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An investigation of two different modalities of language used in an educational setting and the behaviour of deaf learners.

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CHAPTER ONE
INTRODUCTION

There is a paucity of research on the behavioural adjustment of Deaf[1] children and adolescents. Existing research tends to be outdated and no research in this area has been conducted in South Africa; thus making previous research difficult to contrast to the South African context. Research conducted on the prevalence of behavioural problems in Deaf children and adolescents in erstwhile countries points towards an appreciably elevated percentage of emotional and behavioural problems of Deaf children when compared to hearing children (van Eldik, 2005; van Gent, Goedhard, Hindley & Treffers, 2007).

A review of the literature presents confirmation that this pioneering study is the first to explore dissimilar modalities of language used as the language of learning and teaching (LoLT) in schools for Deaf learners and how this may possibly correlate to learner behaviour in the classroom (Appendix A). Existing research with reference to the area of language and the prevalence of behavioural problems in Deaf children has merely explored communication between parent and child (Barker, Quittner, Fink, Eisenberg, Tobey, & Niparko, 2009). Results of these studies are nonetheless pertinent to the present study, as they imply a relation between communication used by hearing people and the prevalence of behavioural problems in Deaf children.

Deaf learners are in an inimitable position in that only 10% of Deaf children are born to Deaf parents (DeafSA, 2006). A study in America suggests that this number may even be less; it is reported that only 3% of Deaf children have Deaf parents (Mitchell & Karchmer, 2004). An apprehension raised by this study is that these children born to Deaf parents acquire sign language naturally; the other 97% are powerless to acquire sign language at the optimal age.

[1] The use of the term *Deaf,* in uppercase, is now widely used to refer to the cultural category of self identification [Deaf people form part of a cultural and linguistic minority group]. The lowercase term refers to the simple fact of audiological impairment and distinct from the process of self identity" (Wrigley, 1996, p.14).

Consistent with Batchelor (2010), the majority of Deaf learners in South Africa are from families who do not have the knowledge or experience to provide these children with an accessible linguistic environment for the acquisition of South African Sign Language (SASL). Hearing parents do not have the knowledge or experience from a Deaf culture perspective. Communication at home between hearing parents and their Deaf child is done through gestures based on the spoken form of the vernacular language ranging within the broad spectrum of the 11 official languages.

The majority of Deaf learners are at first exposed to SASL when they attend schools for Deaf learners and socialise with other learners and Deaf adults however, it is remonstrated that the majority of hearing teachers in these schools are not proficient in SASL and therefore place Deaf learners at a further disadvantage. "A recent survey highlighted that only 14% of teachers in [schools for Deaf learners] can sign proficiently" (DeafSA, 2006, p.5). The teachers who are not proficient in SASL consequently use manually coded spoken language or Total Communication as the LoLT. The use of manually coded spoken language or Total Communication is problematic since these modalities of language are not natural languages and are confusing for Deaf learners (Reagan, 2001).

In view of the language situation in schools for Deaf learners in South Africa and the paucity of research on the behavioural adjustment of Deaf learners, the present study investigates the possible relationship between language used as the LoLT and the behaviour displayed by these learners in the classroom.

CHAPTER TWO
LITERATURE REVIEW

2.1 Introduction

The literature review commences with a discussion on disruptive behaviour and adjustment disorders in Deaf children and adolescents. It subsequently discusses dissimilar modalities of language used in schools for Deaf learners and is concluded by an account of the history of the education for Deaf learners. This is presented to provide the reader with an understanding of the present situation in schools for Deaf learners in South Africa.

2.2 The Prevalence of Behaviour Problems in Deaf Children and Adolescents

When this study refers to problematic behaviour, it refers to behaviours falling into two categories; disruptive behaviour disorders and/or adjustment disorders. Mental health practitioners divide disruptive behaviour disorders into two constellations of symptoms categorized as oppositional defiant disorder [2](ODD) and conduct disorder (CD), both of which result in impaired social or academic functioning in a child.

Oppositional defiant disorder is characterized by enduring patterns of negativistic, disobedient, and hostile behaviour toward authority figures, as well as an inability to take responsibility for mistakes, leading to placing of blame on others. Children with ODD frequently argue with adults and become easily annoyed by others, leading to a state of resentment and anger. Children with ODD may have difficulty in the classroom and with peer relationships, but generally do not resort to physical aggression or significantly destructive behaviour.

In contrast, children with CD engage in severe repeated acts of aggression that can cause physical harm to themselves and others and frequently violate the rights of others. Children with CD usually have behaviours categorized by aggression to persons or animals, destruction of property, deceitfulness or theft, and multiple violations of rules such as truancy from school.

[2] The criteria used by mental health practitioners to diagnose ODD, CD and adjustment disorders have been included in appendices B, C and D respectively.

Unlike ODD and CD, which are the most pervasive reasons that children and adolescents are referred to mental health services, internalizing behaviours regularly go unnoticed by parents and teachers. They are not often identified by teachers as problematic for the reason that they are not that distracting in the classroom (Schwean & Saklofske, 1999; Clarke-Stewart, Allhusen, McDowell & Call, 2003). 'Internalizing' behaviour includes inhibition, anxiety, fears, somatic complaints, depression and withdrawal.

The present study views all the above mentioned behavioural problems from an ecosystemic point of view. The ecological model starts from the premise that the development of children can be understood only in relation to the nature of their interactions with various environments that impinge on them and with which they are consistently interacting (Bronfenbrenner, 1979). A review of the literature suggests that there is a paucity of research on the mental health functioning of Deaf children and adolescents and that, for the most part, existing research is outdated. Furthermore, no research related to this area has been conducted in South Africa.

Existing research conducted on the prevalence of behavioural problems in Deaf children and adolescents in erstwhile countries points towards an appreciably elevated percentage of emotional and behavioural problems when compared to hearing children. Current research on hearing populations suggests prevalence rates to be between 2 % to 16% for ODD, 1% to 10% for CD and between 2% to 8% for adjustment disorders (Sadock & Sadock, 2007).

In contrast, studies specify that the prevalence of negative behaviours in Deaf children and adolescents varies from 4.8% to 50.3% (Rutter, Graham & Yule, 1970; Freeman, Malkin & Hastings, 1975; Fundudis, Kolvin & Garside, 1979; Aplin 1985, & Aplin 1987). Results from preceding research conducted on the prevalence of behaviour problems in Deaf children and adolescents further suggests that these children and adolescents are less socially mature than hearing children and they have been found to display personality traits such as rigidity, egocentricity, absence of inner controls, impulsivity, and suggestibility (Meadow, 1980, Cohen, 1980).

In a recent study, van Eldik (2005) investigated the prevalence of behaviour problems amongst Deaf Dutch adolescents with an adjusted version of the Dutch Youth Self Report (YSR). The sample consisted of 202 adolescents aged 11-18 years. The total problem scores, obtained from the YSR, found that 39% of Deaf and hard of hearing boys and 34% of Deaf and hard of hearing girls presented with behaviour problems considered high enough to be clinically diagnosed.

The results in the above study further suggested that a large proportion of Deaf and hard of hearing children and adolescents displayed internalizing problems such as withdrawn behaviour, somatic complaints and anxious/depressed feelings. This study suggested that learners at schools for Deaf learners display more adjustment problems compared to hearing learners attending mainstream schools (van Eldik, 2005).

In another study, van Gent et al. (2007) examined the prevalence and correlation of psychopathology in a sample of 70 Deaf Dutch adolescents aged 13 to 21 years. Data from this study came from checklist assessments by parents and teachers, using the Child Behaviour Checklist (CBCL) and Teacher Report Form, semi structured clinical interviews for children and adolescents (SCICA) as well as mental health practitioner ratings.

Results from the study by van Gent et al. (2007) found that mental health practitioners identified psychiatric cases in 49% and DSM-IV classifications in 46% of the adolescents they assessed. The primary DSM-IV classifications were: emotional disorders 27%, behavioural disorders 11%, and other disorders 7%. Total problem scores that were categorised in the borderline clinical range on the TRF, CBCL and the SCICA were 28%, 32% and 49-63% respectively. Results from the study by van Gent et al. (2007) found that the CBL and TRF prevalence rates were 1.5 to 1.7 times higher than the norm group; this is more than twice as high as in the general population of hearing adolescents.

Behaviour disorders in this study were found most prevalent among signing adolescents while emotional disorders were equally prevalent among adolescents who spoke and made use of lip reading. The researcher of the present study suggests, that since hearing parents in the study were not proficient in Dutch Sign Language (DSL), they may have reported increased behaviour problems among Deaf adolescents who used DSL as they had difficulty understanding their child's behaviour.

A contrasting study by Fellinger, Holzinger, Sattel and Laucht (2008) investigated the prevalence of mental health in a representative sample of 99 Deaf children and adolescents (mean age 11years) in Austria, with a German normative sample of 930 people (aged 6-16years) and a British normative sample of 8,208 people (aged 5-15years). Data was collected from parents and teachers using the Strengths and Difficulties Questionnaire (SDQ) and the Inventory for Quality of Life in children and adolescents (ICL).

Results from the study by Fellinger et al. (2008) found that Deaf children scored significantly higher on the SDQ compared to their hearing counterparts from normative samples. Thirty five percent of Deaf children and adolescents were reported by their parents to be in the borderline and abnormal category of the SDQ, which is approximately twice as high as the control group.

Differences in the above results were most notable with regard to conduct problems, emotional problems and peer problems (social withdrawal) and less notable for hyperactivity/inattention. The study also found that children with severe[3] hearing loss displayed more externalizing behaviour problems compared to those with profound hearing loss. In the opinion of Fellinger et al. (2008), this might reflect the social status of children with severe hearing impairments, as neither being part of the signing Deaf world nor being able to participate fully in communication with hearing society. This may be an additional stressor which may provoke behaviour problems.

[3] It is necessary to note that hearing loss is classified in ranges according to the frequency of decibels an individual is unable to hear. The ranges include: normal hearing range (0-25 dB), mild hearing loss (26-40dB), moderate hearing loss (41-55dB), moderately severe hearing loss (56-70dB), severe hearing loss (71-90dB) and profound hearing loss (91 dB+).

Results from the study by Fellinger et al. (2008) further found that the parents reported more behaviour problems on the SDQ when compared to teachers. The parent's reported that Deaf children exhibited significantly higher scores on all subscales of the SDQ except hyperactivity/inattention when compared to the normative group. In comparison, the teachers rated Deaf children as having significantly more conduct and peer problems and as having fewer problems with hyperactivity/inattention.

From the existing research on behavioural and emotional adjustment of Deaf learners, it is ambiguous as to why the reported prevalence rates of behaviour problems are higher amongst Deaf children and adolescents. The research reported thus far has investigated dissimilar factors in relation to behavioural problems in Deaf children. Discussed below are various examples of these.

Several theorists and researchers have tried to elucidate the relatively frequent behavioural problems in Deaf children by investigating psychological theories such as '*impaired theory of mind development*' (Meerum Terwogt & Rieffe 2004; Wolfe, Want, & Siegal, 2002). Contrasting researchers such Greenberg and Kusche (1993) investigated early parent-child attachment in a Deaf child's later emotional stability. A contrasting possibility researched by Mitchell and Quittner (1996) investigated visual attention and behaviour problems in Deaf children.

A review of the literature presents confirmation that this pioneering study is the first to explore how dissimilar modalities of language, used as the language of learning and teaching (LoLT) in schools for Deaf learners, could, possibly, correlate to learner behaviour in the classroom. Existing research with reference to the area of language and the prevalence of behavioural problems in Deaf children has merely explored communication between parent and child (Barker, Quittner, Fink, Eisenberg, Tobey, & Niparko, 2009). Results of these studies are nonetheless pertinent to the current study as they imply a relation between communication used by hearing people and the prevalence of behavioural problems in Deaf children. The following studies endow various examples of these:

Sinkkonen (1994) carried out a representative study of schools for Deaf and hard of hearing learners in Finland. The sample consisted of 416 learners (age 6-16 years). This study did not confirm the increase in prevalence of maladjustment in Deaf children and adolescents documented in previous studies. The above study suggested no significant dissimilarity in the incidence of psychiatric disorders amid the Deaf group (18.7%) and the control group of hearing children (15.8%). Sinkkonen (1994) suggested an explanation for this could be that all of the hearing mothers and 94% of the hearing fathers were proficient in sign language.

The study by Sinkonnen (1994) was subsequently evaluated by Hindley (1997). He concluded that the low prevalence of psychiatric disorders in this population group may be a result of effective communication within the family and attitude changes toward Deaf children and adolescents. A study supporting these results was conducted by van Eldik, Treffers, Veerman and Verhulst (2004) on the behavioural and emotional problems of 238 Deaf Dutch children aged 4-18 years. The prevalence of behavioural and emotional problems in Deaf children was evaluated using the Child Behaviour Checklist.

Parental reports from the study by van Eldik et al. (2004) indicate that 41% of Deaf children and adolescents had emotional and behavioural problems. This rate is approximately 2.6 times higher than the 16% reported by parents of the Dutch normative sample. Mental health problems seemed for the most part prevalent in families with poor communication between parent and child (van Eldik et al., 2004).

Deaf children and their hearing parents have difficulty communicating as hearing parents are not proficient in sign language. This results in frustration on the part of both parent and child. Not being capable of communicating needs and desires, or understanding parental and societal regulations may be one explanation for clinically elevated rates of behaviour problems observed in these children (Barker, Quittner, Fink, Eisenberg, Tobey & Niparko, 2009).

A comparable study by Vostanis, Hayes, Du Feu and Warren (1997) was conducted to investigate the relationship between two dissimilar modes of communication and social maladjustment in a population of Deaf children and adolescents (aged 2- 18 years). The children and adolescents in this study used sign language as their first choice of communication, however, the study found that adolescents who had some oral means of communication displayed less behaviour problems at home.

An analogous study looking at the prevalence of behavioural maladjustment in Deaf children and adolescents was conducted by Konuk, Erdogan, Atik and Simsekyilmaz (2006). They used the Child Behaviour Checklist (CBL) to evaluate the pervasiveness of emotional and behavioural problems in 72 Deaf Turkish children and adolescents aged (aged 6 to 18 years). The control group consisted of 45 age-gender matched children and adolescents (aged 8-17 years).

The results from the above study found that the prevalence of emotional/behavioural problems was 31%; 1.5% higher than the control group. The Deaf children and adolescents showed significantly more internalizing problems compared to the control group. The most significant difference in results was anxious/depressed behaviour and somatic complaints. This school used a Total Communication approach as the language of learning and teaching. The researcher of the present study suggests that the use of Total Communication as a substitute of Turkish Sign Language (TSL) may have related to the high prevalence of behavioural problems in the sample used in the study.

In addition to the studies that have been discussed on Deaf children and parent-child communication, previous studies conducted on children with language disorders[4] have suggested a strong link between language and behaviour problems. Studies have revealed that children with language disorders prove to have a higher incidence of behaviour problems and conversely children with behaviour problems show a high incidence of language disorders (Barker et al., 2009).

Attributable to the scarcity of research in this field in South Africa, the researcher of the present study conducted a pilot study in 2009 to investigate the prevalence of behaviour problems displayed by Deaf adolescents in the classroom. The results by Swanepoel (2009) suggested that the learners displayed a prevalence of externalizing behaviour problems in their classrooms (namely physical aggression and verbal aggression). On further investigation it was found that the learners displayed these problems more frequently when taught through manually coded spoken language as opposed to SASL.

The current study builds on the researcher's pilot study, by extending the sample size as well as researching additional schools for Deaf learners in the Gauteng Province. The current study uses the Teacher Report Form (TRF) to investigate if there are any types of behaviour problems displayed by the larger sample of Deaf learners in the classroom.

2.3 **Language and Communication**

Taking into consideration that the current study explores dissimilar modalities of language used as the LoLT it is necessary to elucidate the disparity between manually coded spoken language and SASL and further to clarify the use of Total Communication in the South African perspective.

[4] It must be noted that Deaf learners do not have language disorders; they have delays in language acquisition due to hearing parents not being able to sign. The studies conducted on learners with language disorders were included in this section to illustrate research conducted on the possible link between language and behaviour problems.

2.3.1 South African Sign Language

Disparate to manually coded spoken languages, SASL is a natural language. "Natural sign languages are fully-fledged languages entirely capable of expressing all the nuances of meaning that other languages can express" (UNESCO, 1999). There is a misconception that sign language is universal[5]. Sign language is not universal; there are many different sign languages; for instance, American Sign Language (ASL), British Sign Language (BSL), Kenyan Sign Language (KSL) to name only a few.

SASL has been proven to have a linguistic structure as multifaceted as any other spoken language. Natural sign languages are unrelated to the dominant spoken languages of surrounding hearing communities: they have their own self-regulating grammatical structure. For instance, French Sign Language (FSL) is unrelated to spoken or written French and SASL is unrelated to spoken or written English. Like other natural sign languages SASL has phonology, morphology, syntax and pragmatics, and these are bound by the equivalent principles, as are all other languages (Reagan, 2001, UNESCO, 1999).

A brief example[6] will be presented to exemplify how SASL grammatical structure is dissimilar to English grammatical structure. Morgans (2010) illustrates that the English sentence *'A cat sits on the mat'* is signed the following way in SASL:

MAT CAT SIT-ON[7]

Sign languages do not use the article 'a', the agreement marker 's', and the preposition 'on' as well as the English grammatical structure of Subject- Verb- Object (SVO). Sign languages use the grammatical structure of Object- Subject- Verb (OSV). It is imperative to note that Subject- Object- Verb (SOV) is also frequent in the grammar of sign languages (Morgans, 2010).

[5] Sign languages from different countries display similar linguistic structure. The main differences are in the lexicon (Reagan, Penn & Ogilvy 2006).

[6] Due to the limitation of this study only a brief example can be given on the structure of SASL. For more information regarding the complexity of sign languages see Morgans, 2010; Sutton- Spence and Woll, 1999.

[7] "Glossing is used to write the English word closest to the signs. However, they can be very far from conveying its meaning. For example the SASL sentence ME STAY-HOME would mean 'I am unemployed' in English. Glosses are written in Capitals" (Morgans, 2010, p.15).

As well as grammatical structures, Deaf people use facial expressions and head movements when they sign. These are called "non-manual features", and they are not only emotive and expressive but have grammatical functions. In English a person uses vocal intonation to specify sentence types, such as, asking a question, making a negative statement or to emphasise a point. A signer uses non manual features for the same purpose (Morgans, 2010).

It is alleged by hearing educators and professionals that there are several diverse South African Sign Languages. This is not true; SASL is one language with regional variations. In accordance with Penn and Reagan (1994, p. 319) "SASL is marked by a high degree of lexical diversity but there appears to be an underlying syntactic and morphological base on which all of the varieties are grounded."

2.3.2 Manually Coded Spoken Language

Manually coded spoken languages[8] are artificially constructed systems that attempt to correspond to a given spoken language in a signed modality. These codes are not languages; manually coded spoken languages consist of the syntactic and morphological structures of spoken language and lexical items from sign language, real or invented. Furthermore, such systems permit the invention of signs and finger-spelling of concepts, which do not form part of the lexicon in question. For instance, in a South African context, a sign is used for each spoken word following the precise word order and inflections of English or Afrikaans.

[8] A distinction must be made here between *Signed English*, which is a formal system, and *manually coded spoken language*:

Manually coded spoken language refers to the signing that is used by hearing people who have learned signs but have not learnt sign language syntax and therefore put the signs together in English order and fingerspell the words they do not know and make up signs that do not exist in sign language.

Signed English on the other hand is a formal system consists of systems such as Seeing Essential English (SEE I), Linguistics of Visual English (LOVE) and Signing Exact English (SEE II) or the Paget- Gorman Systematic Sign (PGSS). These systems are not languages; they are created by hearing people. For more information on Signed Systems see: Wilbur (1979).

In the South African context schools for Deaf learners are not using these formal systems that are used in other countries such as America. The schools in South Africa are using manually coded spoken languages.

In America manually coded spoken systems were formed to replicate English. This was based on the premise that signing English would be more effective in teaching written English syntax than American Sign Language (Wilbur, 1979). This underlying principle also applies to SASL. In line with Reagan (2001, p.154) manually coded spoken languages are questionable from a linguistic point of view; "signing systems tend to be both awkward and confusing and often entail violations of the structural and morphological rule and norms of American Sign Language (ASL)".

Morgans (2010) offers an example of how this applies to SASL; the English sentence *'The cat sits on the mat'* would be translated as follows in signed English:

*THE CAT SIT-S ON THE MAT [9]

SASL does not have signs for the article 'the', the agreement marker 's' and the preposition 'on'. These items are based on sounds that distinguish meaning. When signing the whole sentence, the meaning would not be understood by Deaf children, as it does not make any visual or spatial sense with regard to the conceptual meaning of the sentence.

Morgans (2010) raises the concern that this system has not worked because there is no one-to-one correspondence between the languages. For example, one English word may require a few words in another language to match the meaning exactly; this also applies to sign languages. Manually coded spoken languages treat signs as word-based in nature while they are in actual fact conceptually based in natural sign language (Penn and Reagan, 1990). This peculiarity is imperative because conceptually-based signs represent visually and gesturally specific concepts.

[9] "A sentence preceded by an asterisk (*) indicates an example sentence that is not acceptable in SASL" (Morgans, 2010).

Penn et al. (1990) offer the example of the English word *run*; in SASL this word would be expressed by dissimilar signs depending on whether a person is referring to 'running in a race', 'running for Parliament', 'running a business' or 'running water'. Manually coded spoken language would not differentiate among such discrete concepts and this would lead to confusion for a Deaf child. Because manually coded spoken language is manual rather than gestural they lose non-manual information which is essential for natural sign language communication.

2.3.3 Total Communication

Total Communication originated in the United States of America in 1967 as an educational philosophy rather than a teaching methodology in the education of Deaf learners (Reagan et al., 2006). Total Communication was proposed as a child centered approach; where teachers were required to assess the communication needs of individual students and respond accordingly- using either speech, signs or the individual approach. This was done to accommodate children's individual needs (Stewart & Luetke- Stahlman, 1998).

Total Communication was thought to be the 'middle ground' in the disputes between oralism and manualism (sign language) (Morgans, 2010). In practice, however, Total Communication uses manually-coded spoken language and speech simultaneously to teach a Deaf learner English as well as to teach across the curriculum. The teacher further uses Total Communication to teach all of the learners in the class.

Total Communication may seem logical but it is not practical because sign language and spoken languages have different word orders and grammatical structures (Morgans, 2010). It is the equivalent of learning and speaking two different foreign languages at the same time. Moreover, the researcher knows from his experience, that the meaning one is trying to convey in a conversation is lost when using Total Communication.

In South African circumstances, it is necessary to note, that when teachers use Total Communication as the LoLT, the oral communication is not confined to the English language but ranges from the broad spectrum of the 11 official languages (Batchelor, 2010). This creates further complications and confusion for Deaf learners as teachers may use oral communication which a learner does not know. For example a teacher using Total Communication may speak in Tswana when a learner comes from a Pedi speaking family or a teacher may use Afrikaans when speaking and the learner comes from a Xhosa speaking family.

2.4 Language and Education with respect to Deaf learners: From a Global and South African Context

To further an understanding of dissimilar modalities of language used by teachers in schools for Deaf learners today, it is necessary to recognise the history of education for Deaf learners. Historically, schools for Deaf learners have been opposed to the use of sign language. In accordance with Wilbur (1979), the first signing system introduced was constructed by a French priest who began teaching Deaf learners. He modified signs used by the Deaf community to create signed French. “He never denied that Deaf [people] were communicating among themselves using already existing signs” (Wrigley, 1996, p.50) nevertheless he used signed French as he believed French Sign Language (FSL) was an inferior language.

Another country that has significance in its approach to sign language in the education for Deaf learners, is Britain. British schools differed from the French in the way that they made use of sign language, as hearing teachers did not attempt to adapt natural sign language into a language that complied with hearing notions of grammatical structure. The British opposition to methodical signs resulted in British Sign Language (BSL) remaining far more natural than was the case in France. In addition Deaf learners were predominantly taught by Deaf teachers (Branson & Miller, 2002).

One more country that shaped the education for Deaf learners was America. In America, the first school for Deaf learners was founded in Hartford, in 1817, the *American Asylum for the Deaf*. The signing that was first used in American schools was modelled on the methodical signs used in the Paris School. Deaf people, who had never attended school and were previously isolated from society, came to Hartford with a more or less abridged pantomime, the only skill of communication they were able to develop in a world that cut them off from all natural languages (Lane, 1984). New learners spontaneously learnt the signs used by the other learners at the school. The French sign system integrated with the natural sign language used at the school and there was a move away from methodical signs. Three forms of communication were eventually used in the classroom- American Sign Language (ASL), written English and fingerspelling (Lane, 1984).

Learners who previously came to Hartford without knowing their natural language later became fluent in ASL. The Hartford school became a model for the other schools in America and resulted in additional schools for Deaf learners in America being established. These schools offered accessible education to Deaf learners. The literacy levels among Deaf people, as well as the overall education of Deaf people, improved during this period. The foremost university for Deaf people in the world, *Gallaudet University*, was opened in America in 1864, which allowed Deaf people access to tertiary education (Sacks, 1989).

The year 1880 marked a historical turning point in the use of sign language in schools for Deaf learners. In that year, an International Congress of Educators was held in Milan and this Congress had an influence on the education for Deaf learners around the world. During this time there were many Deaf teachers and qualified Deaf professionals however they were not sanctioned to vote and take part in this congress. The following resolutions were adopted at the congress:

1. "The congress, considering the incontestable superiority of speech over signs for restoring deaf mutes to social life and for giving them greater facility in language, declares that the method of articulation should have preference over that of signs in the instruction of the deaf and dumb.

2. Considering that the simultaneous use of signs and speech has the disadvantage of injuring speech, lip- reading and precision of ideas, the congress declares that the pure oral method ought to be preferred" (Lane, 1984, p. 394).

The oralists[10] dispute that the majority of society is hearing and that the use of sign language in education will segregate Deaf people from society. In line with Ross and Deverell (2004) the oralists further believe sign language cannot lead to full intellectual development. The oralist approach advocates auditory and speech training as well as lip reading. It prohibits the use signing (Lansberg, Kruger & Nel 2005). Oralists believe that attainment in the curriculum requires oral and written skills in the majority language.

As mentioned earlier, subsequent to the Milan Congress, Deaf children were also not allowed to use sign language and hearing teachers (who did not know sign language) had to teach Deaf learners. Along the lines of Sacks (1989), as a result of this enforced oralist method, the standard of education for Deaf learners lowered and fewer Deaf people achieved as high a literacy standard as before[11].

The history of SASL is influenced by the history of Apartheid. Oralism was announced as official policy in South Africa in 1920 based on the recommendations made at the Milan Conference. Schools for white Deaf learners were strictly oralist, whereas schools allowed Deaf learners of other races to use SASL (Ross & Deverell, 2004). Owing to the relative poverty in non-white schools, there was little or no pressure to enforce the oral method in educating non-white Deaf learners, as hearing aids and speech therapy were too expensive. Ironically, because of this situation, non-white schools were able to build a strong Deaf culture and the development of natural SASL occurred.

[10] "Oralism is the name given to those approaches that stresses speech and auditory amplification. Oralism further implies a strict and rigid rejection of any use of sign language" (Wrigley, 1996, p. 16). Oralists refer to people who follow this approach.
[11] It should be noted that an oralist approach may benefit some learners with hearing loss.

Notwithstanding this situation in non white schools, Reagan et al. (2006) remarks that the signing used in the classroom seldom matched the sign language that was used for social purposes in the Deaf community. Hearing teachers in these schools continued to use manually coded spoken language. The education of disabled learners in South Africa, reminiscent of most other countries, was based on exclusion and segregation (Lansberg et al., 2005). Children with disabilities or children who were thought to have a learning difficulty were seen as 'special needs' children and were supposed to attend special schools or special classes. Only children who were considered 'normal' were able to attend mainstream schools. Children who were sent to special schools or special classes were assessed and labelled into different categories.

Smuts (1997) remarks that associated with exclusion, Deaf people in South Africa and internationally, were labelled in a derogatory and discriminatory manner for instance, '*deaf mutes*', '*deaf and dumb*', '*hearing and speech impaired*', '*language impaired*', '*abnormal*'. Deaf children were subjected to 'treatments', for example, attempts were made to remediate deafness and to promote hearing, speech and speech-reading while the first language of Deaf learners (SASL) was excluded.

South Africa entered a new period in 1994 with the abolishment of Apartheid and the advent of democracy. This new democratic period brought an emphasis on values such as non-discrimination, equality, liberty, and respectful and social justice. These are all highlighted in the Constitution of South Africa. The recent Constitution furthermore has implications for the education for Deaf learners.

In keeping with the Report of the National Commission on Special Needs in Education and Training and the National Committee on Education Support Services (NCSNET and NCESS), "Section 29 (2) of the Constitution of South Africa states: everyone has the right to receive education in the official language or languages of their choice in public educational institutions where that education is reasonably practicable" (1997, p. 42). The NCSNET/NCESS Report states that, "it is also important to recognize that the Constitution has laid the basis for the recognition of Sign Language as the first language choice of Deaf learners" (1997, p. 42).

In the same year that the new South African Constitution was implemented, the South African Schools Act (Act 84 of 1996) was passed. The South African Schools Act of 1996 states that "all learners shall be offered at least one approved language as a subject in Grade 1 to 2 and from Grade 3 (Std 1) onwards, all learners shall be offered their language of learning and teaching (LoLT) and at least one additional approved language as a subject" (RSA, 1996, p.31).

The South African Schools Act further states, that "language" means all official languages recognised in the Constitution including SASL, as well as Alternative and Argumentative Communication" (RSA, 1996, p.31). Therefore the Act recognizes SASL as an official language for the purpose of education. Notwithstanding the substantiation that the Act recognises SASL as an official language, educators in schools for Deaf learners are not using SASL as the LoLT in the classroom. In line with DeafSA (2006, p. 8) "the LoLT that has been used to educate Deaf people in the past is still being used currently".

A policy that promotes the rights of Deaf learners and users of SASL, is the Government's White paper on People with Disabilities; *An Integrated, National Disability Strategy* (INDS). One of the recommendations in the INDS, with regards to the education of Deaf learners, reads as follows: Recommendation 9B (Education) advocates that "the Department of Education, in consultation with the Department of Arts, Culture, Science and Technology (now Arts and Culture), the Deaf Federation of South Africa (DeafSA) and other stakeholders, facilitate a process for the development of a comprehensive education policy to promote and protect equal education opportunities for children with communication disabilities and to protect their language medium" (Ministerial Office of the Deputy President, 1997, p.68).

As well as the South African documents discussed here, various international documents clearly specify that the national sign language of any given country must be used as the LoLT in schools for Deaf learners. The following are such documents:

The Salamanca Statement, the foremost international declaration in the shift towards inclusive education, states that a national sign language of any country must be used as the LoLT in schools for Deaf learners. The Salamanca statement emphasizes that education policies should ensure that Deaf people have access to education in their natural sign language, and furthermore, that persons with disabilities, have the right to be educated in the way they choose (DeafSA, 2006).

The basis of the World Conference on Special Needs Education was to bring to attention, the view, that education is a fundamental human right and also to discuss the fundamental policy shifts that are needed to fully develop inclusive education (Lansberg et al. 2005). It is important to mention that many Deaf people see inclusion as a threat to their language and culture because it means they would be dispersed into mainstream schools. Placing Deaf learners in mainstream schools without meaningful interaction with classmates and educators at all times through SASL is equal to exclusion of the Deaf learner from education and society (DeafSA, 2006).

An additional document that upholds the rights of Deaf learners is The United Nations General Assembly adoption of the Standard Rules on the Equalization of Opportunities for Persons with Disabilities. Rule 9 states that: "Special attention needs to be focused on culturally sensitive instruction (Deaf culture and Sign Language), that will result in effective communication skills and maximum independence for people who are Deaf and/or Deaf/blind. Owing to the particular communication needs of Deaf and Deaf/blind persons, their education may be more suitably provided in schools for such persons or special classes" (Reagan, 2001, p.168).

Notwithstanding clear directives from legislation and policy documents, South African Sign Language (SASL) is still not being used as the official language of learning and teaching (LoLT) in schools for Deaf learners. The question remains whether or not the lack of SASL as LoLT plays a role in adjustment problems displayed by Deaf learners in the classroom.

2.5 **Conclusion**

Preceding investigations conducted on the prevalence of behavioural problems in Deaf children and adolescents, point towards an appreciably elevated percentage of emotional and behavioural problems in Deaf children when contrasted to hearing children. Taking into consideration this reported pervasiveness of maladjustment in Deaf children and adolescents, disruptive behaviour and adjustment disorders were discussed, in the literature review, to exemplify how these problems are identified.

The literature review subsequently introduced the reader to dissimilar modalities of language used as the LoLT in schools for Deaf learners in South Africa. This section brought to the reader's consideration that South African Sign Language (SASL) is unrelated to spoken or written English. SASL has phonology, morphology, syntax and pragmatics, and these are bound by matching principals, as are all other spoken languages. The literature review further conferred that manually coded spoken languages are artificially constructed and the use of these modalities as the LoLT is problematic since they are questionable from a linguistic point of view. The succeeding chapter explores the research methodology carried out in this study.

CHAPTER THREE

Research Methodology and Design

3.1 Context of the Study

At present there are 47 schools for Deaf learners in South Africa (Morgans, 2010) of which 8 are located in Gauteng. Of the 47 schools, 12 of them offer grade 12 and 5 of these are to be found in Gauteng. At the time of this research the principal at one of the schools was considering the possibility of phasing out grade 12. Seven of the schools in Gauteng were included in this study; the 8th school was not included as they follow an oralist programme and there is no use of sign language at the school.

It should be noted from the researcher's experience of working at a school for Deaf learners and being on the school's admission team, that the researcher has found a vast number of Deaf children initially come to schools for Deaf learners between the ages of 9 to 12 years. In most cases these learners arrive at school with little or no language acquisition and no formal schooling or educational stimulation. This makes placement of these particular learners in a grade very complicated.

The age ranges of Deaf learners in a grade are consequently unlike hearing learners at mainstream schools. For instance a hearing learner at a mainstream school would typically be 7 years of age in grade 1. At schools for Deaf learners, the grade 1 classroom age group usually ranges between 7 to 12 years of age. It is not unusual to find learners who are 8 years old in grade R. A number of grade 3 classrooms at schools for Deaf learners may well have learners who are 13 years of age and some grade 10 classrooms may have learners who are 20 years of age. Deaf learners face two major challenges as soon as they commence school; they must learn their natural language (SASL) and simultaneously learn the curriculum.

The researcher has further observed from his experience of working at a school for Deaf learners, that hearing parents in poorer communities, will at times enrol their Deaf children at schools for learners with intellectual disabilities where no SASL is taught. Many Deaf learners might continue at these schools for their entire schooling career. A number of parents may apply for their child to attend a school for Deaf learners subsequent to their child attending a school for children with intellectual disabilities for an extended period of time.

Whilst the number of learners per class at schools for Deaf learners is small (8-10 learners) it is essential to note that the Department of Education categorizes 1 Deaf learner in the classroom as equal to 5 hearing learners in a mainstream school. For instance if a school for Deaf learners has 10 learners in a classroom, this would be equivalent to 50 hearing learners in a mainstream school. If a learner has more than one disability, which is the case in many schools for Deaf learners, then the learner will be categorised using their primary disability; for instance if a learner is Deaf and has autism then the learner will be given a weighting of a Deaf learner. Below is a discussion of the seven schools that were used in this study[12].

3.2 **Background of the schools**

School I

This school was initially founded in 1944 by the Brothers of Charity and was the foremost school catering solely for Deaf Black children. The Paget Gorman Coding System[13] was introduced. In 1978 the school was established in its contemporary setting in a township area. The learners at the school come from poor socio-economic backgrounds. The majority of learners at this school come from families who are not proficient in SASL and the family uses gestures to communicate with their child. There are 268 learners currently enrolled at the school. The school has a hostel with 24 boys and 35 girls. The school's hostel accommodates learners from 3 years of age to 12 years of age. The learners reside in the hostel from Monday to Friday.

[12] The number of learners enrolled at each school and all other information regarding each school was correct at the time data was collected for this study (February 2010-December 2010).
[13] The Paget Gorman Coding System is an artificially constructed system that attempts to correspond to a given spoken language in a signed modality (see section 2.2.2).

Learners attending this school come from surrounding areas as well as Orange Farm, Kagiso, Randfontein and Carltonville. There are also learners who come from the North West Province, Hammanskraal and other countries such as Zimbabwe, Malawi, Lesotho and Nigeria. The existing language policy of the school is South African Sign Language although the majority of the teachers use Total Communication as the LoLT (the spoken language used depends on the home language of the teacher). The school offers English as the written medium of instruction (Appendix E).

The school follows the National Curriculum Statement (NCS) programme with General Education and Training (GET) and Further Education and Training (FET). GET consists of: pre school (grade 0-R), Foundation Phase (grade 1-3), Intermediate Phase (grade 4-6) and Senior Phase (grade 7-9). FET consists of grade 10-12. The school offers the following FET subjects: English Additional Literacy, Life Orientation, Mathematical Literacy, Hospitality Studies, Mechanical Technology, Engineering Graphics Design, Computer Application Studies and Tourism. Learners are introduced to E-learning as early as grade 3, where basic computer skills are introduced. The school has six learners registered for grade 12 this year. The learners write matric over one year akin to mainstream schools.

The school has one special needs class with one teacher and one Deaf class assistant. There are currently 19 learners in this class which equates to a weighted number of 95 learners. The learners in this class vary in ages from 6 years of age to 25 years of age. They are considered to be multiply disabled as they are Deaf with additional disabilities. Some of the additional disabilities include Cerebral Palsy, Cognitive Challenges, Severe Learning Difficulties, Attention Deficit Disorder, Congenital Syndromes and Behavioural Problems. A large number of these learners are, in actual fact, remedial class candidates and incorrectly placed in the special needs class. The school does not have remedial classes and these learners are thus placed at a disadvantage.

The school employs three qualified Deaf teachers; two in the foundation phase and one in the senior phase. The school also employs five Deaf teaching assistants. The school has a nurse, Speech and Language Therapist and a Remedial Therapist. The Deaf teachers and Deaf teaching assistants at the school offer SASL classes every Saturday morning to the parents. The Deaf teachers report that these classes are not very well attended and on most occasions only two or three people will be present.

School II

This school was founded in 1975 by a Speech and Language Therapist. The school started as the first ever pre-school for Indian learners in Gauteng. It relocated to its existing premises in 1980. The school is within an urban area, adjacent to an informal settlement. The learners attending this school are largely from low socio-economic backgrounds. More than 80% of the learners reside in informal settlements.

In addition to learners travelling from surrounding areas, learners come from Soweto, Orange Farm, Kagiso, Randfontein and Carltonville. The school has plans to build a hostel for their learners. The majority of Deaf learners at this school come from families who are not competent in SASL and the family uses gestures to communicate with their child.

The current school population consists of 253 learners; 111 Deaf learners and 142 hearing learners. The Deaf learners follow the General Education Training (GET) curriculum from grade R to grade 9. The school will be offering grade 10 for Deaf learners from 2011, grade 11 from 2012 and grade 12 from the year 2013. The school's existing language policy for the Deaf learners is SASL although Total Communication is used by the majority of the teacher's. (Appendix F). The school employs two qualified Deaf teachers, one in the foundation section and one in the intermediate section. The school also employs three Deaf teaching assistants. The school is presently providing SASL training to their teachers through Sign Language Education and Development (SLED), a Deaf non profit organisation. The school furthermore offers parent SASL classes on Saturdays.

The school admits hearing learners from the age of 13 years and these learners are mildly intellectually disabled. In their first year, the hearing learners do what is referred to as 'Orientation One' (the focus is on foundation level, grade 1, 2 and 3). In their second year the hearing learners complete 'Orientation Two' (the focus is on intermediate level, grade 4, 5 and 6). In their third year the learners complete 'Orientation Three' (the focus is on grade 7 and adapted grade 8 and 9). For the duration of Orientation Two the learners commence skills classes in addition to academic classes.

Deaf learners, who are not meeting the requirements for grade 7, 8 or 9, complete the orientation programmes with the hearing learners. The hearing learners and these Deaf learners are combined in the same classroom. The school employs two Speech and Language Therapists and one social worker.

School III

This school was established in 1954. It is a former Model C school. The school has 205 learners from grade 0 to grade 12. The learners in the grade 0 classes make use of FM transmitters. The grade 12 learners write matric over a two year period. The learners attending this school come from low to middle socio-economic backgrounds. The majority of Deaf learners at this school are from families who are not skilful in SASL and they use gestures to communicate with their children.

The school has two special needs classes for learners who are not coping in the academic stream. They have a hostel where more than 75% of the school's learners reside during the term. The school does not employ any Deaf teachers. The school does however employ two hard of hearing teachers and one hard of hearing hostel caretaker.

The school's existing language policy is oralism and Total Communication. The spoken medium of instruction is Afrikaans and the written medium of instruction is Afrikaans (Appendix G). The school will be phasing out Afrikaans and introducing English as the written language in the future. This will commence with the learners from grade R.

The school employs a full time SASL interpreter who works in the FET section. The senior phase learners are offered SASL as a school subject. The school employs one Occupational Therapist, two Speech and Language Therapists and one Social Worker.

School IV

This school was founded in 1887 by the Dominican Sisters and was initially opened in Cape Town. The school relocated to its contemporary premises in Johannesburg 1934. This is a former Model C school. The learners attending this school come from low to middle socio-economic backgrounds. These learners come predominantly from families who are not adept in SASL and the family uses gestures to communicate with their child.

The school consists of 263 learners. The school offers grade 00-12. If learners are not coping in grade 8 they are placed in vocational classes. The school offers junior vocational classes and senior vocational classes (the vocational classes focus on basic numeracy and literacy). The school also offers grades referred to as Occupation Level 1 classes, Occupation Level 2 classes as well as College 1 classes and College 2 classes. If a learner passes the Occupation classes they are promoted to the College.

The learners will complete skills such as engineering and graphic design, cookery, metal work and shoe-making. Some subjects are Sector Education Training Authority (SETA) based certified. The learners are provided with an in-house certificate for the subjects that are not SETA certified. They are taught skills for work placement and technicons. This year they have seven learners in matric. The school learners write matric over a two year period. The language policy currently used at the school is Total Communication (Appendix H). The school's principal is Deaf and the school employs five Deaf teachers and eight Deaf teaching assistants. The school offers SASL classes to their learner's parents.

School V

This school was founded in 1985 and is positioned in a township area. The school is distinct in that they have Deaf, blind and physically-disabled learners. The learner's come from low socio-economic backgrounds. The majority of Deaf learners come from families who are not proficient in SASL and the family uses gestures to communicate with their child.

The schools existing language policy is South African Sign Language even though the majority of teachers use Total Communication (Appendix I). The school offers grade 8-12 with GET subjects. There are at present 502 learners at the school and 187 of these learners are Deaf. The school has a hostel accommodating 495 learners residing for the term. There are separate classrooms for the Deaf learners while the blind and physically disabled learner's are grouped together.

The school employs one Deaf teacher. Most of the learners come from Limpopo. The school employs one Speech and Language Therapist, one Audiologist, two Occupational Therapists, one Physiotherapist, one Social Worker and one Nurse. A period is included in the academic timetable for language therapy, thus instead of using the pull out system, the Deaf learners have a language therapy class with the speech therapists.

School VI

This school was opened on the 2nd of April 1962. It was established in 1950 when the principal at the Dominican School for Deaf learners in Cape Town applied to the government for subsidy for a school for Sotho Deaf children in (Transvaal) Gauteng. Whilst the school is located in a rural area, it is sited on private property owned by the Roman Catholic Church. The school has 412 learners and 388 learners reside in the schools hostel during the term. The learners attending this school come from low socio-economic backgrounds. The majority of learners at this school come from families who are not adept in SASL and the family uses gestures to communicate with their child.

The language policy is Total Communication (Appendix J). The school offers grade R to 9 and has five skills classes for learners who have difficulty coping in the schools academic stream. The school has one nurse and no therapists. On the whole, the learners at this school come from Limpopo, Mpumalanga, Zimbabwe and Malawi.

School VII

This school was founded in 1984 and is located in a township area. The school has 209 learners and a hostel. Each and every one of the learners resides in the hostel for the term. The learners attending this school come from low socio-economic backgrounds. The majority of Deaf learners at this school come from families who are not proficient in SASL and the family uses gestures to communicate with their child. The school offers grade R to 9, as well as skills classes such as hairdressing and mechanics. The existing language policy is Total Communication (at the time of this research the school did not have a formal language policy in writing). The school currently employs one Deaf teacher in the foundation phase and there are no therapists at the school.

3.3 **Aims of the Study**

An aim of this study is to investigate whether teachers using South African Sign Language as the language of learning and teaching (LoLT) and teachers using manually coded spoken language as the LoLT, identify behaviour problems displayed by Deaf learners in the classroom. If it is found that these teachers identify behaviour problems displayed by their learners, then the study further aims to compare the types of behaviour problems displayed by learners who are taught using SASL and manually coded spoken language.

3.4 **Research Questions**

1. Do teachers using South African Sign Language and teachers using manually coded spoken language as the language of learning and teaching report behaviour problems displayed by Deaf learners in the classroom?
2. Is there a disparity in the types of behaviour problems displayed by Deaf learners in the classroom when they are taught using either South African Sign Language or manually coded spoken language as the language of learning and teaching?

3.5 **Research Design**

This study is quantitative in nature and has employed a non-experimental, cross sectional design. The related strengths of this research design were taken into account upon selecting it for this study; this research design is valuable for descriptive purposes such as describing dissimilar types of behaviour problems displayed by Deaf learners in the classroom. The researcher furthermore chose this design as repeated measures and replication of this study in the future may allow for trends to be determined.

Limitations characteristic of using this research design consist of a range of likely threats to internal validity as well as difficulty in establishing non-spuriousness (Howell, 2004). Making an allowance for these limitations, the results of the present study do not permit for causal inferences to be made between dissimilar modalities of language (namely SASL and manually coded spoken language) and behaviour problems. For this reason only a probable association among these variables can be considered in the present study.

3.6 **Sample**

The sample consisted of 7 schools for Deaf learners in Gauteng. Within the present study a purposive sampling technique was used in order to attain an appropriate sample of teachers. The researcher had to select a group of teachers who use SASL as the language of learning and teaching (LoLT) and a separate group of teachers who use manually coded spoken language as the LoLT. All intermediate, senior and Further Education and Training (FET) phase teachers from each of the schools were approached by the researcher. Only those who agreed to participate were included in the study. The foundation phase teachers from each school were excluded as a vast number of the learners in this phase have not yet acquired language (as discussed under section 3.1).

The total sample included: 71 teachers who use manually coded spoken language and 33 teachers who use SASL as the LoLT. The sample furthermore consisted of 65 profoundly Deaf learners. The number of teachers who use SASL as the LoLT is smaller for the reason that only a minority of teachers in schools for Deaf learners are proficient in SASL.

Only those learners whose parents granted consent for them to participate in the study were included. For this reason the sample from each school consists of an unequal number of learners. The learners in the study were randomly selected; the teachers were asked to complete the TRF on the first three learners on their class list. The teachers were only requested to complete the TRF on three learners due to the length of the TRF.

Results in Table 1 illustrate that most of the participants in this study came from school VII, which made up 26.16% of the total sample (17 participants). The second largest number of participants came from school VI (14 participants making up 21.54% of the total sample). School I, II and III had an equal number of participants (9 participants making up 13.85% of the total sample).

The school that had the least number of participants was school IV (1.54% of the sample). Table 1 further illustrates that the majority of the learners participating in this study were currently in grade 6 (24.62% of the sample) and grade 7 (18.47% of the sample). Grade 8 and 9 made up 16.92% of the sample with 11 participants each. It can be seen from Table 4 that grade 4, 5, 10, 11 and grade College 2, each had an equal number of participants and each made up 4.62% of the sample used in this study.

As illustrated in Table 2, the majority of the learners participating in this study were 15 years old (23.08%) of the total sample. The sample was predominately female (67.69%) with only 32.31% of the sample being male. The sample as illustrated in Table 2 was also made up of mostly black participants (90.77%) of the sample while Indian learners made up 6.15 % of the sample and white learners (3.08%) of the total sample.

Table 1 Sample Demographics: Schools

Variable	Number of Learners (*N*)	Percent (%)	Variable	Number of Learners (*N*)	Percent (%)
School			**Learners Grade**		
I	9	13.85	Gr. 4	3	4.62
II	9	13.85	Gr. 5	3	4.62
III	6	9.23	Gr. 6	16	24.62
IV	9	13.85	Gr. 7	12	18.47
V	1	1.54	Gr. 8	11	16.92
VI	14	21.54	Gr. 9	11	16.92
VII	17	26.16	Gr. 10	3	4.62
			Gr.11	3	4.62
			College 2	3	4.62

Table 2 Sample Demographics: Learners

Variable	Number of Learners (*N*)	Percent (%)	Variable	Number of Learners (*N*)	Percent (%)
Age			**Gender**		
12 yrs	2	3.08	Female	44	67.69
13 yrs	4	6.15	Male	21	32.31
14 yrs	12	18.46			
15 yrs	15	23.08			
16 yrs	14	21.54	**Race**		
17 yrs	13	20	White	2	3.08
18 yrs	3	4.62	Black	59	90.77
20 yrs	2	3.08	Indian	4	6.15

Table 3 provides an overview of the subject areas that the teachers in this study taught. Most teachers in this study taught Maths (26.76% of the total sample) and English (15.5% of the total sample). Due to the limited number of teachers who are proficient in SASL it was a challenge to find a teacher who uses SASL and who teaches the same subject area as a teacher who uses manually coded spoken language. For this reason all the teachers in this study taught different subject areas.

Table 3 Sample Demographics: Subject Area

Variable	Number of Teachers (*N*)	Percent (%)
Subject Area		
Accounting	4	5.63
Afrikaans	3	4.23
Computer Application Studies (CAT)	3	4.23
English	11	15.50
Life Orientation (LO)	9	12.68
Language Therapy	4	5.64
Maths	19	26.76
National Qualifications Framework: (NQF) Level 2	3	4.23
Natural Sciences (NS)	5	7.04
Social Sciences (SS)	4	5.63
Science	6	8.46

3.7 **Measures and Instruments**

The Teacher Report Form (TRF) was used to record incidence of behaviour problems (Appendix K). The TRF was designed in the United States of America and it is based on the Child Behaviour Check List (CBCL/ 4-18), which was developed to obtain parents' reports of their children's competencies and problems. In line with Achenbach (1991) who developed the scale, the TRF is designed to score teachers' reports of their pupils' changing behaviour and problems in a standardized format. The TRF can be administered in approximately 15-20 minutes. For the intention of this study it is important to note that the TRF has previously been used in research involving hearing impaired children (Achenbach, 1991).

The TRF has been translated into Afrikaans and isiZulu for use in South Africa however it has not been normed and standardized on the South African population. As there are no standards and norms for South Africa to compare the results of this study with, the mean difference score which would usually be used for interpretation of results was turned into a percentage score for interpretation of results (Table 5).

The TRF contains 112 items; where teachers are required to respond by circling '0' if the item is not true of the child, '1' if the item is somewhat or sometimes true and '2' if the item is very true or often true. The TRF measures eight constructs which include: *withdrawn behaviour, somatic complaints, anxious/depressed behaviour, social problems, thought problems, attention problems, delinquent behaviour and aggressive behaviour.* Each subscale however was made up of a different number of items. For example 9 items out of the 112 items made up the *withdrawn* subscale and 25 out of the 112 items made up the *aggressive behaviour* subscale.

As each subscale contained a dissimilar amount of items, the mean difference score of each subscale cannot be compared during data analysis of this study. Consequently, for the purpose of this study, a percentage mean difference score is used to interpret the differences in behaviour problems (Table 5).

In addition to the individual subscales, the TRF furthermore examines two groupings of behaviour which are viewed as either *internalizing* or *externalizing* problems. *Internalizing behaviour* includes withdrawn, somatic complaints and anxious and depressed behaviour. *Externalizing behaviour* includes delinquent behaviour and aggressive behaviour.

Consistent with Achenbach (1991) test retest reliability of the TRF was found to be high over a mean interval of 15 days, with the mean r = .92 for problem scores. Stability was noted to be good over 2 and 4 month periods. Inter-rater agreement was similar for teachers seeing pupils under different conditions (mean r =. 54 for problem scores) and for teachers versus teacher aids seeing pupils under more similar conditions (r =. 55 for problem scores).

Internal consistency for boys aged 5-18 years as being .97 for the total problems score, .96 for externalizing behaviour and .90 for internalizing behaviour. A similar internal consistency is reported for girls aged 5 – 18 years as being .98 for the total problems score, .96 for externalizing behaviour and .92 for internalizing behaviour (Achenbach, 1991).

3.8 **Procedure**

The principal from each of the seven schools was telephonically contacted by the researcher. They were informed about the study and their schools were invited to participate. Each principal was given a letter detailing the purpose and procedure with regard to the study (Appendix L). It was requested that they sign the principal consent form if willing to participate (Appendix L). Once permission was attained from the principal of each school and the Department of Education the researcher met with the teachers. This was done at the schools during the lunch break. The teachers were informed of the study and invited to participate. Those who agreed to participate were given a letter of informed consent which they were required to sign (Appendix M).

The researcher met with parents at each of the schools. Taking into consideration the fact that many parents have transport difficulties, reside in different provinces or different countries and work during school hours, the researcher met with the parents at the same time as each school had their end of term parents meeting. Those who were interested in allowing their children to participate in the study were given a letter of informed consent (Appendix N).

The researcher met with the learners at their schools during their lunch break. Only those learners whose parents granted consent for them to participate in the study attended the meeting. The learners were requested to sign a letter of informed assent if they agreed to participate (Appendix O). Once permission, informed consent and informed assent were obtained, the teachers were asked to complete the Teacher Report Form (Appendix K). Provided the length of the TRF, each teacher was only asked to complete the TRF on three of the learners who agreed to participate. On completion the forms were placed in an envelope (each teacher was given a separate envelope). The envelopes were collected from each school two weeks after they were issued.

3.9 **Ethical Considerations**

This study was conducted after permission was obtained from the University of the Witwatersrand ethics committee (non-medical) for research with human participants. Ethical procedures were adhered to. The ethics clearance number for further reference is MEDP/10/004 IH. Parents were requested to provide permission for the learners to participate in this research project and participants were informed of their rights to withdraw from participation at any point. Confidentiality of subjects was maintained as the names of the schools; teachers or learners were not included in the write up of the research report.

Anonymity of the results of the Teacher Report Form (TRF) could not be guaranteed and this was discussed with the participants during the first meeting held with the researcher and participants at the school. This was also discussed in the information letter. In addition to the information letter given to the learners, the researcher arranged for a qualified SASL interpreter to interpret the letter of assent for the Deaf learners; this was recorded onto DVD. This DVD was shown to the learners at each of the schools when they were invited to participate in the study.

Teachers participating in this study may suspect severe behaviour or emotional problems upon completing the TRF on their learners. In such a situation these teachers may need to refer these learners to psychologists. Currently there are no psychologists in South Africa who are proficient in SASL. Given this concern the researcher provided the teachers with the contact number for SASLINK (an organisation for SASL interpreters). In addition the researcher provided these teachers with the contact numbers of the psychologists working at each schools district office.

CHAPTER FOUR
RESULTS

4.1 Introduction

The present study had two focal areas of investigation - the first aimed at investigating whether the two groups of teachers used reported any behaviour problems displayed by Deaf learners in their classrooms. The second evaluated whether there was any disparity in the behaviour problems displayed by Deaf learners in the classroom when taught by teachers using dissimilar modalities of language as the LoLT (namely SASL and manually coded spoken language). Suitable statistical analysis was used to answer the research questions in the study. Prior to carrying out this analysis, it was necessary to first ascertain whether the data was suitable for parametric analysis. Discussed below are the checks on parametric assumptions.

4.2 Checks on parametric assumptions

The first assumption for conducting parametric statistical analysis is that dependent variables have to produce interval-scaled data. The data for the Teacher Report Form (TRF) was assumed to be interval in nature, based on the vast amount of items and subscales on the TRF. As a result this criterion was met.

The second assumption for conducting parametric statistical analysis is that data must be normally distributed. Scores obtained from the Teacher Report Form (TRF) were checked for normality, this was done by creating a histogram for each variable (Appendix P). The data for TRF scores was not normally distributed therefore this criterion could not be met.

The third assumption for parametric statistics is that variance between the groups is equal (this assumption is not necessary for regression and correlation). This study compares two teacher's ratings of the same learner (matched pairs). Because the rating is of the same learner, variance between the groups is thus equal and this criterion was met.

The fourth assumption for parametric analysis is that the sample is both random and independent. Within the present study a purposive sampling technique was used in order to obtain an appropriate sample, therefore the study does not meet this criterion. It should, however, be noted that due to ethical constraints, it is extremely difficult to obtain a random, independent sample in psychological research studies (Payne, 2009).

Based on this assessment of the parametric criteria, the data for this research does not meet the criteria for conducting parametric statistical analysis. As a result the Wilcoxon's Matched-Pairs Rank Test was used for analysis of data. In the data analysis that was run for the present study the significance level was always assumed to be 0.05 or 5%. All statistical analysis in this study was conducted using SAS version 9.2 and SAS enterprise version 4.2. SAS is a statistical analysis program that allows for coded data to be imported from Microsoft excel. Presented below are answers to the research questions of this study.

4.3 *Research Question One: Do teachers using South African Sign Language and teachers using manually coded spoken language as the language of learning and teaching report behaviour problems displayed by Deaf learners in the classroom?*

Table 4 and 5 are used to answer the first research question. Table 4 illustrates the scores that teachers achieved on the Teacher Report Form (TRF). The table illustrates the mean of the total scores obtained from teachers who use South African Sign Language (SASL) and teachers who use manually coded spoken English (MCE) as the LoLT. The table further illustrates the lowest total score and the highest total score that was achieved on the TRF by the two groups of teachers.

Results illustrated in Table 4 suggest that both groups of teachers report behaviour problems displayed by Deaf learners in their classrooms. Table 4 further illustrates that teachers who use manually coded spoken language report elevated scores and more behaviour problems on the TRF (mean 65.60) compared to teachers who use SASL (mean 20.33).

Table 5 is used to illustrate the differences in scores reported on the TRF for each behaviour problem subscale. To ascertain the differences in scores between the two groups of teachers, a mean score for each behaviour problem subscale was obtained. The researcher then subtracted the South African Sign Language (SASL) mean score from the manually coded English (MCE) mean score for each subscale. As discussed under section 3.6 a percentage mean difference score is used to interpret the differences in behaviour problems between the two groups.

Results from Table 5 illustrate that when the two groups of teachers are compared there is a difference in scores on all 8 subscales of behaviour problems on the TRF. The greatest difference in reported scores was shown to be: social problems (38.5%), anxious/depressed behaviour (24.6%), aggressive behaviour (22.1%) and attention problems (21.0%).

Table 4 Mean of total scores and minimum and maximum scores achieved on the Teacher Report Form (TRF)

Variable	Mean of Scores	Standard Deviation (s)	Lowest Score achieved on TRF	Highest Scores achieved on TRF	Number of Teachers (*N*)
SASL Total	20.33	19.25	2	67	33
MCE Total	65.60	34.42	12	148	71

Table 5 Differences in behaviour problem subscale scores reported on the Teacher Report Form (TRF)

Variable	Percentage Mean Difference (%)	MCE minus SASL Mean Difference
Behaviour Problems:		
Withdrawn	18.2%	3.27
Somatic Complaints	12.25%	2.24
Anxious/Depressed	24.6%	8.84
Social Problems	38.5%	10
Thought Problems	20.3%	3.24
Attention Problems	21.0%	8.39
Delinquent Behaviour	12.6%	2.27
Aggressive Behaviour	22.1%	11.03
Total Difference	20.6%	2.33

4.4 *Research Question Two: Is there a disparity in the types of behaviour problems displayed by Deaf learners in the classroom when they are taught using either South African Sign Language or manually coded spoken language as the language of learning and teaching?*

Figure 1 is used to illustrate the behaviour problems of learners as identified by teachers who use South African Sign Language (SASL). Figure 2 is used to illustrate the behaviour problems of learners as identified by teachers who use manually coded spoken English (MCE).When analysing the data for Figure 1 and 2, a 95% confidence interval was used. Confidence intervals used in Figure 1 and 2 include a point estimate of the sample mean from this study and the width of the bar gives an idea of the accuracy of the mean estimation within the actual population.

The manner for analysing the most frequently encountered behaviour problems identified by teachers is to see whether or not the confidence interval for the means overlap one another at a 95% confidence interval (Loftus & Masson, 1994). The most frequently reported behaviour problems can be identified in Figure 1 and 2 where the intervals for the means do not overlap one another.

Results from Figure 1 illustrate that the group of teachers who use SASL as the LoLT report somatic complaints and attention problems as the most frequently encountered behaviour problems in their classrooms. Results from Figure 2 illustrate that the group of teachers who use manually coded spoken English (MCE) as the LoLT report social problems and attention problems as the most frequently encountered behaviour problems in their classrooms.

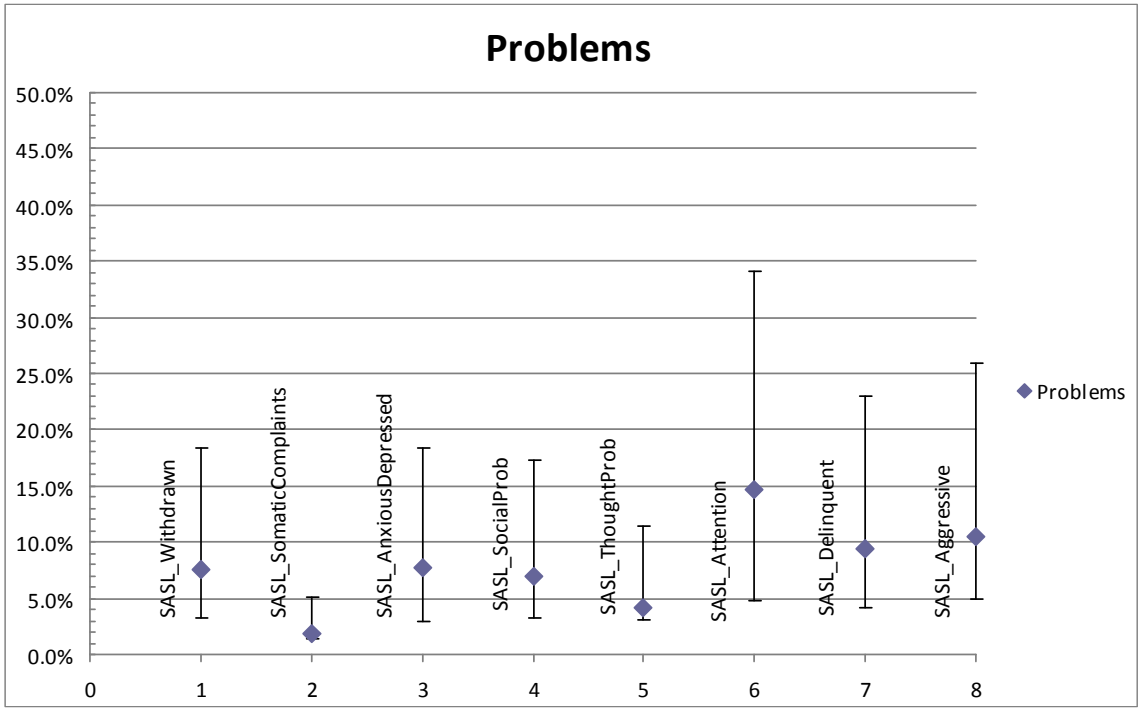


Figure 1: Behaviour problems as identified by teachers who use South African Sign Language (SASL) as the language of learning and teaching (LoLT).

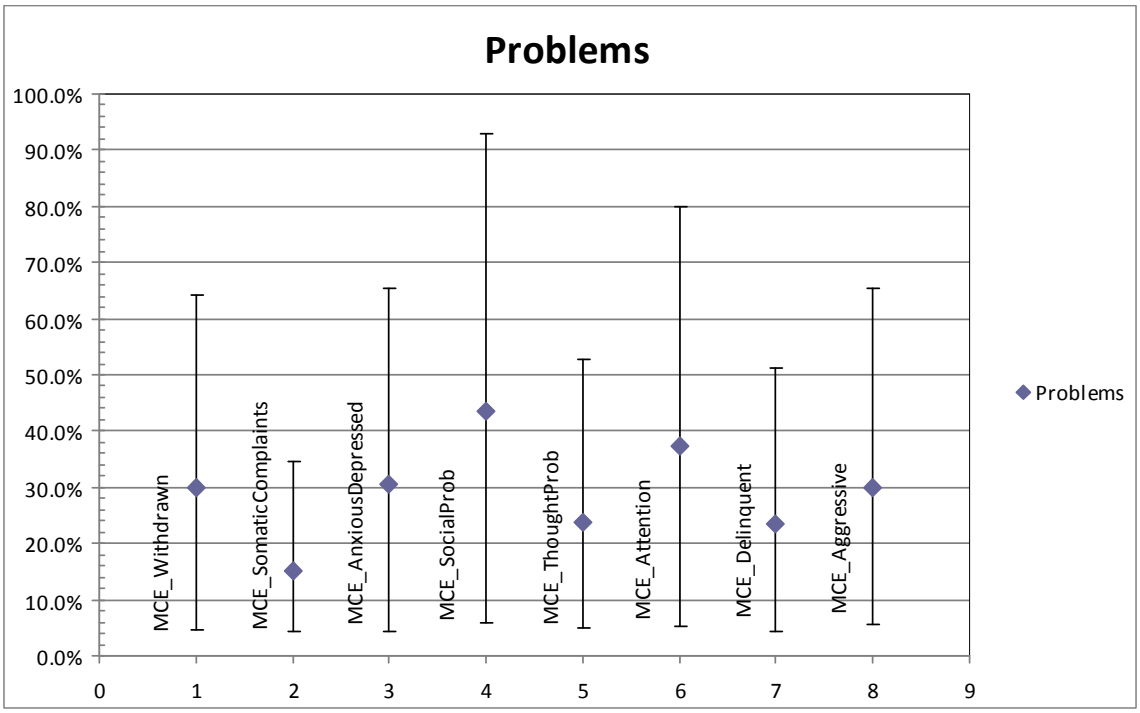


Figure 2: Behaviour problems as identified by teachers who use manually coded English (MCE) as the language of learning and teaching (LoLT).

In view of the results of the present study the subsequent chapter provides a discussion based on the findings of the results. The chapter further presents limitations of the present study and suggestions for potential research.

CHAPTER FIVE
DISCUSSION OF FINDINGS

5.1 Interpretation of Findings

Owing to the paucity of research in the area of dissimilar modalities used as the language of learning and teaching (LoLT) in schools for Deaf learners and how this may possibly relate to learner behaviour in the classroom, and considering the situation in schools for Deaf learners in South Africa, the present study investigated whether or not the lack of SASL as the LoLT plays a possible role in the behavioural adjustment displayed by Deaf learners in the classroom.

Using the Teacher Report Form (TRF), the study aimed to identify whether teachers using South African Sign Language as the language of learning and teaching (LoLT) and teachers using manually coded spoken language as the LoLT in schools for Deaf learners specified any behaviour problems displayed by Deaf learners in their classrooms. The study further investigated whether the two groups of teachers reported any dissimilarity in the types of behaviour problems displayed by the learners in their classrooms.

The overall findings of this study suggest that both groups of teachers report behaviour problems displayed by the learners in their classrooms. Both groups of teachers report a notable prevalence of: withdrawn behaviour, somatic complaints, anxious depressed behaviour, social problems, thought problems, attention problems, delinquent problems and aggressive behaviour. This was consistent with van Eldik (2005) who investigated the prevalence of behaviour problems amongst Deaf Dutch adolescents.

His sample consisted of 202 adolescents aged 11-18 years. The results in the above study suggested that a large proportion of Deaf and hard of hearing populations had internalizing problems such as withdrawn behaviour, somatic complaints and anxious/depressed feelings. The study suggested that learners at schools for Deaf learners report more problems than learners attending regular schools.

Research by van Eldik (2005) and Konuk et al. (2006) suggested that Deaf adolescents above the age of 12 years display notably high externalizing and internalizing behaviour problems. This was consistent with the present study, which was made up of learners between the ages of 12 to 20 years. It has further been suggested that adolescent boys experience more emotional or behavioural problems than girls in both the general and Deaf population (van Eldik et al., 2005). The present study was unable to compare these results due to the unequal number of boys and girls in the sample.

When the TRF ratings of the two groups of teachers were compared in the present study, results found that teachers who use manually coded spoken language report a higher prevalence of behaviour problems on the TRF compared to teachers who use SASL. These findings are consistent with the results from the pilot study conducted by the researcher. Results from the pilot study conducted by Swanepoel (2009) found that the participants displayed challenging behaviour in the classroom. Notwithstanding this, it found that participants seemed to display a greater variety of behaviour problems when MCE was used as the LoLT (namely inattentive behaviour, over activity, aggressive behaviour and opposition to the teachers' rules).

The pilot study further discovered that the participants seemed to display these types of behaviour problems more frequently when MCE was used as the LoLT. Upon investigation of these results the researcher found that the teachers who used MCE seemed to attribute the high prevalence of behaviour problems to the lack of discipline in the classroom. These teachers seemed to be externalizing the causes of these behaviour problems. In comparison teacher's who used SASL as the LoLT attributed the behaviour problems displayed by the learners to their lack of understanding of their academic work and the learners not putting in adequate effort into their school work. These teachers seemed to be placing an emphasis on their learner's potential.

Considering the results from the pilot study, the researcher suggests that teachers who use SASL in the present study may be reporting a lower percentage of behaviour problems on the TRF for the reason that they better understand their learner's actions due to understanding their learner's language and culture. These teachers may also be reporting more internalizing behaviour problems as opposed to externalizing problems as the most notable areas of concern in their classroom, due to the fact that they have a better understanding of their learner's emotions and are thus better able to identify these problems.

In comparison, teachers who use manually coded spoken language in this study may be reporting a higher percentage of behaviour problems on the TRF as they are unable to understand and communicate with their learners optimally and may misinterpret their actions. The researcher suggests that when teachers do not understand their learner's actions, they may interpret their behaviour as more problematic and report it as such on the TRF. This may be a reason these teachers report externalizing problems (social problems) as the most notable problem in their classrooms.

Teachers who have difficulty communicating with the learners in their class, may have feelings of frustration which could explain the high percentage of behaviour problems reported on the TRF by teachers who use MCE. This suggestion is supported by Barker et al. (2009) who concludes that difficulty in communicating needs and desires or difficulty understanding parent or teacher regulations results in frustration. This frustration may be one explanation for clinically elevated rates of behaviour problems observed in Deaf children. In the present study both groups of teachers report attention problems as a notable problem in their classrooms. Research by Barker et al. (2009) provides a suggestion for the prevalence of attention problems in Deaf learners. These researchers conducted a study made up of the largest cohort to date of young Deaf cochlear-implant candidates and hearing children. In their study, cross sectional relationships between language, attention and behaviour problems were examined using parent reports, video taped observations, and performance measures. The sample was made up of 116 severely and profoundly Deaf children and 69 hearing children. The children's ages ranged between 1.5 to 5 years.

Results from the study by Barker et al. (2009) found that hearing impaired children displayed more behaviour problems than hearing children with statistically significant differences on the attention subscale scale as reported on the Child Behaviour Checklist (CBCL). It was also found that hearing impaired children displayed greater difficulties with sustained attention compared to hearing children. These researchers suggest that attention regulation and language delays can be linked to behaviour problems in Deaf children. They suggest that because Deaf learners are unable to regulate their environment auditory, they have to rely exclusively on visual regulation of the environment. This places increasing demands on learner's visual attention and as a result it reduces sustained visual attention.

5.2 Limitations of the Study

1. It was a challenge to find teachers who were proficient in South African Sign Language (SASL) as only a minority of teachers at schools for Deaf learners are proficient in SASL. This limited the sample that was used.

2. Each teacher observed the behaviour of only three learners due to the length of the Teacher Report Form (TRF); this further limited the sample size.

3. A number of teachers participating in this study had difficulty with the language and terminology used in the TRF and the researcher had to explain the meaning of certain words to the teachers.

4. Learners from the Foundation Phase at each school were excluded from the present study as a vast number of children from this phase first come to school with little or no acquisition of language. This further limited the sample size.

5. Four of the seven schools included in this study do not offer Further Education and Training (FET), grade 10, 11 and 12, and this further limited the sample size.

6. The sample was composed exclusively of singly handicapped Deaf learners. If Deaf learners with multiple handicaps had been included a difference in prevalence of behaviour problems may have been found.

7. Five of the seven schools used in this study had learners who reside in the hostel. These learners only go home at the end of term, or at the end of the week at one particular school. The researcher was therefore unable to meet with the parents of these learners to gain consent for the learners to participate in the study. This resulted in these learners being excluded from the study and the sample size being limited.

8. In addition five of the schools used in this study are situated in poor socio economic communities, thus a number of the parents were unable to meet with the researcher due to finances needed for transport. Without parental consent these learners were also unable to participate in the study. This limited the sample size.

9. Schools were closed for four weeks during the 2010 Fifa soccer world cup and the teachers went on strike for four weeks subsequent to the world cup soccer (during the third term). This made the data collection process challenging due to time constraints.

10. Only a single measurement instrument was used (TRF). The addition of other measures would have added to the validity of the findings of the current research study.

5.3 Suggestions for Future Research

1. Future research could benefit from including more schools for Deaf learners, from other provinces, to increase the sample size which would facilitate the generalization of the findings. Due to the time constraints of this research, the present study used a behaviour inventory filled out by teachers to investigate behaviour problems displayed by Deaf learners. Future research could benefit from additional sources of information such as interviews with parents, learners and teachers, classroom observations and inventories filled in by parents and learners. This would improve validity and reliability of findings.

2. Future research could investigate behavioural adjustment in Deaf children of Deaf parents compared to Deaf children of hearing parents. This study would allow for a good indication of a possible link between language and behaviour.
3. Future research looking at the possible association between different modalities of language used as the language of learning and teaching and the behaviour adjustment of Deaf learners, could look at learners who have congenital severe to profound bilateral hearing loss and learners who are postlingually Deaf.
4. Future research could also look at other minority language learners and their behavioural adjustment. As noted in Barker et al. (2009), the development of language and communication may play an important role in the emergence of behavioural problems in young children, but they are rarely included in predictive models of behavioural development.

5.4 Conclusion

The area of Deafness and mental health in South Africa is insufficiently researched. In line with the South African Society for Mental Health and Deafness (SASMHD) there are presently only three psychiatrists working in this area (all of whom require the use of a SASL interpreter) and there are a limited number of psychologist's proficient in South African Sign Language. It is hoped, that this research, can add value to this area. This pioneering research lays the foundation for future research, as it is the first of its kind to explore dissimilar modalities used as the language of learning and teaching in schools for Deaf learners and the correlation to learner behaviour in the classroom. The present study brings attention to behaviour problems that Deaf learners display in the classroom and highlights the need for early identification of behavioural and emotional problems in Deaf children and adolescents. When assessing children and adolescents for behaviour problems it is important to use more than one informant to gain a more holistic understanding of the individual. Individuals may display different behaviour in different situations and it is important to consider the possible reasons for these differences. Teachers, parents and mental health practitioners need to be aware of the possible relationship between language and behaviour problems and the importance of South African Sign Language when assessing Deaf learners whose primary language is SASL.

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