow the educator correctly. I think the educators need to include it in their teaching, they need to remember about it (Participant C).

5.3.7.2 Allowing other learners to help (“buddy system”)

Literature findings indicated that allowing deaf learners to have someone to help during class time (“buddy system”) could be a very effective strategy to implement in the classroom (see 3.4.2). The participants specifically mentioned the importance of this system to develop positive socialisation and acceptance by the hearing peers.
I was allowed to ask the other learner sitting next to me, if I misheard something or didn’t get the instruction, I was allowed to ask. I think allowing other learners to help is very important. From my own experience, I relied on that a lot during my school time, and even still today at university, if I didn’t hear something correctly, I would always ask someone (Participant A).

It is important to get other learners to help you, if you don’t understand the work, you can work together with someone. I think it will also help with your socialisation in class (Participant C).
I think it is a good idea to allow deaf learners to talk, because at the same time it is helping them to keep up with what the educator is saying, so they know what is happening in the class (Participant B).

The participants also emphasise that the best way to implement the “buddy system” is to ensure that “buddy” is doing this work of his/her own accord.

You know, if people are forced to do it, they won’t do it. If deaf learners make friends it is better that they educate their friends about their problem, it makes them want to help deaf learners (Participant B).

If you have someone who is willing to help, it is really good (Participant D).

5.3.7.3 Incorporating the use of demonstrations or role play

Literature findings revealed that educators could use demonstrations and role play to assist deaf learners to grasp the new concepts (see 3.4.2). All participants interviewed agreed that educators should use those strategies, but only in the beginning of the learners’ school career.

Younger children have more imagination, so role play will help them, if they can’t understand the new concepts (Participant B).
I think it could be a very practical technique to use, but in primary school, when learners are still at lower academic levels (Participant A).

5.3.7.4 Using shorter sentences and breaking instructions down

Deaf learners would benefit from using shorter sentences and breaking instructions down into smaller steps (see 3.4.2). The participants suggested that educators always break instructions down and use shorter sentences to help deaf learners understand what is being said.

*It is important to use shorter sentences - the shorter, the better. It is very effective for deaf learners to break the instructions down step by step and explain one by one (Participant A).*

*I think, it is a very effective technique, sometimes when the educator is talking and giving you long instructions, you might miss out what the educator said at the end, as you will still try to remember what to do first. I think the shorter it is the better for deaf learners, they have to listen and at the same time to understand, so educators need to give the learners some break to understand, and then continue with the instruction (Participant B).*

*Some deaf learners will definitely benefit from presenting instructions in shortened forms, I think the educators can do it to help the learners to succeed (Participant C).*

*I believe that it (breaking instructions down) is a good strategy, sometimes I don’t remember, it is not only about deafness, it is also about remembering (Participant D).*

5.3.7.5 Ensuring visual access to communication with others

Visual access to communication with others is very important as deaf learners rely mostly on visual modalities (see 3.4.2). It is also stressed that educators need to ensure that
deaf learners have visual access to communication with others. Participants emphasised that educators should keep in mind that deaf learners often depend on visual hints.

*I think showing the learner what you want them to do is a very good way, we can see better than we hear, showing them something much more effective than telling them something* (Participant A).

*It is very helpful, for example, you have told me “go” and I have heard “go”, but I doubt whether I should go or do something else, so if you show me a gesture, it confirms, yes, you said “go”* (Participant B).

*I believe, it is effective, for example, if you point at something then you know it has something to do with that, it is always like you prompt another question, I think it is really vital* (Participant D).

### 5.3.7.6 Grouping learners for specific purposes

According to the literature findings, one of the strategies that can be used by educators in inclusive classrooms is grouping learners for specific purposes (see 3.4.2). However, all the participants agreed that they often experienced difficulties regarding access to the learning situations in groups. They emphasised that in the group learners tend to speak simultaneously, which makes it difficult for them to follow the discussion.

*In a group discussion if only one person is speaking, then it is fine, but if there is more than one person speaking then it becomes difficult* (Participant A).

*When you are in the group, there are two or three people talking at the same time, sometimes you can’t keep up with what’s happening* (Participant B).
I think you cannot group learners for every single activity, it depends on the subject, for example, the learners can be grouped to do an Art project, as this type of activities does not involve a lot of discussions (Participant C).

The participants interviewed suggested that only a small number of learners (around five) should be grouped for different activities.

I could handle the group of five people, not more, if you have a group of ten people, for example, and all of them talk, then it is really difficult to follow (Participant A). The participants also mentioned that during group activities educators should instruct learners in the group how to behave during group discussions or allow deaf learners to choose the group participants.

I think the only thing that could help deaf learners is to choose people who we think could help us, educators might think that we are going to choose our friends only, but those people are people who know us, who understand us and who can help (Participant B).

If educators encouraged only one person to talk at a time, it would be much easier to understand (Participant A).

5.3.7.7 Using discussions before writing activities

One of the recommendations in literature is that class discussion should always precede any writing activities. Educators could start by discussing the experiences, thoughts, feelings and events of the story. New terminology could also be given prior to discussions (see 3.4.2). The participants commented that using oral discussion is a very helpful strategy to prepare deaf learners for any writing activities. They also highlighted the importance of providing deaf learners with written instructions to assist them to get prior information about the topic.
I am sure it helps everyone. Sometimes what you are thinking is not what the educator expects from you. It is good for deaf learners because they will know while they are writing that is what they must focus on, this is what they must write about ... (Participant B).

During discussions we can share our ideas, clarify new terminology and achieve really good results (Participant C).

The educator also can provide written instructions for deaf learners, the educator can hand out a piece of paper that has an instruction on instead of telling people what to do, I think it would be a very effective strategy (Participant A).

5.3.8 Adapting instructional materials for deaf learners

The exposition includes the responses to Questions 8-17 in the Section D (8) of the questionnaire survey (Appendix 6). All items in this section of quantitative research correspond with supporting themes from the interview schedule that are included in Appendix 7. The objective of this section was to determine whether mainstream high school educators consider knowledge about adapting instructional materials as essential for the successful inclusion of the deaf learners. Figure 5.16 illustrates the opinions of the respondents to this section.
The quantitative data, in response to Questions 8-17 in the Section D (8) of the questionnaire survey, show that more than half of respondents (57%) agreed that knowledge regarding the adaptation of instructional materials is important for the deaf educators, while 22% of the participants strongly agreed with this statement. The results also indicated that 18% of the participants were neutral regarding the topic discussed. On the other hand, only 3% of the participants specified that they disagree that educators in high schools require knowledge about adapting instructional materials.

The findings of the quantitative inquiry reveal that the majority of educators agreed that educators in mainstream high schools require knowledge about adaptation of instructional materials. Educators can help deaf learners to gain better access to the curriculum by modifying their methods of instruction.

The adaptation of instructional materials involves a change in the formats through which information is presented to deaf learners or deaf learners’ engagement with the curriculum during the course of instruction (see 3.4.3).
5.3.8.1 Highlighting important terms

A suggestion in the literature is that key words or important terms can be highlighted on the worksheets to assist deaf learners to identify the important concepts (see 3.4.3). However, two of the participants interviewed noted that they prefer to follow the educator and highlight the most important aspects themselves.

My advice would be to go through the worksheet with the whole class and while talking to the learners tell them what they must highlight, so they can do things together. If the educator works together with the learners it is much more effective than the learners working by themselves (Participant A).

I would prefer to highlight the most important parts of the worksheet by myself (Participant C).

On the other hand, one of the participants shared the opinion that highlighting worksheets by the learners themselves could be very confusing to carry out and therefore, could increase barriers to understanding.

I think, if the educator highlights and gives it to me, it is better. Highlighting when the educator is talking can be very stressful. You will be busy highlighting and as a result will miss out what the educator is saying (Participant B).

The participant suggested that the “buddy system” could be useful to apply in this case. ... but I think I would be able to follow the educator, if the learner sitting next to me was allowed to help (Participant B).

5.3.8.2 Placing non-verbal signs on the classroom walls

The literature findings suggest that placing non-verbal signs on the classroom walls could be an effective strategy to enhance deaf learners’ understanding of instructions (see
3.4.3). However, all of the participants shared the opinion that this strategy can be very effective for young deaf learners and more suitable for primary schools.

*That is a very good idea to use pictures and stuff like that in the beginning of the academic career, but not for high school students. I don’t know, it is really difficult to use. You won’t have enough space for all the pictures (participant laughing) (Participant A).*

*I think it could be suitable for a deaf school, but not for a mainstream high school, the educators won’t use it because you have only one deaf learner there, so I would say if the educators speak clearly and loud enough you can understand them without any pictures on the walls* (Participant B).

**5.3.8.3 Providing copies of educator’s notes**

A hint in literature (see 3.4.3) is that in order to help deaf learners to understand the new concepts, educators can provide deaf learners with copies of educator’s notes. The notes that need to be taken during the particular lesson can also be given in advance. All the participants agreed that it would be a very beneficial adaptation for deaf learners. *It would be a very good practice for deaf learners, I think it would be extremely helpful for them* (Participant A).

*I think it is important to have the material before the start of the lesson. You can read it beforehand, and then when they are talking about it you will already know where to refer to* (Participant D).

*It would be good for us, because if we missed out something, we could see what is in the notes* (Participant B).

However, it was also a matter of concern as some of the participants were of the opinion that deaf learners in mainstream schools can become lazy and irresponsible as a result of a "special treatment".
It might make deaf students lazy, they won’t listen to what the educator is saying, they will be like, “I don’t have to pay attention, I just wait until the educator gives me notes” (Participant A).

The participants also added that providing deaf learners with educator’s notes might negatively influence their social acceptance.

Yes, if you used this strategy, you would probably get higher marks, but nobody would feel proud of you, they would say you have these marks because you get extra help. A high school is about proving yourself, you have to prove yourself that you can survive out there (Participant B).

I think the extra attention might create real problems for deaf learners’ acceptance by the learners with normal hearing (Participant D).

The participants made various suggestions regarding this adaptation strategy. This included suggestions like providing deaf learners with the most important part of educator’s notes only and allowing deaf learners to approach the educator after the lesson for some assistance.

My advice would be, instead of providing all the notes, educator should give deaf learners the most important parts of what is going to be explained during the lesson, it will encourage the learner to listen and understand what the educator is saying (Participant A).

So, if they (deaf learners) don’t understand something, it is better if they go and ask the educator after the lesson, instead of getting that special treatment (Participant B).

I think the best way is to ask the educator to help you at the end of the lesson or during the break (Participant C).
5.3.8.4 Providing visual aids to assist in understanding

It was mentioned (see 3.4.3) that educators in mainstream schools should use different visual aids such as boards, pictures, posters, overhead projectors, computers, to assist deaf learners to grasp the new concepts. From their side the participants agreed wholeheartedly that deaf learners would benefit from the visual presentation of the new material as they rely heavily on their visual modality.

*I think, it is important to use visual aids for deaf learners. It could be applied to different subjects, for example like art, sometimes the educators will have problems to explain what they expect from the learners, so in this case the visual presentation will be very useful* (Participant C).

*When I went to the high school, they used the overhead projectors and posters quite often, it was very good for me, because I could read what educators were saying instead of only listening to them* (Participant B).

One of the participants mentioned that educators in high schools often use visual supplementary equipment, such as DVD players or computers, to provide explanations of different scientific concepts; however, it is not always possible for deaf learners to follow the movie. They suggested that educators always chose films with subtitles or provide the learners with written explanations of the material viewed to assist them with understanding the video presentations.

*Sometimes in class they put the video on and give you a worksheet and you must watch the video and answer the questions written on the worksheet. It was really hard for me, I couldn't do it. I think in this case, the educators could give deaf learners something in writing to explain what is happening in the movie or maybe even put subtitles on, that would help a lot* (Participant B).
5.3.8.5 Providing a supportive physical environment

It is not such a widely known fact that the physical environment can create barriers to adaptation of deaf learners in the inclusive classrooms (see 3.4.3). The physical environment includes aspects such as classroom spaces, classroom infrastructure, arrangement of furniture, level of noise and class size. It is very important for educators to keep these factors in mind when trying to include deaf learners in mainstream settings.

All of the participants stressed the importance of appropriate adaptations of classroom physical environment. They emphasised that educators must make sure that they stand or sit facing the learner. They should not cover their faces when they talk. The participants also stated that deaf learners should be seated as close as possible to the educator. The lighting in the classroom has to be good to ensure that deaf learners can see the educator’s face, hands and lips.

*It is important for the educator to face the learner.... When the educator is staying at the back of the classroom you can’t hear him properly, you can’t lip-read as well. I always used to sit in front of the classroom to see the educator* (Participant B).

*When communicating with deaf learners, you have to face them. They need to see you properly. They also should sit closer to the front of the classroom* (Participant A).

*The educators always need to face deaf learners, sometimes they talk while they are writing on the board. They need to make sure that they face deaf learners when they explain to them what to do* (Participant C).

*It is critical to face deaf learners when you are talking, it is about the light as well, they have got to be able to see your face* (Participant D).

The participants also mentioned the negative impact of the background noise on deaf learners’ understanding of the school material.
A fan, an aircon, screaming might affect deaf learners’ hearing, when the classroom is noisy it is very difficult for deaf learner to understand the educator (Participant C).

If all background noises were eliminated it would be perfect, but in today’s society you always have noisy classrooms or some students talking on the background. In a public school, like I was, you always have students talking (Participant A).

When children around you are making too much of noise you might miss out what the educator is saying (Participant B).

It was suggested that deaf learners use an FM system in a noisy classroom. Educators need to ensure that it is worn on their person, and that it is in good working order.

In case of noisy classroom, the FM system could be effective, as it eliminates all background noises (Participant B).

The FM system helps a lot, you aren’t able to hear background noises, you can focus on the educator’s voice. I used the FM system a lot in high school. The educators were quite happy to use it, the problem was that they sometimes kept forgetting to switch it on, I had to remind them to switch the system on time to time (Participant C).

The FM system can be used to eliminate background noises, I had to carry the FM system from one class to another, but I don’t think it is impossible to do (Participant D).

In the literature review it has also been emphasised that educators should seek the help of specialists and others who can provide guidance in making the learning environment as effective as possible for all learners in the class. The specialists can also provide suggestions about the use of various visual aids and classroom organisers that will help deaf learners gain more from traditional classroom settings (see 3.4.3).
5.3.9 Adapting assessment practices

The results involve the responses of the participants to Questions 1-8 in the Section D (8) of the questionnaire survey (Appendix 6). All items in this section correspond with supporting themes from the interview schedule that are included in Appendix 7. The objective of this section was to determine whether educators of the mainstream schools view knowledge in adapting assessment practices to understand the level and the ways in which deaf learners function in mainstream settings as important. Figure 5.17 illustrates the results of the respondents to this section.

Figure 5.17 Adapting assessment practices

The quantitative data, in response to Questions 1-8 in the Section D (8) of the questionnaire survey, show that a majority of participants (53%) agreed that knowledge regarding adapting assessment practices in mainstream settings is important for the mainstream school educators, while 22% of the participants strongly agreed with this idea. The findings also revealed that 21% of the respondents maintained a neutral attitude with regard to the statement discussed. On the other hand, only a very small number of the participants (4%) indicated that they disagree that knowledge regarding adapting assessment practices to accommodate deaf learners in mainstream settings are important for the educators.
The findings of the quantitative inquiry reveal that the majority of educators consider the knowledge about adapting assessment practices. Adaptation in assessment includes changing aspects of the presentation of tests, the way in which tests are administered and also the content of test questions. Thus, equipping educators with the relevant knowledge and appropriate skills with regard to the adaptation of assessment practices must be regarded as a crucial element of the successful inclusion of deaf learners in mainstream classrooms (see 3.4.4).

As indicated in the literature reviews (see 3.4.4), all assessment procedures should be appropriate and relevant to the realities of deaf learners and should be built into the teaching and learning process. It is necessary for educator to be clear about the outcomes of the lesson and have knowledge of the learner’s background and try to match the task with the learner’s style and interests.

5.3.9.1 Using projects or portfolios in lieu of tests

The possibility that deaf learners could be allowed to perform alternative forms of assessment, for example, present a research project instead of writing a test is important (see 3.4.4). The participants expanded on that notion by suggesting that deaf learners could be provided with the opportunity to choose the way they want their test to be completed.

*I think if the learners want to write a normal test they can do it, if they want to present portfolios or projects, it could also be accepted by the educator, because sometimes difficult tests that take long time could be a real problem for deaf learners* (Participant C).

*Projects or portfolios I think are good ideas, because we, as deaf learners, tend to be really creative, so we always give our best to get the project done. For me, the test was the better option, because you are studying and testing your ability on unknown questions, however with the project, the educator gives you a question or a theme and you have to conduct the research, I think actually both options are acceptable* (Participant B).
5.3.9.2 Providing graphic cues on answer forms

One of the suggestions in literature (see 3.4.4), is that deaf learners could be provided with graphic cues (e.g., arrows, stop signs) on answer forms to assist them with interpreting the questions on test papers. All of the participants agreed that they don’t really need any graphic cues on the question paper as long as it does not lead to comprehension problems.

*If the educator goes over the question paper with the learners and explain what to do step by step, you don’t really need any signs or cues on the paper* (Participant A).

*I think you don’t need any special cues on the paper as long as it is done in an understandable format, if it is not written as one paragraph, but broken down into the points, then they are pretty easy to understand* (Participant B).

5.3.9.3 Providing tasks that require short answers

A proposal was made (see 3.4.4) that educators should use different forms of assessment to assess deaf learners’ knowledge and skills. As the limited language development of deaf learners might cause assessment difficulties, they should be allowed to perform tasks that require short answers. Conversely, a major concern of the participants in terms of allowing deaf learners to use shorter answers was that they might experience difficulty adjusting to the real world in the future.

*I think it is important for us, especially at school, to learn how to write properly, how to understand instructions. It is important for us to master it because when we go out to work we will be required to do these things, not everything is going to be short and easy* (the participant laughing) (Participant B).
Deaf learners will be part of hearing world, they need to be ready for the future, and they need to master as many skills as possible at school (Participant C). However, all of the participants agreed that flexibility in all assessment procedures should be demonstrated.

*If the learners have problems to write in long sentences, then, yes, I think they can be allowed to write in short form* (Participant A).

*The educators should allow deaf learners to use shorter answers, it could be useful when the educator thinks that the test will be too hard for us to understand* (Participant B).

One of the participants pointed out that in mainstream schools with a big number of learners in the class; educators often experience problems to provide individualised assessment.

*I think the educators in mainstream will have problems to give different tasks to deaf learners, I don’t think they will do it at all, only if they are very helpful and supportive and are ready to go out of their way* (Participant B).

The participants also noticed that providing deaf learners with the tasks that require short answers will impede their ability to express themselves in writing.

*By giving them tasks that require short answers you do not allow deaf students to develop their writing skills and improve their written communication* (Participant D).

### 5.3.9.4 Allowing extra time to complete tests

A suggestion made in literature (see 3.4.4) is that deaf learners should be allowed extra time to complete assignments and tests drew favourable remarks from the participants. Owing to their limited vocabulary deaf learners might have problems interpreting
questions and finishing the task within the time limit. The participants agreed on the need to have extra time to complete the tests.

*I wouldn’t mind extra time. At university I get extra time for my exams, it helps me a lot to do better. Also in primary school, for example, when the educator gave us time tables test, she would speak and everyone had to write down the answers, having a little bit of extra time for that helped me a lot, I think, yes* (Participant A).

*I really want to have extra time to finish my work, why not? (participant laughing)* (Participant B).

*I think it is important to have extra time to finish the test, it really helped me at school* (Participant C).

You are losing time when you look up at the educator and then look down at your paper, *I think extra fifteen minutes will really help* (Participant D).

### 5.3.9.5 Allowing learners to make models, role-play, and do art projects to demonstrate their understanding of the information

A creative idea (see 3.4.4) that assessment of learners’ characteristics such as interests, prior knowledge, and learning styles should be made in order to help educators to provide learning activities that engage learners and encourage learning. Educators in mainstream schools are allowed to assess deaf learners on their level of language abilities. All the participants stated that educators can implement different forms of assessment to support progress and motivate deaf learners.

*Different projects would allow more positive willingness, I think most students in general, especially deaf students, will really enjoy those activities, they will be able to express themselves and have fun. I think it is very helpful for the learners to make models, art projects, etc. to express their understanding of information* (Participant A).
It depends on the subject, if it is an art project, for example, or history project, then definitely some demonstrations or models can be used to assess the learner (Participant C).

5.3.9.6 Modification of exam questions

The option of the modification of examination questions in advance by educators to ensure that their meaning is clear for deaf learners was discussed in the literature (3.4.4). These modifications include multiple-choice questions, fill-in-the-blank questions, true-false questions or short answer essay questions. All the participants indicated that long essay type examination questions can give rise to confusion and comprehension problems. They suggested that modification of test papers should be used to assess the learners according to their level of ability.

I don’t think only deaf learners, I think everyone can benefit from it, because if you have very difficult questions, you can easily get lost in your thoughts, if you have straight forward questions it is much easier to understand (Participant B).

I think it is very useful way to assess deaf learners, especially if you need to do a quick test, or when the learner has problems to understand the questions (Participant C).

I agree, it is very effective, particularly, if the educator not only modifies the questions, but also rephrases them to ensure that their meaning is clear for deaf learners (Participant A).

One of the participants mentioned that educators need to be extra careful when they modify test papers, as they could make it even more complicated for learners to perform.
I think sometimes true-or-false questions are more difficult to do than normal questions. Multiple choice questions can also be very difficult, especially with negative marking (Participant D).

At the end of their face-to-face interviews all the participants agreed that educators need to have patience to be successful in their inclusive practices.

I think educators mostly need patience and compassion when they deal with deaf learners (Participant D).

I know it takes time to provide extra help, but educators just need to be more patient with deaf learners, it would help them a lot (Participant B).

They don't need to go out of their way completely, just spend a little bit of extra time. They need to encourage the learners to be responsible, not spoon feed them, just make sure that they are up to date with their work (Participant A).

In drawing the above discussion to a close, it is clear that in order to achieve academic and social integration of deaf learners in mainstream educational settings, educators need to adapt support strategies in response to the specific needs of deaf learners. Educators need to keep in mind that for deaf learners the main key to success in mainstream schools lies in having appropriate adaptations and modifications made to the general curriculum and other classroom activities.

5.4 CONCLUSION

Chapter 5 presented the results of the empirical research that included the questionnaire survey and the face-to-face semi-structured interviews. Major themes which emerged from the literature review were identified in order to interpret and give meaning to the data obtained from the questionnaire survey and the interviews.
The participants agreed on these themes. They also agreed that the tasks and activities need to be differentiated in order to provide a variety of learning experiences to meet the unique learning needs of deaf learners. This expresses the importance for educators to rephrase the questions and sentences when communicating with deaf learners. Additionally, deaf learners benefit when new terminology is presented prior to the learning of new concepts. They also should be allowed more time to understand the task and, therefore, to finish it. Further, to assist deaf learners to understand tasks, educators can rephrase sentences or instructions in simpler forms.

With regard to adapting instructional strategies, curriculum material can be adapted and the method of presentation can be differentiated. Visual access to communication with others is very important as deaf learners rely mostly on visual modalities. Additionally, using oral discussion is a very helpful strategy to prepare deaf learners for any writing activities. In order to help deaf learners to understand new concepts, educators can provide deaf learners with copies of their notes.

A further inference relates to adapting instructional material; this involves a change in the format in which information is presented to deaf learners during the course of instruction. Information gained from the literature reviewed confirms the opinions of participants that notes that are meant to be taken during a particular lesson can be given to deaf learners in advance. Educators should use different visual aids such as boards, pictures, posters, overhead projectors and computers to assist deaf learners to grasp new concepts. In addition, supportive physical classroom environments need to be provided to cater for the needs of deaf learners.

Furthermore, deaf learners should be allowed extra time to complete their assignments and test activities. Educators can implement different forms of assessment to support progress and motivation of deaf learners. Modification of test papers should be used to assess learners on their level of ability.
Some of the empirical research findings could enrich the data extracted from the literature study and quantitative research. The participants pointed out that deaf learners do not require any simplification of curriculum content. They often have difficulties following the instruction of educators only because they cannot hear and interpret them clearly. Participants emphasised that educators can rephrase their instructions in simpler forms only if really necessary; otherwise they should encourage learners to use their dictionaries. The participants also stated that the best way to implement the “buddy system” is to ensure that the “buddy” is doing this work of his or her own accord. They also pointed that educators should use strategies such as demonstrations and role play, only in the beginning of the learners’ school career. The participants emphasised that only a small number of learners (around five) could be grouped for different activities. They also mentioned that during group activities educators should instruct hearing peers regarding the correct behaviour during group discussions and allow deaf learners to choose the group participants. Furthermore, the participants emphasised that placing non-verbal signs on the classroom walls could be an effective strategy to enhance deaf learners’ understanding of instructions; however, this strategy can be most appropriate for deaf learners in primary schools.

Participants also pointed out that providing deaf learners with educator’s notes might negatively influence the social acceptance of deaf learners. Deaf learners agreed that they do not really need any graphic cues on the question paper as these could give rise to comprehension problems. They showed concern with regard to allowing deaf learners to use shorter answers during tests as they believe this could cause difficulties with regard to the adjustment of deaf learners to the hearing world. They also pointed out that educators need to be very careful when modifying test papers for deaf learners, as they could make it even more complicated for learners to complete. The participants also added that educators need to have patience to be successful in their inclusive practices.

The data discussed in Chapter 5 has placed the researcher in a favourable position to draw conclusions and to synthesise the empirical study and the literature review. In the
next chapter the summary of the findings and conclusions, the limitations of the research, as well as recommendations and implications are presented.
CHAPTER 6
SUMMARY, RECOMMENDATIONS AND LIMITATIONS

6.1 INTRODUCTION

The current research was undertaken in order to explore how the curriculum of mainstream high schools could be adapted to include learners with hearing loss in inclusive education settings. Throughout the previous chapters of this thesis, the focus of the study has been delineated, namely, relevant recommendations for educators of deaf learners in inclusive high schools. Relevant literature was reviewed in Chapter 2 and Chapter 3. The description of the research design, which entailed a combination of quantitative and qualitative methods of data generation, was done in Chapter 4. Chapter 5 presented an analysis and integration of the research findings. In Chapter 5, the quantitative data, which are descriptive in nature, were presented in the form of bar graphs, while the interviews with deaf learners were transcribed and coded according to themes to provide qualitative data.

The aim of the current chapter is to discuss and summarise the conclusion drawn from the theoretical and empirical study as prescribed in the previous chapters and to make recommendations for accommodation of the learning environment and curriculum of the mainstream settings to the specific learning needs of deaf learners. The summary is followed by an analysis of areas in which further research is required. Finally, the study’s limitations are discussed.

6.2 SUMMARY OF RESEARCH FINDINGS

The researcher’s findings from the literature study, survey questions as well as interview conducted are addressed according to themes identified from analysis of the study.
6.2.1 Summary of qualitative findings and literature study

The first research sub-question: *What curriculum adaptations need to be done to ensure the successful inclusion of deaf learners in regular high schools?* has been addressed. According to the theoretical framework of the current study, the voices and lived experiences of deaf learners should be heard, recognised and valued to ensure their successful inclusion in the mainstream environment, therefore, the qualitative data gained from the semi-structured interviews with deaf learners were coded to generate themes and categories. The main themes emerged in response to how deaf learners could be successfully included in mainstream high schools. In order to adapt the curriculum appropriately, the educators of the mainstream schools need to be able to identify hearing loss and be aware of the main characteristics of the learners with deafness.

6.2.1.1 Hearing loss

Deaf learners indicated that the educators in mainstream high schools often do not have sufficient knowledge regarding hearing loss. They believed that educators were not trained, or knowledgeable about hearing loss and the educational needs of deaf learners. They also believed that educators often experience frustration when they discover that learners with hearing loss will be included in their classes. The participants also highlighted that educators need to realise that modern technology such as hearing aids and cochlear implants often allows deaf learners to benefit from the typical oral method of instruction. According to the literature study, many deaf learners do not like to be seen wearing hearing aids, especially in mainstream settings and particularly in high schools. Educators of these learners have a responsibility to make sure that assistive devices are used and are maintained in good order. Educators working with learners with hearing aids or cochlear implants need to know how to monitor these assistive technologies. Participants also agreed that educators need to have a basic understanding of how the FM system operates in order to assist learners to utilise this means of communication effectively. Theoretical framework emphasises that it is critical for educators have basic education regarding hearing loss and know the ways to identify it.
6.2.1.2 Implications of inclusive education

As the framework of the study provides a theoretical basis for the development of more effective policy responses to disability and stronger, democratic control of social institutions which deal, in one way or another, with issues related to disability, the participants mentioned the importance of a supportive relationship between principals, educators, parents and therapists. They believed that all members of the school support team should be involved in order to render effective educational services. The participants agreed that school principals should have the required knowledge to make informed decisions. They should motivate educators to attend to the needs of deaf learners. The principals need to be familiar with the special skills of educators on their staffs and should encourage them to address the special needs of deaf learners. The participants also indicated that educators and principals need to have special qualities to support deaf learners and to help them to cope in a mainstream environment. According to the literature study, the negative attitude towards the inclusion of deaf learners was often found to decrease with educational experience and further training. Additional training leads to improvements in individual attitudes and then improvements in the school ethos towards educating learners with hearing loss. Participants also mentioned that educators in mainstream schools should gain the special skills required by means of pre-service and in-service training about deafness.

6.2.1.3 Characteristics of deaf learners

According to the theoretical framework of the study, the various characteristics of the deaf learners should be differentiated without creating a hierarchy – either between disability and non-disability or within their disability. In the course of the current study, the unique characteristics of deaf learners have been investigated in order to assist educators to understand their specific educational needs and, therefore, make the curriculum adaptations necessary to support these learners effectively.
6.2.1.3.1 Cognitive development

Participants were concerned about the attitude of hearing people towards the cognitive development of deaf people. They mentioned that there are a lot of misconceptions in society regarding intellectual abilities of deaf people. They noted that deaf learners often do not perform well academically as a result of language delay and the lack of educational experiences. The literature study confirms that deaf learners might have a different organisation of intellectual abilities than hearing learners and that these abilities might require particular kinds of educational experiences to optimise the academic abilities of deaf learners. The literature study findings correspond with the participants’ opinions and affirm that deaf learners might exhibit cognitive differences as a result of language delay and experiential deficit as well as the mismatch between the demands of spoken and written language, and not cognitive capacity. The literature study also underlines that early access to effective language is essential for normal cognitive development and academic success in deaf learners.

6.2.1.3.2 Personal and social development

The participants mentioned that they sometimes experienced difficulties in being accepted by hearing learners and had feelings of loneliness. They also had difficulties developing emotionally secure relationships with peers. The participants mentioned that as educators and other learners became better informed and more supportive, deaf learners were able to demonstrate good self-esteem and self-confidence. The literature study confirms that within mainstream education settings deaf learners often experience difficulty in forming good relationships with hearing peers unless efforts are made by professionals to bridge the communication barriers and to develop situations where positive interactions can take place. The literature study indicated that providing deaf learners with information about friendship and social rules enables them to develop more positive social roles. It also assists them to become actively involved in identifying and meeting their educational, social and career goals.
6.2.1.3.3 Emotional development

The participants mentioned that supportive attitudes and good relationships with educators and parents assisted them develop their emotional well-being. They also indicated that the support of educators in high schools helped them to become independent members of society and also encouraged them to develop positive self-esteem. The participants also stated that their involvement in different classroom and extra-curriculum activities, where they had to carry out different tasks, encouraged their successful integration into the mainstream environment. The literature study corresponds with empirical findings and suggests that factors such as family support and school experience can significantly influence the self-esteem of deaf learners. The literature findings also reveal that attending mainstream schools is beneficial for deaf learners since it gives them the chance to gain knowledge of how to function in the hearing world. However, the literature findings also suggest that school settings where deaf learners are among similar others but also interact with hearing educators and learners would be ideal for developing self-esteem and self-confidence of deaf learners. Educators need to assist deaf learners to become aware of their strengths and find ways to take advantage of the context to maintain interest and enjoyment.

6.2.1.4 Curriculum adaptations and modifications

The theoretical framework of the study emphasises the importance of the context, as the critical disability theory emerges from the bottom up approach, from the lived experiences of learners with hearing loss, rather than from the top down. The participants of the study mentioned that specific adaptation of the curriculum is a strategy for ensuring effective curriculum delivery to deaf learners. These adaptations refer broadly to the modification or adjustment of lessons, activities and materials to make them suitable for the different needs of deaf learners. According to the literature study, curriculum adaptations are a key strategy for responding to the needs of deaf learners. Curriculum adaptations can be done at the level of content, instructional strategies, instructional materials and assessment.
6.2.1.4.1 Differentiating curriculum content

The participants agreed that specific modifications should be made to the curriculum content to suit the individual needs of a particular deaf learner. The literature study confirms that curriculum adaptations usually require more educator effort than simply changing the method of material delivery. Differentiating curriculum content is a goal-driven process: in order to decide on differentiating of curriculum content, educators first need to specify intended goals for individual learners, as each learner has individualised learning outcomes that may differentiate within the same learning area.

6.2.1.4.2 Adapting instructional strategies

The participants highlighted that adapting instructional strategies is a useful tool for supporting deaf learners in mainstream classrooms. They mentioned that educators need to consider the learning styles and individual abilities of deaf learners. The literature study confirms that adapting instructional strategies involves the method of instruction, the nature of learners’ participation in the lesson, and the interaction between educators and the learners. The literature study also substantiates that adapting instructional strategies is a demanding and time-consuming process for educators; however, it is the best way to meet the unique needs of deaf learners. An effective adaptation of instructional strategies can be made only if educators provide a more constructive learning atmosphere in which deaf learners feel respected and encouraged to take risks.

6.2.1.4.3 Adapting instructional materials

The participants agreed that during the process of curriculum adaptation, educators should provide additional or simply different materials in a variety of modalities that deaf learners might use during the course of instruction. The literature review confirms that adapting instructional materials involves making changes to the equipment and supplies to which learners have access during the performance of tasks. It was also mentioned in the literature study that adapting instructional materials promotes comprehension of the
given tasks, assists in the discrimination of words, phrases and sentences which, therefore, leads to enhancing the learning process. The literature review also confirms that the physical environment plays an important role in the successful inclusion of deaf learners and includes factors such as classroom discipline, arrangement of furniture, classroom infrastructure and class size. It is very important for educators to create a structured, controlled, supportive environment when trying to include deaf learners in mainstream settings.

6.2.1.4.4 Adapting assessment practices

The participants mentioned that learners with hearing loss often require some additional accommodations during the testing situations. They also noted that educators are not expected to lower standards to accommodate deaf learners, but should rather give them reasonable opportunities to demonstrate their abilities. The literature study confirms that assessment practices are a vital part of the curriculum adaptation. They assist educators to determine what deaf learners have not yet achieved in order to adapt their teaching method appropriately. Classroom tasks can also be differentiated and particular modifications can be done in order for deaf learners to access the curriculum. It is important for educators to be specific about the outcomes of the assessment and to try to match the assessment strategies with the learning style of deaf learners.

6.2.2 Summary of the quantitative data

The second research sub-question: What knowledge do educators consider important to support the deaf learners in regular high schools? has been addressed. The quantitative data served to provide background information to the phenomenon under study.

According to the theoretical framework, reconceptualisation of the nature of, and lived relationships among, the deaf learners and educators is necessary to transform the basic assumptions of current educational policies. The findings of the quantitative study
provided the relevant information regarding the knowledge that educators view important if deaf learners are to be successfully included in mainstream high schools.

**6.2.2.1 Hearing loss and inclusive education**

The quantitative findings show that educators of deaf learners in mainstream high schools require knowledge about the manifestations and causes of hearing loss. This will assist them to understand the difficulties that deaf learners experience in the classroom. The findings also indicate that educators of deaf learners require a basic understanding of language acquisition as well as the educational needs of deaf learners to promote their higher language development. The survey highlights educators’ need for support when teaching deaf learners in inclusive settings and the need to determine each learner’s level of functioning in order to plan suitable intervention steps. The results also imply that educators must obtain the appropriate knowledge and skills to support deaf learners; this could be achieved through pre-service and in-service training as well as collaboration with professional service providers such as psychologists, audiologists, and speech therapists.

It is evident from the quantitative survey that the vast majority of educators believe that it is necessary for educators to be better informed about the cognitive, social and emotional development of deaf learners. The data reveal that educators consider that their task is not only to develop the academic skills of deaf learners, but also to create the situations where deaf learners can acquire a feeling of acceptance by other learners. The educators believed that they need to assist the deaf learners to become aware of their strengths and that they need to motivate them to reach their potential.

**6.2.2.2 Curriculum adaptations and modifications**

The survey indicates that the educators viewed knowledge about the adaptation of curriculum content as essential to successfully accommodate deaf learners into mainstream schools. This calls for effective presentation of curriculum materials and the
organisation of opportunities for learning in order to close the gap between the educational outcomes for deaf and hearing learners. The quantitative data also reveal that the majority of educators believe that they need to be better informed about adapting instructional strategies. Educators agreed that those skills would equip them to support deaf learners in inclusive educational settings and would assist them to extend deaf learners’ access to new learning areas, experience and knowledge, based on their current strengths and learning needs.

Educators indicated that they required knowledge about how to modify the way in which they deliver instructions in order to assist deaf learners to gain better access to the curriculum. Educators also believe that they need specific knowledge regarding a variety of activities, resources and environments that they can offer to deaf learners in inclusive education settings.

The results of the quantitative survey highlight the importance of equipping educators with relevant knowledge and appropriate skills regarding the adaptation of assessment practices. They also indicate that educators require knowledge about the way in which tests could be administered. Strong concerns relating to the changes that could be made in the content of the test questions are echoed by the majority of educators. Additionally, educators in mainstream schools believe that they require an appropriate level of knowledge and skills before being able to apply the different assessment techniques to assess the learners equitably and respectfully. These findings corroborate the qualitative findings.

6.2.3 Support guidelines

The third research sub-question: *What support strategies for curriculum adaptations could be used to assist the educators in accommodating deaf learners in regular high schools?* has been answered.
According to the theoretical framework of the study, adjustments should be made to eliminate the obstacle to welcoming the deaf learners and enabling them to participate as equal is required. The findings based on the literature study and on empirical research were compiled into support guidelines. The researcher believes that these guidelines will equip educators with knowledge and skills on how to adapt the curriculum and will assist them in accommodating the deaf learners successfully in the mainstream classes.

Guidelines on curriculum adaptations for high school educators to support the deaf learners in the mainstream classrooms

Hearing loss

Educators should have basic education regarding hearing loss and know the ways to identify it.

➢ Guidelines that educators should consider for identifying the learner with hearing loss

➢ Educators within an inclusive environment need to be observant and vigilant in getting to know their learners in order to identify potential hearing loss.
➢ Signs of a learner’s unaddressed hearing loss in the classroom are frequently associated with attention, behaviour, and language skills.
➢ Educators should be aware that the earlier a hearing loss is identified, the better a learner’s chances are for developing good language and communication skills.
➢ Educators should keep in mind that hearing tests determine whether hearing is impaired, the extent of the impairment, and what part of the ear may be implicated.
➢ If educators suspect that a learner is having difficulty hearing, they should bring this to the attention of the learner's parents and school administrators so that the learner can undergo a thorough hearing assessment by an audiologist.
➢ If a child is language-delayed in any way, it is important to conduct a hearing test and to organise and implement an intervention plan as early as possible.
Educators should be trained in order to operate assistive technology such as hearing aids, cochlear implants and FM systems in their classrooms.

Educators should be willing to utilise assistive technologies in their classrooms to help learners to participate fully in classroom activities.

**Collaboration and teamwork**

Collaboration and teamwork includes educators working effectively in teams with principals, parents and a range of educational and other service professionals within and outside of the school.

- **Guidelines for facilitating of collaboration and teamwork between different professionals**

Educators should recognise that principals of the mainstream schools play a crucial role in promoting inclusive education and supporting educators.

Educators need to co-operate with principals in trying new teaching strategies and in developing or modifying the existing curriculum.

They need to keep principals informed about the special needs of deaf learners in order to create environments conducive to learning.

Educators should work co-operatively with audiologists and speech therapists to acquire knowledge about the different aspects of educating learners with hearing loss.

Educators should try to build strong partnerships with parents of deaf learners. This can be achieved through positive interactions and communication.

They should undergo pre-service or in-service training to develop their knowledge and skills regarding the inclusion of deaf learners.

**Characteristics of deaf learners**

Knowledge of unique characteristics of deaf learners can help educators to make the necessary adaptations in order to support these learners effectively.
Cognitive development

- Guidelines that educators should consider regarding cognitive development of deaf learners

- They should bear in mind that deaf learners progress through the same stages of cognitive development and perform in a similar fashion as hearing learners, but somewhat later on certain tasks.
- Educators should be informed that in both nonverbal and verbal areas, deaf learners appear just as creative as their hearing peers. Factors negatively impacting deaf learners’ creativity and flexibility include over-control by adults as well as lack of communication and interaction with educators and parents.
- Educators should realise that deaf learners exhibit cognitive differences as a result of language delay and experiential deficit and not cognitive capacity.
- Educators should find a variety of methods and strategies to assist deaf learners to develop intellectually.
- Educators should identify the cognitive strengths of deaf learners in their classrooms and capitalise on those strengths.
- Educators should assist deaf learners to develop cognitively by spending extra time on the explanation of different concepts.
- Educators should ensure that deaf learners focus on the task by requesting the learners to repeat the instruction or answer a question.
- The early access to effective language is essential for normal cognitive development and academic success in deaf learners.

Personal and social development

- Guidelines that educators should consider regarding personal and social development of deaf learners

- The social development of deaf learners does not significantly differ from hearing learners in terms of their personal identity, satisfaction with life, or overall well-being.
Educators should bear in mind that when the development of communication skills is delayed interactions with other people can become more difficult, and therefore, the acquisition of some social skills may also be delayed. Deaf learners may experience difficulties in being accepted by hearing learners and have feelings of loneliness. Educators should make an effort to bridge the communication barriers and to develop situations where positive interactions can take place. They should provide deaf learners with information about friendship and social rules to promote the development of more positive social roles among these learners. Educators should encourage hearing learners to accept learners with hearing loss by explaining their differences and by setting an example of developing close and emotionally secure relationships with deaf learners. Peer group may need to be shown how to initiate contact, how to invite the deaf learners to join in an activity or how to help them with particular school assignment. Educators should involve parents and district educational psychologists to assist them address the social needs of deaf learners in a mainstream environment.

Emotional development

Guidelines that educators should consider regarding emotional development of deaf learners

Educators should realise that language delay and difficulties in accessing incidental learning are the major factors that can adversely affect the emotional development of deaf learners. They should be aware that deaf learners are likely to have faced frustration, embarrassment, misunderstanding, and the loneliness of being left out of oral conversations. Supportive attitudes and good relationships with educators and peers assist the deaf learners in developing their emotional well-being. Educators should find different ways to encourage deaf learners to participate actively in class activities to develop their leadership abilities and independence.
Educators can make use of peer tutoring, buddy system and other helping relationships to assist the deaf learners to develop positive self-esteem.

Educators should utilise eye contact techniques and encourage other learners to follow their example.

Educators should encourage active participation of deaf learners in extracurricular activities to help them to develop their leadership and decision-making abilities as well as interpersonal communication skills.

Educators should accept the deaf learners as valuable, worthwhile human beings irrespective of their disability.

### Curriculum adaptations and modifications

Curriculum adaptations refer broadly to the modification or adjustment of lessons, activities and materials to make them suitable for the different needs of deaf learners. Curriculum adaptations can be done at the level of content, instructional strategies, instructional materials and assessment.

### Differentiating curriculum content

**Guidelines for differentiating curriculum content for the deaf learners**

- Educators should match the nature of the learning tasks set for deaf learners to their learning rate and individual abilities.
- Educators should, if necessary, provide deaf learners with supplementary materials at a simpler level.
- They should support verbal instructions with written materials by writing instructions on the chalkboard or providing worksheets with written explanations.
- Educators should allow deaf learners to have extra time to complete tasks.
- Educators should provide extra homework to encourage successful language acquisition.
- Educators should rephrase questions and sentences rather than merely repeating them.
- They should rephrase the sentences or instructions in a simpler form, if necessary.
Educators should encourage deaf learners to use dictionaries in order to extend their vocabulary.

Educators should encourage deaf learners to repeat the pronunciation of new terms a number of times to ensure that they acquire the correct pronunciation of new vocabulary.

Educators should repeat new terminology numerous times in a variety of contexts.

Mathematics task directions can be simplified for deaf learners. When presenting deaf learners with problem-solving tasks that involve for example, geometric shapes, deaf learners can be allowed to show their knowledge with hands-on materials.

Special attention must be given to important algebraic terminology, such as variables, constants, coefficients, powers, base of the power and like and unlike terms. This terminology should be used on a permanent basis to develop their understanding and help them to memorise these concepts.

In language, when the learners master making shorter sentences in essay writing, they should be encouraged to use longer sentences that include clauses with: so that, that, then, after, before.

The skill of writing needs to be divided into smaller steps. The learners need to be taught to do each step systematically.

**Adapting instructional strategies for deaf learners**

Guidelines for adapting instructional strategies for deaf learners

Educators should include strategies such as gaining the learner’s attention, speaking clearly, using gestures to optimise learners’ perception of spoken language.

They should implement the “buddy system” strategy in class in order to develop positive socialisation and assist the deaf learners to understand the instructions. The best way to implement the “buddy system” is to ensure that the “buddy” is doing this work of his or her own accord.

Educators should break instructions down and use shorter sentences to help deaf learners to understand what is being said.

Educators should provide concise, step-by-step directions prior to given tasks, and preview these with deaf learners.
Educators should maximise the use of visual media and demonstrations. They should group only a few learners (maximum five) for group interactions and discussions. Educators should instruct all learners in a group how to behave during group discussions. Educators need to control discussions to ensure that only one person speaks at a time. Educators should encourage deaf learners to participate in group discussions by answering questions or giving reports. Educators should help deaf learners to identify the person speaking during group discussions; this can be done using a nod or a hand gesture. Educators should let learners sit in circles during group discussions for better inclusion of deaf learners. Educators should allow deaf learners to choose the group participants. Educators should provide new terminology and required vocabulary prior to the presentation of new concepts. Educators should use oral discussions to prepare deaf learners for any writing activities. Educators should provide deaf learners with written instructions to assist them to have prior information about a topic to be discussed. Deaf learners should be allowed to use writing frames as support. They also need to be provided with formats or examples of the required layout.

Adapting instructional materials for deaf learners

Guidelines for adapting instructional materials for deaf learners

Educators should highlight key words or important terms on worksheets to assist deaf learners to identify the important concepts. Educators should allow hearing learners to assist learners with hearing loss to take notes. Educators should place non-verbal signs on classroom walls to enhance deaf learners’ understanding of instructions.
Educators should provide deaf learners with the most important parts of their notes in advance and also provide opportunities for consultation after lessons.

Educators should use a variety of visual aids such as boards, pictures, posters and overhead projectors to assist deaf learners to grasp new concepts.

Educators should use visual supplementary equipment and electronic media, such as the DVD players, computers, or laptops to deliver teaching materials and provide explanations of different scientific concepts.

Educators should use captioned videos or films, where possible, or provide deaf learners with scripts or written explanations of the material viewed to assist them with understanding the video presentations.

Educators must make sure that they stand or sit facing deaf learners and that their faces are not covered.

Educators should ensure that deaf learners are seated close to them and that these learners are able to see all the other learners, if possible, in order to communicate in an optimal manner.

Educators should adjust the lighting in the teaching environment to ensure that deaf learners can see educator’s face, hands and lips.

Educators should ensure that any background noise is minimised.

Announcements made regarding class work, tests, exams, extra-mural activities, should be given in writing as well as verbally.

Educators should make available in advance outlines of activities as well as lists of the expectations for the lessons to deaf learners.

Adapting assessment practices for deaf learners

Guidelines for adapting assessment practices for deaf learners

Educators should allow deaf learners to perform alternative forms of assessment, for example, to do research projects instead of writing tests.

Educators should read questions together with deaf learners and then explain what should be done.
Educators should avoid using overly complicated language in examination or test questions and should clearly separate items on question papers.

Educators should use short sentences if deaf learners cannot comprehend the longer sentences; otherwise educators should try to rephrase questions to help deaf learners to understand the essence of questions. Using short questions only might impede their ability to comprehend the written material.

Owing to difficulties with vocabulary, deaf learners may require extra time to complete tests.

Educators should implement different forms of assessment such as model making, role-play or art projects to demonstrate their understanding of different curriculum concepts.

Educators should avoid excessively complicated instructions and include multiple-choice questions, fill-in-the-blank questions, true-false questions or short answer essay questions in examination or test papers.

Educators should provide model answers to test questions by using overhead projectors or by providing written handouts.

Educators should keep reading material for tests at the appropriate reading levels of deaf learners.

**Attitudes of the educators**

Positive attitudes of the educators have direct link with the success of inclusion of the deaf learners into mainstream schools. Educators play a vital role in helping deaf learners to expend their skills and creating appropriate inclusive environments in their classrooms.

- **Guidelines for promoting positive attitude of the educators towards deaf learners**

  - Educators should be patient and compassionate.
  - Educators should encourage deaf learners to be responsible.
  - Educators should be available to provide extra help to deaf learners.
  - Educators should establish positive and friendly relationships with deaf learners to help them succeed in mainstream environments.
The following section outlines certain recommendations for further research.

6.3 RECOMMENDATIONS FOR FURTHER RESEARCH

In order to include deaf learners in mainstream education settings in South Africa, the following recommendations are made for further research possibilities:

- Parents play a crucial role in the child’s social development, intellectual growth and emotional well-being. Further study could focus on the experiences of parents of deaf learners who have successfully progressed through the inclusive school system to investigate their experiences and concerns.

- While this research study included schools in urban areas only, it would be useful to investigate the practice of inclusion of deaf learners in rural areas. This would be a worthwhile area for further research.

- As it was established in the current research, the positive attitude of principals is critical for successful inclusion of deaf learners into mainstream educational settings; therefore, further research is required to determine what is needed to ensure that principals of mainstream schools display an accepting attitude towards inclusion.

- The use of visual aids is most helpful since vision is the deaf learner's primary means of receiving information. The exploration of such aids in supporting the inclusion of deaf learners is an area into which further research is required.

- The curriculum adaptations investigated in the current research were developed for high school learners. Further research into the effectiveness of these adaptations for primary school learners could further verify or contradict the findings of this research.
Throughout this research mention was made that deaf learners may appear isolated in the learning environment. The possibility for social interaction with other learners is often limited, and this isolation may have an impact on learning. Further research is required to develop strategies that can empower educators to improve the social skills of deaf learners.

Educator training should include methods which empower them to identify and support learners with hearing loss. To address this issue, the development of supportive intervention programmes can be maintained in order to ensure that educators in mainstream schools can address the specific needs of deaf learners. This is a critical issue into which further research is necessary.

6.4 LIMITATIONS OF THE STUDY

There are several limitations of this study. They are:

- The findings of the current research are limited to secondary education and cannot be generalised across all schools in South Africa, mainly owing to the fact that deaf learners who participated in the study were included in the mainstream settings during their secondary education only.

- It has to be recognised that only one province of South Africa was included in the study, as the participants of the research were educated in the mainstream schools located in this province.

- Owing to the limited availability of local research materials about the inclusion of deaf learners in mainstream high schools in South Africa, the extensive use of international literature might be seen as a limitation.

- This study focused on exploring the experiences of learners and educators. The study may therefore be constrained in that it does not tap into the experiences of parents or other members of deaf learners’ families.
In the qualitative research all the participants were known to the researcher and this may have brought a unique bias to the data collection and analysis processes.

6.5 CONCLUSION

Inclusive education as the new reality in South African education brings along major philosophical shifts for educators. Subsequently this theoretical-philosophical reconceptualization has to find its way into educational practice. The educators need to be equipped with different teaching strategies and know how to adapt and differentiate the curriculum as it is a key issue in addressing various needs and styles of learners. The current research was undertaken with the purpose of determining and exploring ways in which the curriculum can be adapted to accommodate deaf high school learners within inclusive education settings. This goal has been achieved by means of a comprehensive literature review and the interpretation of data collected through a questionnaire survey and interviews. The study findings have culminated to the development of the support guidelines for the educators to accommodate and integrate deaf learners into mainstream classrooms and assist them in understanding their roles and responsibilities in the inclusion effort.


Department of Education. 2011c. *Guidelines for Responding to Learner Diversity in the Classroom through the Curriculum and Assessment Policy Statements (CAPS)*. Pretoria: Department of Education.


APPENDIX 1
Permission to Conduct Research

Miss Ilana Viktorovna Skrebneva
44 Laguna Ridge
367 North Ridge Road
Morningside
DURBAN
4001

Dear Miss Skrebneva

PERMISSION TO CONDUCT RESEARCH IN THE KZN DoE INSTITUTIONS
Your application to conduct research entitled: Support for the Deaf Learners in South Africa Inclusive High Schools: Curriculum Adaptations, in the KwaZulu-Natal Department of Education Institutions has been approved. The conditions of the approval are as follows:

1. The researcher will make all the arrangements concerning the research and interviews.
2. The researcher must ensure that Educator and learning programmes are not interrupted.
3. Interviews are not conducted during the time of writing examinations in schools.
4. Learners, Educators, Schools and Institutions are not identifiable in any way from the results of the research.
5. A copy of this letter is submitted to District Managers, Principals and Heads of Institutions where the intended research and interviews are to be conducted.
6. The period of investigation is limited to the period from 01 October to 31 December 2014.
7. Your research and interviews will be limited to the schools you have proposed and approved by the Head of Department. Please note that Principals, Educators, Departmental Officials and Learners are under no obligation to participate or assist you in your investigation.
8. Should you wish to extend the period of your survey at the school(s), please contact Mr. Alwar at the contact numbers below.
9. Upon completion of the research, a brief summary of the findings, recommendations or a full report / dissertation / thesis must be submitted to the research office of the Department. Please address it to The Director-Resources Planning, Private Bag X9137, Pietermaritzburg, 3200.
10. Please note that your research and interviews will be limited to the following schools and institutions:

1. Durban High School
2. Glenwood High School
3. Brettonwood Secondary School
4. Durban Girls' High School
5. North Wood School
6. Ridge Park College
7. George Campbell School of Technology
8. Westville Boys' High School
9. Westville Girls' High School
10. Hunt Road Secondary School

Nkosinathi S.P. Sishi, PhD
Head of Department: Education

Date: 22-10-2012

...dedicated to service and performance beyond the call of duty.

KWAZULU-NATAL DEPARTMENT OF EDUCATION
POSTAL: Private Bag X9137, Pietermaritzburg, 3200, KwaZulu-Natal, Republic of South Africa
PHYSICAL: Office G 25, 188 Pietermaritz Street, Metropolitan Building, Pietermaritzburg 3201
TEL: Tel: +27 33 341 8610 | Fax: +27 33 341 8612 | E-mail: sibusiso.alwar@kzn doe.gov.za | Web: www.kzn education.gov.za
Research Ethics Clearance Certificate

This is to certify that the application for ethical clearance submitted by

**IV Skrebneva [33935130]**

for a D Ed study entitled

**Curriculum adaptations to support deaf learners in inclusive secondary schools**

has met the ethical requirements as specified by the University of South Africa College of Education Research Ethics Committee. This certificate is valid for two years from the date of issue.

Prof CS le Roux
CEDU REC (Chairperson)

15 April 2013

lrouxcs@unisa.ac.za
Reference number: 2013 APR/33935130/CSLR
APPENDIX 3
Principal Consent Letter

Dear Sir/Madam

Request for permission to conduct research at your school

I am a student at the University of South Africa. I am presently conducting a research project in Inclusive Education as part of my Doctoral studies. I am investigating specific curriculum adaptations necessary to accommodate deaf learners within inclusive education in South Africa.

In order to complete the requirements for the degree, I need to become acquainted with various aspects of supporting deaf learners in inclusive settings. I am planning to obtain the necessary information for this research project through the use of questionnaires. I kindly request your permission to allow all the educators (Grades 8 to 10) of your school to complete a questionnaire. This will not take more than 15 minutes of their time.

Please note that your identity, all identifying information of the school, the names of educators, as well as their responses will be kept strictly confidential and will remain anonymous. I also assure you that I will not disturb the normal school routine with this project or cause any financial implications for the school. There are no costs involved and no compensation will be given to participants in this research study.

You are free to withdraw your consent for educators’ participation at any time and for any reason without consequence.

Any findings pertaining to this research study will be made available for your perusal should you wish to examine them.

Your consent, as requested herein, would be greatly appreciated.
I sincerely appreciate your co-operation.

Yours faithfully,

________________
I V Skrebneva

Postgraduate student

Dr CS Gous-Kemp

Research supervisor

Please complete the following in order to grant permission to educators of your school to participate in the research project:

I, ___________________________ hereby give my informed consent that educators of __________________________ are permitted to participate in the above-mentioned research project.

Date: ________________

Signed: ________________
Dear Educator,

**Permission for research project:**

I am a student at the University of South Africa furthering my studies in Inclusive Education. As part of my Doctoral studies I am investigating specific curriculum adaptations necessary to accommodate deaf learners within inclusive education in South Africa.

In order to complete the requirements for the degree, I need to become acquainted with various aspects of supporting deaf learners in inclusive settings. I value your skills and expertise in the education of learners with various abilities, and therefore would like to include you in this research project.

I am planning to obtain the necessary information for this research project through the use of questionnaires. I request you to complete a questionnaire that will not take more than 15 minutes of your time.

Please note that your identity, all identifying information of the school, the names of educators as well as their responses will be kept strictly confidential and will remain anonymous. I also assure you that I will not disturb the normal school routine with this project or cause any financial implications for the school. There are no costs involved and no compensation will be given to participants in this research study.

You are free to discontinue your participation in the study at any time without consequence.
Any findings pertaining to this research study will be made available for your perusal should you wish to examine them.

Your consent, as requested herein, will be greatly appreciated.

I sincerely appreciate your co-operation.

Yours faithfully,

__________________________
I V Skrebneva
Postgraduate student

__________________________
Dr CS Gous-Kemp
Research supervisor

Please complete the following in order to confirm your willingness to participate in the research project:

I, ____________________________________________ hereby give my informed consent to participate in the above-mentioned research project.

Date: ____________________

Signed:__________________________
APPENDIX 5
Letter of Informed Consent (interview)

Dear Participant,

Permission for research project:

I am a student at the University of South Africa furthering my studies in Inclusive Education. As part of my Doctoral studies I am investigating specific curriculum adaptations necessary to accommodate deaf learners within inclusive education in South Africa.

In order to complete the requirements for the degree, I need to become acquainted with various aspects of supporting deaf learners in inclusive settings.

I would like you to participate in this research because you have been identified as a successful individual with hearing loss who has completed regular high school studies. You will be asked to participate in an interview that will not take more than 50 minutes of your time.

Your participation in the research is completely voluntarily. You are free to withdraw your consent to participate and may discontinue your participation in the interview at any time without consequence. There are no costs involved and no compensation will be given to participants in this research study.

All personal and private information, which might be regarded as sensitive, including but not limited to names and locations, will be treated with utmost confidentiality and anonymity throughout and subsequent to the study. You will not have to answer any question you do not wish to answer. Any findings pertaining to this research study will be made available for your perusal should you wish to examine them.
Your consent, as requested herein, will be greatly appreciated. I thank you in anticipation of your kind co-operation.

Yours faithfully,

________________
I V Skrebneva
Postgraduate student

________________
Dr CS Gous-Kemp
Research supervisor

Please complete the following in order to confirm your willingness to participate in the research project:

I,________________________________________________________ hereby give my informed consent to participate in the above-mentioned research project.

Date: ____________________

Signed: ____________________
APPENDIX 6
Questionnaire used for data collection

KNOWLEDGE THAT EDUCATORS REQUIRE WITH REGARD TO INCLUSION OF DEAF LEARNERS IN REGULAR HIGH SCHOOLS

QUESTIONNAIRE FOR HIGH SCHOOL EDUCATORS

The aim of this questionnaire is to determine knowledge that educators require with regard to inclusion of deaf learners in regular high schools. The findings of this study will be used to help educators to make specific adaptations to the curriculum for successful inclusion of deaf learners in mainstream high schools under the new Inclusive Policy dispensation.

The information obtained from this questionnaire will be treated confidentially. The data will be used for research purposes only.

INSTRUCTIONS:
1. Kindly respond to all questions in black or blue ink. HB pencil can also be used.
2. The questionnaire consists of four sections. Please answer all sections.
3. Please indicate all responses by placing an x in the appropriate tick box.
4. Please select only one option per question unless otherwise specified.

The questionnaire covers the following aspects:

Section A: Biographical and demographical characteristics of high school educators
Section B: The aspects of hearing loss and inclusive education
Section C: Manifestations of hearing impairments
Section D: Curriculum adaptations and modifications
**SECTION A : BIOGRAPHICAL AND DEMOGRAPHIC DATA**

Please indicate your choice by placing an X the appropriate box

<table>
<thead>
<tr>
<th>Serial no</th>
<th>Gender</th>
<th>Official use</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1. Gender</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2. Age</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>21-26</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>3. Do you have experience teaching hearing impaired learners in your class?</th>
<th>1</th>
<th>2</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>No</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

211
4. How many years teaching experience do you have?

<table>
<thead>
<tr>
<th>Years</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 - 10 years</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11 – 15 years</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16 – 20 years</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>More than 20 years</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>7</td>
</tr>
</tbody>
</table>

5. Please indicate your highest teaching qualification.

<table>
<thead>
<tr>
<th>Qualification</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>PTC / NP /</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ANY</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ANY 2 YEARS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TEACHING</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>QUALIFICATION</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>STD</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ACE / HED</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BACHELOR</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DEGREE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HONOURS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DEGREE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MASTERS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DEGREE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>8</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

6. Do you have qualifications in special needs education?

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

| 9 |
7. Do you have any family members/friends who are hearing impaired?

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Yes</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>No</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

SECTION B: THE ASPECTS OF HEARING LOSS AND INCLUSIVE EDUCATION

Directions:
Please consider each statement carefully and give your honest opinion. Indicate your preference by placing a tick in the appropriate box.

**CODE**

- DS = Disagree strongly
- D = Disagree
- N = Neutral – neither agree nor disagree
- A = Agree
- AS = Agree strongly
2. Integrating learners with hearing impairments in the classroom

To successfully include the hearing impaired learners in their classrooms, educators should be knowledgeable about:

1. The physiology of the ear
2. Common causes of hearing loss
3. Types of hearing loss associated with the most common causes of impairment
4. Manifestation of hearing disorders in the classroom
5. Identification of hearing impairments in the classroom
6. Most effective communication techniques for hearing impaired learners
7. Communication preferences of hearing impaired learners
8. Teaching techniques most effective in tutoring hearing impaired learners
9. The interpretation of a learner’s audiogram
10. The value of sign language as opposed to auditory training and lipreading
11. Techniques to develop language skills of hearing impaired learners
12. Guidance to parents of hearing impaired learners
13. Cognitive development of hearing impaired learners

14. Social and emotional development of hearing impaired learners

### 3. Resources available to support and equip secondary school educators to successfully integrate hearing impaired learners

To successfully integrate hearing impaired learners in their classrooms, educators should be aware of support that is available via the following resources (training is regarded as a resource):

<p>| | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>DS</td>
<td>D</td>
<td>N</td>
<td>A</td>
<td>AS</td>
<td></td>
</tr>
</tbody>
</table>

1. A Special Needs Education Diploma

2. In-service training courses on accommodating hearing impaired learners in IE

3. Training courses on communication techniques with hearing impaired learners

4. In-service training in use of technical equipment used in the education of hearing impaired learners (hearing aids, amplification devices, FM systems, etc)

5. Collaborative support available in the form of professional services providers (audiologists, speech therapists, etc)

6. Communication with experienced educators of hearing impaired learners
SECTION C: MANIFESTATIONS OF HEARING IMPAIRMENTS

Directions:
Please consider each statement on the manifestation of hearing impairment and how informed you think educators should be on each aspect. Indicate your preference by placing a tick in the appropriate box.

**CODE**
- DS = Disagree strongly
- D = Disagree
- N = Neutral – neither agree nor disagree
- A = Agree
- AS = Agree strongly

<table>
<thead>
<tr>
<th>4. COGNITIVE DEVELOPMENT</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Educators in regular schools should be informed and knowledgeable about:</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>DS</td>
<td>D</td>
<td>N</td>
<td>A</td>
<td>AS</td>
</tr>
<tr>
<td>1. The intellectual potential of hearing impaired learners</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. The cognitive organisation of hearing impaired learners</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. The stages of cognitive development of hearing impaired learners</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. The style of processing information by the hearing impaired learners</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. The learning style of hearing impaired learners</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. How hearing impaired learners remember and recall information</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Problem solving skills of hearing impaired learners</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Structuring everyday situations to promote the cognitive development of hearing impaired learners</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
9. Structuring of everyday situations to create a stimulating learning environment for hearing impaired learners

10. Identifying hearing impaired learners with cognitive development

11. Designing of educational methods to assist hearing impaired learners to fulfil their academic potential

5. SOCIAL DEVELOPMENT

<table>
<thead>
<tr>
<th>Educators of regular schools should be knowledgeable about:</th>
<th>DS</th>
<th>D</th>
<th>N</th>
<th>A</th>
<th>AS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. How to promote hearing impaired learners' confidence in class</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. The social adjustment process of hearing impaired learners to mainstream class situations</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. The social integration of hearing impaired learners in mainstream classrooms</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Means to support hearing impaired learners to socialise with hearing classmates</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Befriending other mainstream learners</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Support hearing impaired learners in their relationships with their parents</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Communication strategies of hearing impaired learners</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Signs of hearing impaired learners' inability to</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### 6. EMOTIONAL DEVELOPMENT

**Educators in regular schools should be knowledgeable about:**

| 1. Promotion of self-esteem of hearing impaired learners |
| 2. Support of hearing impaired learners in task-involvement processes |
| 3. Ways to instil a sense of belonging in the hearing impaired learners |
| 4. The technique of eye contact to encourage positive responses from hearing impaired learners |
| 5. Appropriate communication skills |
| 6. Ways to encourage acceptance by hearing learners |
| 7. Signs indicating emotional strain in hearing impaired learners |

<table>
<thead>
<tr>
<th>DS</th>
<th>D</th>
<th>N</th>
<th>A</th>
<th>AS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>49</td>
</tr>
</tbody>
</table>
SECTION D: CURRICULUM ADAPTATIONS AND MODIFICATIONS

Directions:
Please consider each statement about curriculum adaptation to accommodate hearing impaired learners and indicate your preference by placing a tick in the appropriate box.

CODE
DS = Disagree strongly
D = Disagree
N = Neutral – neither agree nor disagree
A = Agree
AS = Agree strongly

<table>
<thead>
<tr>
<th>6. CURRICULUM</th>
<th>DS</th>
<th>D</th>
<th>N</th>
<th>A</th>
<th>AS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Educators in regular schools should be knowledgeable about:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Curriculum content differentiation to support the hearing impaired learners in class</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Introduction of new vocabulary to hearing impaired learners</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Homework differentiation to meet the needs of hearing impaired learners</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Sources of assistance in choosing possible alternative instructional strategies</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Instructional method adjustments to accommodate hearing impaired learners in regular classes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Different literacy instructional approaches (e.g. top-down or bottom-up approach)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Communication techniques (facial expressions, gestures and body language, lip reading)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
8. Adjustment of worksheets, text passages, exercises to help deaf learners perform successfully

9. Visual aids to assist hearing impaired learners' understanding of instructions

10. Use of demonstrations or role play

11. Scaffolding key concepts to be learned

12. Development of reading comprehension

13. Providing concrete resources

14. Breaking verbal instructions down in two or more steps at a time

15. Improvement of the layout and format of worksheets

16. Providing clear instructions or diagrams

17. Providing boards, pictures and posters

**7. ASSESSMENT**

Educators in regular schools should be knowledgeable about:

1. Specific assessment procedures relevant to hearing impaired learners

2. Adjustments of tests to meet the needs of hearing impaired learners
<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>3. Modification of vocabulary used in tests to match the abilities of hearing impaired learners</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Various assessment activities</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. How to teach test-taking skills</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Adaptation of test instructions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Usage of group assessment tasks</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. How to scaffold assessment activities</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Presentation of oral tests and assignments in written form</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Use of graphic cues (arrows, stop signs) on answer sheets</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. Extra time to complete tests or assignments</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. Various presentations of assessment activities</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13. Use of models and art projects to demonstrate hearing impaired learners’ understanding of information</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14. Usage of computers or word processors to assess hearing impaired learners</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Please specify knowledge areas, which were not addressed in the questionnaire, which you consider to be essential for educators to teach hearing impaired learners in Inclusive Education environments:

____________________________________________________________________________
____________________________________________________________________________
____________________________________________________________________________
APPENDIX 7
Interview Schedule

1. Hearing loss
   - Manifestations and causes of hearing loss
   - Language and communication choices
   - Hearing aids and FM system

2. Implications of inclusive education
   - Collaboration and Support
   - Attitudes and values
   - Characteristics of deaf learners
   - Cognitive development
   - Personal and social development
   - Emotional development

3. Curriculum adaptations and modifications
   - Adapting curriculum content for deaf learners
     - Simplifying of curriculum content
     - Creating new supplementary materials at a simpler level
     - Allowing extra time to complete the task
     - Differentiating content for homework assignments
     - Rephrasing questions and sentences
     - Simplifying vocabulary
     - Learning new vocabulary in advance

   - Adapting instructional strategies for deaf learners
     - Supporting listening with non-verbal cues
     - Allowing other learners to help (“buddy system”)
• Incorporating the use of demonstrations or role play
• Using shorter sentences and breaking instructions down
• Ensuring visual access to communication with others
• Grouping learners for specific purposes
• Using discussions before writing activities

➢ **Adapting instructional materials for deaf learners**
• Highlighting important terms
• Placing non-verbal signs on the classroom walls
• Providing copies of educator’s notes
• Providing visual aids to assist in understanding
• Providing supportive physical environment

➢ **Adapting assessment practices for deaf learners**
• Using projects or portfolios in lieu of tests
• Providing graphic cues on answer form
• Providing tasks that require short answers
• Allowing extra time to complete the test
• Allowing learners to make models, role-play, art projects to demonstrate their understanding of the information
• Modification of exam questions
APPENDIX 8
Interview Questions

1. What can you say in connection with educators’ knowledge about hearing loss? Are they aware of the causes of hearing loss, the manifestations of hearing loss, and the effective communication techniques?

2. Do they know about hearing aids, FM system?

3. What is their general attitude towards learners with hearing loss? When you came to the high school for the first time how did you feel?

4. Do the educators know about the influence of hearing loss on the development of speech and language?

5. Do the educators require special skills in order to teach the deaf children?

6. Do you think the educators need support of speech therapists and audiologists?

7. Are the educators aware of the intellectual abilities of learners with hearing loss? Do they know that the deaf learners are capable of achieving very good results academically?

8. How did the placement in the mainstream school help you to develop your intellectual abilities and language skills? Do you think you would feel more comfortable in a school for deaf learners?

9. Do you think it is the teachers’ responsibility to help deaf learners to develop their intellectual abilities?

10. What can you say about socialisation of deaf children in high school? Did you ever feel lonely, isolated, insecure in mainstream classes?

11. Did you ever have problems with adaptation?

12. What do you think the teachers can do to help the deaf learners to develop positive social interactions and positive self-esteem? Did you ever feel that there were some activities that you could not manage or take part in? What do you think could help you to be more involved?

13. Did the school help you to develop your leadership skills and encourage you to be self-motivated?

14. What do you think about adaptations of the curriculum?
• adjusting the readability level of written materials (re-writing these materials in easier form);
• creating new supplementary materials at a simpler level around the same theme or topic
• designing materials with features that appeal to sensory modalities other than auditory.
• rephrasing questions
• simplifying vocabulary
• using pictures for story writing
• learning new vocabulary in advance
• allowing more time to complete the task.

15. What do you think about instructional adaptations?
• presenting new material with gestures, signing, facial expressions
• rephrasing questions and sentences rather than merely repeating them
• allowing other learners to help
• using role-play
• using shorter sentences
• breaking instructions down
• showing learners what the educator want him or her to do, rather than simply telling
• grouping learners for specific purposes
• using discussions to precede any writing activities.

16. What can you say about adaptation of instructional materials?
• highlighting important term before giving worksheets to deaf learners
• placing non verbal signs on the walls and pointing at them when necessary
• providing copy of the educator’s notes
• using of boards, pictures, overhead projectors
• facing the learners when talking
• standing where the learner can lip-read
17. What do you think about the following adaptations of assessment practices:
- using projects or portfolios in lieu of tests
- providing graphic cues (e.g. arrows, stop signs) in answer form
- providing tasks that require short answers for deaf learners
- allowing extra time to complete the test
- allowing learners to make models, role-play, art projects to demonstrate their understanding of the information
- using alternative form of assessment, fill in the blank questions, true / false questions or essay questions.

18. What would you like to add or suggest in connection with the discussed topics?