



UNIVERSITEIT VAN PRETORIA  
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**A SPEECH PROGRAMME  
FOR  
DEAF LEARNERS TO BE USED  
IN THE CLASSROOM BY TEACHERS**

**BY  
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*This thesis is dedicated to...*

*All Deaf learners*

*In the hope that speech teaching will be enjoyable.*



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## ABSTRACT

**TITLE:** A Speech Programme for Deaf Learners to be used in  
in the Classroom by Teachers

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This thesis sets out the rationale and design for a speech programme for Deaf learners to be implemented by teachers in the classroom. Theoretical and empirical research are provided to support its design. Speech teaching is set against a backdrop of current issues so that the programme is seen to take cognisance of these. To this end the disappointment and conflict which surround speech teaching and newer educational and audiological trends are described. Following this, the deviant speech of the Deaf is described. Prevoical aspects of speech production, namely aberrant respiratory functioning and deviant vocal set are described. The latter is a term coined for this research to denote psychological, functional, physical and neural changes that deleteriously affect the speech of the Deaf. Suprasegmental and segmental problems are next delineated. An argument that supports the view that vowels are less accessible to correction than consonants is proposed to explain the emphasis accorded to consonants. Hereafter, theories of speech teaching are set out to clarify their incorporation into the proposed programme. Critiques of Haycock, the Ewings, Ling and van Uden are provided. The role of computers and biofeedback is evaluated.

The Whole Language Approach to mainstream education, the phonological method of speech correction, and creative techniques, speech and drama, and singing, are described in relation to speech instruction for Deaf learners. Empirical research that investigates attitudes and needs of educators of Deaf children, with the emphasis on the class teacher, is delineated. Finally, the proposed programme is presented emphasising its potential to interrupt the current self-perpetuating negative cycle. Theoretical principles are a defocus on lipreading cues to provide information on speech production, restriction of digital contact with the larynx or throat, repeated cycles of intervention at phonetic and phonological levels, and the employment of five multisensory avenues to enhance speech perception. The latter are orosensory, graphic, kinaesthetic, hand analogies and use of inanimate objects. Skills targeted for development are control of vocal organs, suprasegmental, segmental and phonological development. The fit of the proposed programme to the education paradigm in terms of learner, teacher and school system is described. The thesis concludes with an evaluation of the programme and recommendations for future research.

**Keywords :**

Deaf children, classroom, speech programme, teacher of the Deaf, speech therapy, speech teaching, speech correction, speech development

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# CHAPTER ONE : INTRODUCTION, BACKGROUND AND RESEARCH PROBLEM

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## 1.1 INTRODUCTION

---

Deafness is an invisible and complex disability that is seldom understood by the naïve observer. This is especially true of a profound, congenital hearing loss.

It is common for hearing individuals to express the view that blindness is a more devastating handicap. This assumption is, because the impact of blindness can be more easily understood. A normally sighted individual may perceive the exact nature of blindness by simply closing his eyes. This is not so with deafness. It is difficult for the hearing individual to simulate and consequently imagine the true nature of this disability. Even if the person with normal hearing could exclude all sound, he would still possess an a priori knowledge of language and have the capacity to speak normally. It is these obstacles rather than the lack of hearing acuity, per se, that causes the Deaf person problems in a hearing world.

Helen Keller, who was both blind and deaf, gave this comparison of her two disabilities: “The problems of deafness are deeper and more complex than blindness. Deafness is a much worse misfortune for it means the loss of the most vital stimulus - the sound of the voice that sets thoughts astir and keeps us in the intellectual company of man” (Keller, H. In *Better Hearing for All*: 3. Published by the Medical Association of South Africa Incorporated, CTP Book Printers, Cape. No date or author given).

The nature and consequences of deafness are elusive, giving rise to misunderstanding. Hippocrates, the father of medicine, believed that the Deaf could not speak because there was something wrong with their tongues which caused them be “dumb”- unable to speak (Markides,

1985). He did not understand that the tongue is unaffected, but that where hearing acuity is disturbed, speech will not develop normally (Ling, 1976; Calvert, 1978; Davis and Hardwick, 1984; Knauf, 1984 etc).

Teaching the Deaf to talk – the subject of this study - had its origins in the miraculous. The first semi-historical account was recorded by the English scholar Bede in 1653. He described how Bishop John taught a deaf and dumb youth to speak. “The bishop, having ordered the boy to show his tongue, made him say 'yea', which he did immediately. Then pronouncing one by one the names of all the letters, the Bishop directed the lad to say them; thereafter the boy proceeded to repeat syllables and words put to him by the Bishop, who also commanded him to utter sentences” (Mullet, 1971:123). The boy was so pleased with his new-found skill that: “... he did not cease all day and the next night so long as he could keep awake, to relate, to talk something, and to express his thoughts and will to others” (Mullet, 1971:123).

Today, because of advances in technology and new insights into speech and language development, teaching speech to Deaf children occurs. However, the happy picture that Bede paints of the successful teacher and the satisfied student do not exist. The current view of speech teaching to the Deaf is generally one of disappointment, confusion and conflict. The aim of this chapter is to critically analyse firstly, the disappointment, secondly, the confusion and conflict that have become a hallmark of Deaf education today and thirdly, on a more optimistic note, to view the hope that medical and educational advance offer. The research problem will be set against this background.

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## 1.2 DISAPPOINTMENT: CAN SPEECH BE TAUGHT?

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Numerous writers have commented on the low standard of speech proficiency attained by the Deaf. Bunch (1987:146) states unambiguously: “The reality of speech instruction in the past is that it has not been successful with the majority of hearing-impaired individuals with severe to profound losses.”

Looking at the situation more closely, a pessimistic picture emerges. Firstly, it is clear that intelligibility is low - relatively little of the speech of the hearing-impaired can be understood. A comparative table illustrates similar results among different researchers.

**Table 1.1 Intelligibility of speech among hearing-impaired subjects**

<b>Researcher</b>	<b>Percentage of words understood by normally hearing listener</b>
Markides (1970)	19%
Smith (1972 – cited by Ling, 1976)	18,7%
Heidinger (1972 – cited by Ling, 1976)	Less than 20%
Brannon (1974 – cited by Ling, 1976)	20 – 30%

Source : Markides (1983): Ling (1976)

As can be seen from table 1.1, up to 80% of the hearing-impaired speaker's utterance cannot be understood by a hearing person.

The picture becomes even more negative when studies showing that additional schooling does not improve speech are taken into account (Boothroyd; 1985; Osberger et al 1986 - both studies cited by Yoshinaga-Itano et al, 1992). Jensema, Karshmerand Trybus (1978 cited by Yoshinaga – Itano et.al, 1992) reported no improvement in intelligibility beyond age seven.

From the above, it may well be concluded that speech improvement at school is an impossibility. However, careful examination reveals a more complex and positive picture.

### **1.2.1 EXISTENT POTENTIAL**

One of the most significant contributions pointing to the possibility of a more positive picture is the seldom-quoted research of Markides (1970). He investigated the speech of Deaf children in British schools and found that the level of speech proficiency varied considerably across schools, - speech skills were not completely dictated by hearing level, but were significantly influenced by the school, which the child attended. He goes so as far as to state: "... educational environment ...

was one of the most important single factors affecting speech intelligibility. So much so that degree or type of hearing loss becomes of secondary importance.” (Markides - cited by Isseldyk, 1982:62).

Markides formally described the variable of educational placement on speech proficiency of Deaf pupils. He stated clearly that schools could make a difference. Other studies have supported this: Smith (1975 cited by Yoshinaga-Itano et al, 1992) describes significant difference in speech production skills between older and younger pupils in the same school, showing that the speech of children at some schools can improve with time. In South Africa, Derman (1987 – this writer) conducted an investigation comparing speech improvement at two schools over a one-year period. Students from one school made significantly greater gains than the other. Additional studies have shown that intense and systematic speech training can result in significant improvement in speech skills (Osberger, Johnstone, Swarts and Levitt 1978; Calvert, 1981; and Osberger, 1983 studies cited by Yoshinaga-Itano et al, 1992).

These studies underscore the concept that speech improvement is possible.

### **1.2.2 CURRENT EXPLOITATION OF POTENTIAL IN IMPORTANT AREAS OF EDUCATION**

A natural question that arises from the above. If schools have the potential to improve speech, what is the state of the current educational infrastructure? Has all the potential been exploited, or is there room for improvement?

In order to answer these questions with greater clarity, four important areas need to be examined, namely: teacher training, available curricular resources, and frequency of speech teaching and teacher attitude to speech teaching.

The situation abroad will be gauged from a literature survey and that in South Africa from an investigation conducted by the writer in October 2000.



### 1.2.2.1 Teacher training

(1987:149) states: “Concerning the training of teachers for the deaf, it is the wide-spread consideration of knowledgeable professionals that preparation in speech is less than satisfactory.” Teachers graduate from training programmes unprepared and unable to teach speech to the hearing-impaired (Hogan, 1980 - cited by Bunch, 1987).

A cursory perusal of the proposed revision of standards for the certification of American Teachers of the Hearing Impaired (published in the American Annals of the Deaf 1984) shows the lack of preparedness to which Hogan alludes. According to this document, teachers in training must complete a core instructional programme consisting of 30 semester’s hours. Only 10% of that time (i.e. three hours) is allocated to Audiology and Speech Science. The document reads as follows. Aspects relating directly to the study of speech have been underlined.

“Audiology and speech science: Study of the physical characteristics of speech and hearing mechanisms. The physical dimensions of sound, the psycho-acoustic aspects of sound, the relationship among these areas: and special attention given to practical preparation in the use and care of hearing aids and amplification systems, including the application of this information to the educational setting” (Proposed revision of standards for The Certification of Teachers of the Hearing-Impaired; American Annals of the Deaf, February 1984:58).

As can be seen from the above excerpt, speech is given scant attention. The only apparent reference is the study of “the physical characteristics of speech”. The rest of the syllabus has no relevance to speech teaching. How much of the three-hour time allocation is set aside for speech can only be surmised but it seems as though fifteen minutes would not be an overstatement. No instruction is given in essential areas such as speech errors common to the hearing-impaired or their remediation.

A more recent description of teacher training in America, appears in the 1992 report of the Joint Standards Committee which sets out standards for university and college teacher preparation programmes – (“CEC-CED Joint Knowledge and Skills Statement for All Becoming Teachers of Students who are Deaf or Hard of Hearing” American Annals of the Deaf, Volume 141, No 3, 1996:220).

The only mention that speech teaching is accorded in this article is in the single sentence stating that teachers in training should be taught to “infuse speech skills into academic areas”. A pertinent question is: how are teachers expected to “infuse” speech skills into academic areas when no provision is made to train them in the requisite skills? A teacher who has not developed speech training skills will not be able to monitor the speech of her pupils effectively (Ling, D and

Ling, A H, 1978). The choice of the verb “infuse” is questionable. It does not mean “to teach” or “to help directly” – it signifies an empty gesture.

In Britain, teachers assessed the efficiency of the Distance Education Course, and rated speech as a topic not covered in sufficient depth (Bowers and Fraser, 1995).

The recurring message is: **teachers are not given sufficient preparation to teach speech.**

A similar situation exists in South Africa.

Table 1.2 gives an overview of the major institutions in South Africa providing training for teachers of the Deaf and describes the attention that speech instruction is accorded, and the rationale for the level of emphasis.

**Table 1.2 : Speech training for teachers of the Deaf in South Africa**

Name of Institution	Specific attention to speech instruction	Rationale for level of emphasis
University of South Africa (UNISA)	No specific attention	Related activities such as auditory training and lip-reading are used to address speech indirectly
University of Stellenbosch	No specific attention	Speech training is regarded as the task of the communication pathologist
University of the Witwatersrand	No attention	<ol style="list-style-type: none"> <li>1. Congruent with the in philosophy of bilingualism speech is not targeted</li> <li>2. If any speech training is given it is regarded as the task of the communication pathologist.</li> </ol>
University of Pretoria	One chapter (seven pages) in the study guide deals with an orientation to speech describing to problems and a short description of Ling's (1976) system. Guidance in remediation of errors is not given.	The major thrust is to encourage an attitude that speech is a viable goal. Time constraints prohibit attention to specifics.

Source : Telephonic conversations with relevant personnel

Table 1.2 indicates that little attention is given to speech. The only direct attention accorded is at the University of Pretoria where there is an orientation towards speech development, but not in practical teaching. The trainee teacher in South Africa has little assistance in developing speech training expertise. Two institutions indicate that the responsibility for speech development is that of the communication pathologist. Table 1.3 shows that this is not practical because of the high pupil/pathologist ratio.

**Table 1.3 : The ratio of hearing-impaired students and communication pathologists at schools for the Deaf in South Africa**

School	Number children attending	Number of communication pathologists
A	180	1
B	265	0
C	160	2
D	105	1
E	310	3

Source : Telephonic communication with school principals (November 1996)

Table 1.3 clearly demonstrates that it is unrealistic to expect communication pathologists to be solely responsible for speech instruction.

An additional problem is that not all teachers employed at a school for the Deaf hold a qualification in teaching the Deaf (Markides, 1970). A pertinent question is how are these teachers expected to learn to teach speech? In a survey of South African schools (November 1996), four out of the five schools interviewed had no in-service training for speech. The following recorded responses, by principals, demonstrate the situation:

“The teachers are not trained, but they do their best.”

“Nobody tells them - they use their common sense and instinct.”

“Teachers learn internally - they see what is happening.”

#### **1.2.2.2 Available resources**

Since teacher training institutions and schools do not offer satisfactory guidance, the question may be posed whether there is any way for the teacher to learn this skill independently. Davis and Hardwick (1981:276), describing available material, state tellingly: “If the reader is feeling frustrated regarding the lack of specifics regarding teaching speech to the hearing-impaired, it is

not surprising. Available descriptions of the methods in current use are vague and open to many interpretations. This fact has contributed ... probably to the poor speech skills of hearing-impaired children.” A brief review of current resources will give support to this viewpoint.

The relatively few books written on speech training for the Deaf are not a solution to the teachers problems (Davis and Hardwick, 1984). They must however be evaluated to determine their strengths and weaknesses.

Three literature sources were used to compile the list of books selected for this study as representing those most widely used. These are books cited by Markides - eminent researcher in the Education of the Deaf (Markides, 1985); Bunch - widely published author on the education of the hearing-impaired, including a book on curriculum (Bunch, 1987); and Ling - acknowledged leader in the field of speech training for the hearing-impaired (Ling, 1990).

- **Markides** (1985:160) in the following quotation names the texts he considers as the most important:  
“Several books have ... been published, ... most of them originating in USA. The book by Haycock (1933) still remains a classic, but rather outdated. The Ewings book (1954, 1964) and the book by Calvert and Silverman (1975) are relevant and full of practical suggestions. By far the most practical book so far published in this area is the one by Ling (1976). The most recent is by Markides (1983).”
- **Bunch** (1987) In his book *The Curriculum and the Hearing-Impaired Student: Theoretical and Practical Considerations*, Bunch (1987) reviews the four speech books he considers being the most important. These are: *Speech* (no author), a manual devised by the Clarke School for the Deaf (1971); *Speech and Deafness* (Calvert and Silverman, 1975); *Speech and the Hearing-Impaired Child* (Ling, D, 1976) and *Teaching Speech to Deaf Children* (Vorce E, 1974).
- **Ling** in 1990 writes: “Several texts on the teaching of speech have been published since Bell described his methods ... a century ago. Among the most notable of these were books by Calvert and Silverman (1975), Ewing and Ewing (1954), Haycock (1933), Ling (1976,

1989) and Vorce (1974)” (Ling, 1990:15-15).

A tabulated form of the above information is presented in Table 1.4

**Table 1.4 : Books chosen by Ling, Markides and Bunch as representing those most significant for speech teaching**

Title of Book	Author	Date	Authority that chose the book		
			Ling	Markides	Bunch
The Teaching of Speech	Haycock	1933	✓	✓	
Speech and The Deaf Child	Ewing and Ewing	1954	✓		
Speech	Clarke School for The Deaf	1971			✓
Teaching speech to Hearing Impaired children	Vorce	1974	✓		✓
Speech & Deafness	Calvert & Silverman	1975	✓	✓	✓
Speech and The Hearing-Impaired child	Ling	1976	✓	✓	✓
Foundations of Spoken language for Hearing Impaired pupils	Ling	1989	✓		
The Speech of Hearing Impaired children	Markides	1983		✓	

**Sources :** Ling (1976); Markides 91985); Bunch (1987).

From Table 1.4 it can be seen that the two books chosen unanimously (coded in pink) are those written by Calvert and Silverman (1975) and Ling, (1976). They are considered the most widely used books available. The books by Haycock (1933), and Vorce (1974).are mentioned by two of the authorities (coded in yellow). Four books will be reviewed.

It is noteworthy that the most recent book reviewed was published in 1976. This demonstrates

Ling and Stoker's (1992) observation that little has been written in recent years on speech production of hearing-impaired children. A significant number of references in this study bear witness to this deficit as they are not recent.

- **Speech and the Hearing Impaired Child (Ling, 1976)**

In 1987 Bunch described this as the major curricular resource available. More than a decade later, this remains the speech book most frequently mentioned (Danier et. al., 1994).

It is agreed that Ling's pioneering work has made an enormous and invaluable contribution to speech science for the hearing-impaired, which has earned him a well-deserved first place in this field. The numerous strategies he delineates to correct sounds and the step-by-step model he describes, – not available in other systems, are examples of his unique contribution. Yet, despite these stated merits, Ling's work does not completely fulfil the teacher's needs. There are two reasons for this: Ling's style of writing is technical. This makes it difficult for the average teacher to understand. He states at outset that the book is written for two groups: firstly, "teacher/clinician /informed parent" and, secondly, "the student/researcher" (Ling, 1976:1). Possibly the needs of such disparate groups could not be met in one book. The highly structured approach may not appeal to teachers, even where the teacher is able to understand Ling's work. A more detailed critique of Ling, encompassing other aspects, is given in Chapter 3.

- **Speech and Deafness (Calvert, and Silverman, 1975)**

This book provides useful teaching strategies for phoneme correction. However, no sequential teaching model is provided. Consequently, as Bunch (1987) states the book is somewhat unfocused.

- **Teaching Speech to Deaf Children (Vorce, 1974).** The main thrust is Vorce's philosophy of a natural approach to language (Bunch, 1987). There is little for the teacher in terms of practical speech teaching. Bunch (1987) describes a lack of sufficient closure in significant areas. It would seem that the section on speech is one such area.

- **The Teaching of Speech (Haycock, 1933)**

The book is simply and clearly written and the teacher may find many helpful strategies. However, as Markides stated in 1985, it was already outdated then. This criticism is even more pertinent over a decade later. The selection of sentences and drills are no longer appropriate and unlikely to appeal to the modern child. Haycock did a yeoman's job to produce this book in 1933. It cannot however, be expected to reflect modern educational and technological advances.

In conclusion, the teacher has an extremely limited selection of books available. Their appeal to the modern child is questionable as modes of education have changed significantly. The four books reviewed in this section are dated 1933, 1974, 1975 and 1976. For over 20 years no widely accepted new book on teaching speech has been published. Moores statement in 1978 (cited by Subtelny, 1983:45) still resonates: "the lack of new material in itself would not be cause for alarm if there were evidence that the approaches had met with consistent success, but there is none ...".

### **1.2.2.3 Frequency of speech teaching**

The potential to improve speech performance by formal instruction can only be exploited if the subject is actually taught. The clearest research describing frequency of speech teaching remains the work of Markides (1970), who noted that only one out of the four schools for the Deaf he surveyed, taught speech as a special subject.

In an investigation conducted by the author in South Africa (Jan 1997), only one school of five designated a specific period to be set aside for speech instruction. It is less than surprising that teachers who have no adequate training or accessible resources do not teach speech.

Generally, there has been a decrease in the emphasis of speech training for the hearing-impaired over the last two decades (Otis-Wilborn, 1992). Among the reasons suggested are poorly trained teachers, and the anticipation of limited results, even after years of speech training (Hochberg, Levitt and Osberger (1980).



#### 1.2.2.4 Teacher attitude

Teacher attitude – although a less tangible measure than training, resources or frequency of speech teaching, is nonetheless existent potential, as the discussion below will demonstrate.

White (1990) notes that the literature reveals little of speech development as a function of psycho-social variables. He suggests that consequently the attitude of teachers towards speech instruction has remained a hidden variable and states. “It ... seems reasonable to postulate that the attitudes of teachers both individually and collectively may have a significant influence on the speech development of hearing-impaired children” (1990:131).

The research of Meadows 1981 (cited by McNeil and Jordan, 1990) formalises what is probably empirically known by most teachers of the Deaf: that, in comparison with teachers of non-handicapped children, they experience “higher levels of emotional exhaustion” (McNeil and Jordan, 1990:284) and perceive themselves as more stressed (Bambach, 1987). Meadow notes that one factor that contributes to teacher stress is perceived inadequacy in the performance of work-related activities (Meadows 1981 - cited by McNeil and Jordan, 1990). This factor is also identified by Johnson (1983) and Moores (1991 - cited by McNeil and Jordan, 1990). Feelings of inadequacy produce stress (Meadows, 1981; Johnson, 1983; and Moores, 1991 - cited by McNeil and Jordan, 1990), which has a negative effect on individuals (McNeil and Jordan, 1990).

The inadequacy that teachers experience when required to teach speech has been expressed over a period of decades.

In 1964 in a report published in London by Her Majesty's Stationary Office, speech teaching was found to be the subject that caused teachers of the Deaf to feel the most inadequate (Dale, 1977). This was reiterated by Ling in 1976 (cited by Bunch, 1987) and Dale 1977 (cited by Bunch, 1987).

The statement by Ling and Stoker in an introduction to a special edition of The Volta Review devoted to speech, written in 1992, shows that the situation had not changed : “Many fine educators and therapists have confided to us that expressive speech is the thing they find most difficult and threatening in their work with hearing-impaired children” (Stoker and Ling, 1992:1).

Looking more closely at their statement, the choice of the verb “confided” is telling. It suggests an air of guilty secrecy. Perhaps this is because teachers feel that they are somehow expected to have the skills that no-one is giving them. The hidden agenda implicit in the statement provides primary motivation for much of this study.

A pertinent question is whether it is possible to change this attitude. White (1990) answered this in some measure when he examined differences in teacher expectations across educational systems for the hearing-impaired. Interesting data emerged demonstrating differences in the way teachers feel about teaching speech. Teachers from certain programmes were more confident in their ability than were teachers from other programmes. This demonstrates that attitudes and perceptions of teachers should not be viewed as fixed or similar” (White, 1990). White postulates further: “It may be that significant gains will never be made in speech development until a fuller and richer appreciation of the emotions which underlie both the teaching and learning of speech are better understood and respected” (White, 1990:141). He suggests that there should be more investigation into determining the relationship between attitude and confidence in teaching speech and accentuates the need for research orientated in this direction: “... it seems incumbent upon all those interested in improving the quality of teachers of hearing-impaired individuals to find ways and means of assessing teachers’ attitudes and, where necessary, try to improve their attitude and perceptions related to speech” (White, 1990:140).

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### 1.2.3 CONCLUSIONS

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Reviewing the four areas discussed above a pessimistic picture emerges:

Teachers are not given adequate training.

Teaching materials are scarce and may be difficult for the average teacher to understand.

Speech is rarely taught in schools for the Deaf.

The attitude of teachers towards speech instruction is generally negative.

These factors should not be seen in isolation. They are linked in a self-perpetuating negative

cycle. Teachers who are untrained and are not provided with resources will have a poor attitude to speech and not teach it, and consequently, not gain in experience or expertise. Connor's evaluation in 1974 (cited by Subtelny, 1983:18) that speech teaching was the poorest-taught subject in the education of the Deaf remains true more than two decades later. It may also explain in part, as Ling and Stoker (1992) suggest, why relatively little has been written on the subject, and why over two decades the priority that educators place on competencies in speech-related areas has decreased dramatically (Grissham and Cochran, 1986; Sass Lehrer, 1986, cited by Otis-Wilborn, 1992).

The answer to the question posed at the beginning of this section – i.e., can speech be taught? - seems to be a qualified "yes". Despite all the negative aspects described, there is untapped potential. This view is well expressed by Gatty (1992:59-60), who sees both the negative aspects and the potential for change. Commenting on the negatives, she states: "Unfortunately..... proven methods of instruction cannot be assumed to be available. To make matters worse, there are few professionals with the expertise to implement effective speech programs and even fewer who can do this for children who have very profound hearing losses."

Yet, in a positive light, she notes the potential for change: "...this situation should not ... be seen ... as a cause of despondency. The inherent opportunity for improvement through research, program development and personnel preparation is tremendous. We may hope that a rising generation of informed, motivated, committed professionals will seize the opportunity" (Gatty, 1992:59-60).

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### 1.3 CONFUSION AND CONFLICT - SHOULD SPEECH BE TAUGHT?

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Having dealt with the disappointment that surrounds speech teaching, the next section deals with the confusion and conflict between proponents of different teaching methodologies. A new question is raised over and above whether speech can be taught, namely, **should** speech be taught?

With this question, entry is made into the battlefield of the “war of methods”, the long-standing, controversial and bitter debate of the “200-years war”. (Davis and Hardwick, 1979:311) between oralists - who maintain that Deaf children should learn to understand communication by lip-reading, supported by residual hearing and to express themselves using speech - and manualists, who argue that Deaf children should be taught signing, both to understand the communication of others and as a medium for self-expression. Although the fulcrum of the debate centres on language, there are also important implications for speech as it is the vehicle for verbal language.

Proponents of each method argue their point of view vigorously and often vituperatively. Northern and Downes (1979:309) summarise the argument thus: supporters of the oral method feel the child who uses the manual system will be forced into a Deaf society because of his limited communication skills. Proponents of the manual system feel that Deaf children learn more easily when taught primarily through the visual mode and thus develop a wider base of knowledge.

The rational tone of the extract above is not a true reflection of the passion and conflict that have characterised the ongoing debate. It remains a subject that evokes a seemingly endless flow of conflicting and often purely emotional responses (Wagenfeld, 1996) and, as Davis and Hardwick (1974) note, the passion associated with the controversy is difficult to describe and detrimental to the education of Deaf children. On a psychological level it has caused unhappiness and confusion - bewildered parents, confused administrators, wondering public and vulnerable children caught in the turmoil (Davis and Hardwick, 1979). On an academic level, the polarisation between educators has retarded progress. Davis and Hardwick (1979) ascribe the paucity of research to the lack of co-operation between proponents of opposing views. Over and above the lack of research, the objectivity of existing research needs to be questioned. An example of this is reviewing the choice of publications of two major journals in Deaf education - The Volta Review and the American Annals of the Deaf. Davis and Hardwick (1979) note cogently that articles published in the Volta Review support the oral point of view, whereas articles published in the American Annals of the Deaf support the manual standpoint. There is a clear bias demonstrated by the choice of research selected. As Northern and Downes (1979) note, few experts have the ingredient of objectivity when evaluating the field of Deaf education. They continue to protect their own self-interest and attempt to conceal their particular biases.

The following section describes the methods with special emphasis on the role of speech teaching within each philosophy.

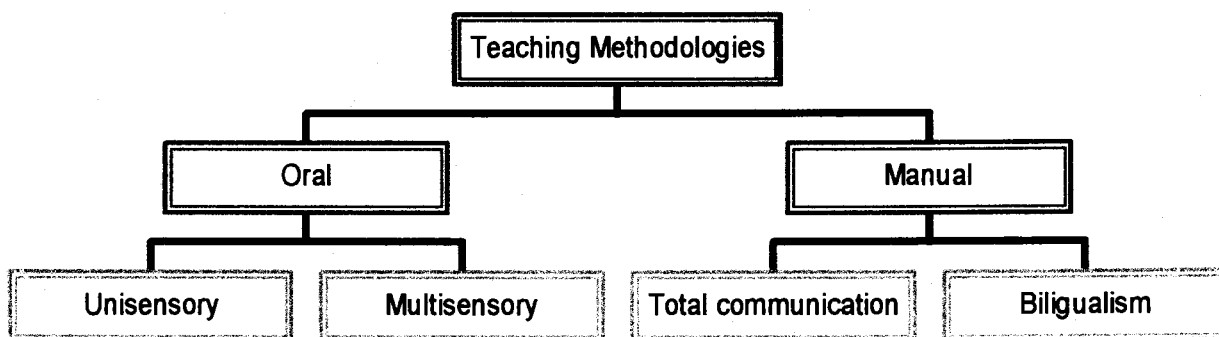
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### 1.3.1 TEACHING METHODOLOGIES REVIEWED

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The main teaching methodologies are summarised in Figure 1.1.

**Figure 1.1: Major teaching methodologies**



Source : Original

Figure 1.1 summarizes the discussion that follows. It shows how the two main methodological branches, oral and manual, can be respectively subdivided into unisensory and multi-sensory and total communication and bilingual. The following discussion is not meant to provide a complete description of the methodologies, but to form a basis for understanding the emphasis and attitude each awards to speech teaching.

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### 1.3.1.1 THE ORAL METHOD

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Subsumed beneath this heading are two methods, which differ so greatly that they should be considered as distinct. These are the unisensory and the multi-sensory methods.

- **The unisensory method**

A confusing array of labelling variations describes this method. These include: auditory approach, acoupedics, auditory oral, acoustic auditory, auditory global and auditory verbal. Further confusion is caused because some writers do not use the terms appropriately. Ling (1993) describes the ill effects of incorrect labelling as the greatest potential impediment to the growth and acceptance of this method, especially when the label is used to describe inferior work.

The basic principle of this approach is that hearing is used as the primary avenue for communication learning. Early diagnosis and intervention are kernel elements. (Northern and Downs, 1979), as is the absence of attention to lip-reading (Northern and Downs, 1979). Pollack (1970:1979), a pioneer of this method, states emphatically. "There can be no compromise because, once emphasis is placed upon 'looking', there will be divided attention and the unimpaired modality, vision, will be victorious."

Parents need to spend many hours a day working with their children (Davis and Hardwick, 1979). In South Africa, the Carel du Toit Centres in Cape Town and Pretoria use this method exclusively.

Where this method is successful, children are mainstreamed (Du Toit, 1981), as are 80% of children from the Carel du Toit Centre in Cape Town (Spencer-Jones, 1996). Speech development is relatively normal (Du Toit, 1981), not characterised by the typical faults demonstrated by Deaf children generally (Pollack, 1970). Extensive speech instruction is

therefore not necessary. Such children are not suitable candidates for the proposed speech programme described in this study, which targets Deaf children who exhibit a specific, predictable error pattern.

- **The multi-sensory method**

A natural approach to language, early intervention and maximal exploitation of residual hearing may also occur where the second oral approach is followed. A major difference, however is that children are taught to formally lip-read by attending to mouth cues.

Many of the children taught in this way have the phonological errors common to the Deaf (Pollack, 1970), which have been described by numerous writers (e.g. Haycock, 1933; Hudgkins and Numbers; 1942; Ling, 1976, etc).

Children educated according to the oral multi-sensory method must rely solely on speech for all communication needs - receptive and expressive. Intelligibility is therefore a priority. It is possible that not all children have the potential for intelligible speech. In such cases, an unrealistic burden may be placed on the curative power of speech training and disappointment may consequently be experienced by teacher and pupil alike.

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### 1.3.1.2 THE MANUAL METHOD

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There are two main branches of this method: total communication and bilingualism.

- **Total communication**

This system involves the use of all modalities, sign language, finger spelling, amplified sound, speech, lip-reading, reading, writing, facial expression, mime and gesture (Lynas et. al., no date). Proponents argue that total communication improves speech and linguistic performance (Moore, 1991), whereas antagonists argue that total communication impoverishes speech and linguistic performance (Lynas, 1994).

Two investigations, coincidentally appearing in a single issue of the *Journal of the British Teachers of the Deaf* (Volume 12, Number 6, 1988) show the contrast of focus between protagonists of oral and total communication methods. Both articles evaluate progress of Deaf children who changed from an oral to a total communication approach (whether the oral approach was unisensory or multi-sensory is unclear).

In the first article Evans, looking at parent-child communication, concluded that parents understood far more of their children's communication and that there was an even more marked improvement in the amount of communication children understood from parents. In the second article Markides (1988) viewing intelligibility, describes a less favourable result in terms of speech. Intelligibility decreased significantly over a five-year period once signing had been introduced.

- **Bilingualism**

Critics of total communication are not drawn exclusively from the oral camp. There are increasing numbers of people who also favour signing, but not what they see as the contrived sign system of Total Communication (Lynas, 1994). These are the bilingualists who assert that Deaf children have a right to "their own language, the natural sign language used by deaf people within their own community" (Lynas, 1991:145).

Bilingualists do not accept the medical model of deafness as a disability. As Reagan (1996:2) explains, they regard Deaf individuals as belonging to a subculture who are a linguistic minority speaking American Sign Language, "and are no more in need of a cure than are Haitians or Hispanics". Under this system combined oral/manual communication and sign systems based on spoken languages are terminated (Moore, 1991).

The case for bilingualism is essentially a moral one (Lynas, 1994). A major practical problem is that at least 90% of profoundly deaf children are born of two hearing parents who are unlikely to know natural sign language (Lynas, 1994). Bilingualists do not regard speech as an important, or even necessary skill. It is doubtful, therefore whether children educated according to this methodology will be motivated or be given educational opportunities to



develop speech.

The approach of each method with regard to intelligibility speech lessons, and potential for deviant speech production, summarised in table 1.3.

**Table 1.5 : Comparison between the relative importance accorded to intelligibility, speech lessons and potential for deviant speech by different educational methods**

Oral or manual	Method	Intelligibility	Perceived need for Speech lessons	Potential for deviant speech
Oral	Unisensory	Very important	Not important	Low
	Multi sensory	Very important	Very important	High
Manual	Total Communication	Less important varies according to school	Probably less important	Probably high
	Bilingualism	No importance	No importance	Unknown/ Probably high

**Source:** Original

As can be seen from Table 1.5, the need for development of intelligibility and provision of speech lessons varies according to the goals set by educators of each methodology. The potential for deviant speech is probably extremely high among children educated according to bilingualist philosophies. No data are currently available to substantiate this. However, it seems logical to assume this will occur where hearing aids and cochlear implants are not seen as beneficial, but as irrelevant cures for a sickness that does not exist (Aldridge, Timmons and Wood, 1995; Cohen and Walbman, 1996), and speech is not considered necessary for communication. Intelligibility is an important goal for both unisensory and multi-sensory oral methods. However, the need for speech lessons and the potential for deviant speech differ. The goals of educators who follow the Total Communication system will vary from school to school – generally, it may be speculated that intelligibility and the perceived need for speech lessons will be rated as less important than for oral protagonists, because signing offers an alternative communication route. It is apparent that the teaching of speech is dependant to a large degree on the methodology.

### 1.3.2 Conclusions drawn

The aim of education is to maximise the potential of a child – this applies equally to the speech of the Deaf albeit speech potential may be limited.

A school situation provides the infrastructure for basic knowledge to be imparted. For Deaf children, this includes the provision of speech lessons - as basic an educational need for Deaf children as the Three R's. The current lack of teaching is, in Monsen's (1981:845) words, "a bizarre state of affairs", since the lack of speech proficiency is a primary reason why the Deaf child's educational needs are different.

A basic principle of education is that lessons should be psychologically healthy experiences that are interesting, challenging and growthful. Speech lessons for the Deaf should follow these tenets. The emotional well being and self-concept of the child are of paramount importance. As Northern and Davis (1979:308) cogently state: "Intelligible speech in an emotionally disordered mind is a useless function."

The proposed policy on the education for the Deaf in South Africa, 1994, shows acceptance for these principles. Regarding desirability of teaching speech and locating it within the infrastructure of a school for the Deaf, the proposed policy states that a speech therapists should be part of the teaching team, and that speech should be offered as a "supplementary and compulsory" subject from pre-school through to secondary school (Proposed Policy on Education of the Deaf, Oct 1994:11). The identity of the Deaf learner be respected and every child should be provided with the opportunity to learn to speak to his own potential without co-ercion (Proposed Policy on Education of the Deaf, Oct 1994).

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## 1.4 HOPE: CAN MODERN TRENDS INFLUENCE SPEECH

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There are further two avenues that have important implications for speech acquisition. The first is audiological i.e. cochlear implants and the second educational i.e. the policy of inclusion.

### 1.4.1 COCHLEAR IMPLANTS

There is uncertainty regarding the benefits of cochlear implants for congenitally deaf children, as progress has not been widely evaluated (Fryauf - Bertchy, Tyler, Kelsay and Ganz 1992). Staller, Beiter, Brimcombe, Mecklenberg and Arndt (1991) found congenitally deaf children showed less improvement compared with children with acquired deafness. Long-term expectations are as yet undefined and more longitudinal studies are needed (Fryauf-Bertschy, Tyler, Kelsay, Ganz, 1992).

Looking at the overall picture in terms of benefit to speech **perception**, Tellings (1996) notes the following positive generalisations from recent publications: All children can perceive more environmental sounds and a majority can use the implant as a help for speech reading.

The situation for speech **production** is complex. Children may retain speech production characteristics typical of profound deafness even after implantation (Osberger, et.al., 1993). This may be more frequent in children who received cochlear implants when older – length of time prior to implantation has been described as having a negative impact on speech intelligibility (Osberger et.al., 1993 cited by McCaffry 2000) Higgens et.al., (1996 cited by McCaffrey, 2000) suggest continued deviance of speech production, despite improved auditory information is a consequence of alternative feedback strategies established prior to implantation that pre-empt development of auditory based strategies potentiated by the implant.

The above suggests the following: where speech production exhibits characteristics typical of Deaf speakers, a potential speech programme should target such errors. Where speech production does not exhibit these characteristics, such a speech programme is of no value.

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## 1.4.2 INCLUSION

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This issue is currently widely debated (Powers 1996). The United Kingdom, United States and Australia are involved in mainstream education for the Deaf (Powers 1996) and, Lynas, in 1999

states most Deaf children in the United Kingdom are educated in the mainstream. It is a newer, untried concept in South Africa, and the implications for Deaf Education are being debated.

Several educational bodies support inclusive education for the Deaf (telephonic conversation with the Director of Support Services, 7 Feb, 1996), whereas DEAFSA, representing the Deaf of South Africa, oppose to the system. (Education for the Deaf, Proposed Policy, October 1994).

Supporters of inclusion cite several advantages.

- **Language and speech development**

Harrison (1993) describes, speech and language as developing normally and voice quality as pleasant.

- **Social development**

Placing children with disabilities in regular classes enhances social integration (Stinson and Lang, 1994).

- **Economic advantages**

Efficiency and cost-effectiveness of the schools are improved (Powers, 1996).

Conversely, Stinson and Lang (1994), in an article tellingly entitled "Full Inclusion: A Path for Integration or Isolation?", give four areas in which the needs of the Deaf child are not met.

- **Social development**

Empirical research indicates minimal to non-existent interaction between the Deaf and hearing – true for both for young children and adolescents. They believe that Deaf students placed alone in schools are likely to encounter persistent frustration and negative experiences that lead to poor development of social skills, little participation in activities and much loneliness.

- **Cultural considerations and self-identity**

Special schools for the Deaf provide for everyday interaction with a large number of Deaf peers and offer links to social organisations. Pupils may use a signing system, either as official school policy or informally. The lack of signing and support for interests in Deaf culture at the neighbourhood public school is likely to complicate development of the student's self-identity.

- **Participation in classroom dialogue**

Students may struggle to understand and not participate in class because of communication problems.

- **Unwritten curriculum**

The hearing child learns, for example, social codes and attitudes, health habits and games naturally. In the mainstream setting, the Deaf student has difficulty accessing this unwritten curriculum.

The following deserve consideration with regards to speech development. Firstly, the Deaf child will have a real need to develop intelligible speech if he is to be understood by his hearing peers. Secondly, the class teacher will need to accept responsibility for helping the child with his speech. If a communication pathologist is available, the teacher can assume a supportive role. If no communication pathologist is available, the class teacher will need to directly assist her Deaf pupil in improving speech proficiency.

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## 1.5 RESEARCH QUESTION, ANSWER AND AIMS

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### 1.5.1 RESEARCH QUESTION

In the light of the preceding discussion, speech teaching emerges as a problematic area. Two major components of the problem are lack of resource material and teacher training. The research question addressed by this study is: can a practical solution to these problems be found?

### 1.5.2 RESEARCH ANSWER

A speech programme can, simultaneously, provide both training and resource material. Three research routes are employed to demonstrate this. Firstly, **theoretical research** – this describes documented issues and theories drawn from literature, so that the study is seen to stand on a sound theoretical infrastructure. Secondly, **empirical research** – this investigates attitudes and solutions proposed by educators of children with hearing losses. Thirdly, **developmental research** – this sets out the design and theory of the programme, based on preceding theoretical and empirical research, providing a practical contribution to the current knowledge base of speech science for the Deaf.

### 1.5.3 RESEARCH AIMS

There are three aims:

- **Aim One: To execute theoretical research so that the design of the proposed speech programme is seen to rest on valid theoretical assumptions.**

Subaim One: To describe background issues in order that the proposed speech programme is seen to have taken these into account.

Subaim Two: To describe the pathology of the speech of the Deaf so that the rationale for selection of faults to be addressed by the proposed speech programme can be appreciated.

Subaim Three: To describe theories of speech teaching for the Deaf – historically, currently and potentially – in order to provide a rationale for theories and approaches incorporated in the proposed speech programme.

- **Aim Two: To execute empirical research, which will be used as a basis for the development of the proposed speech programme.**

Subaim One: To investigate and describe attitudes of teachers towards speech training for Deaf learners in order that these are taken into account in the proposed speech programme.

Subaim Two: To enlist the aid of teachers in problem solving for the creation of a new speech programme, thereby widening the repertoire of possible solutions.

Subaim Three: To assess the needs of school principals in relation to a speech programme for Deaf learners.

Subaim Four: To access the knowledge of communication pathologists, particularly in regard to Ling's (1976) speech programme.

- **Aim Three: To concretise developmental research in the form of a classroom-orientated speech programme designed for children with hearing losses.**

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## 1.6 ORGANISATION OF THE THESIS

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In accordance with the research aims, the thesis is divided into four complementary sections:

Section one describes theoretical research - congruent with Aim One (chapters 1-3).

Section two describes empirical research - congruent with Aim Two (chapters 4-5).

Section three describes developmental research congruent with Aim Three (chapter 6).

Section four evaluates the proposed programme (chapter 7).

- **Theoretical research**

**Chapter one** provides an introduction. It describes problems relating to the issues of speech teaching in terms of disappointing results, conflict between protagonists of different philosophies and hopeful developments that may solve some of these problems. Research question, answer and aims were placed against this background. A section dealing with terminology concludes the chapter.

**Chapter two** sets out variables that affect speech proficiency and describes common speech errors of Deaf speakers. Subsequent proposals are based on this theoretical framework.

**Chapter three** delineates major teaching theories and models. The purpose is to assess what is currently available and suitable for inclusion in the proposed programme.

- **Empirical research**

**Chapter four** describes the research methodology.

**Chapter five** discusses the results of the investigation.

- **Developmental research**

**Chapter six** sets out the theoretical model of the proposed speech programme.

- **Evaluation and conclusion**

**Chapter seven** evaluates the proposed programme.



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## 1.7 CLARIFICATION OF TERMINOLOGY

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Various terms need to be clarified.

### 1.7.1 Terms describing a loss of hearing acuity

- **Outdated terms**

“Deaf and dumb” and “Deaf mute”. These terms are used in a historical context only. They are regarded as negative and unacceptable by Deaf people (Policy Document on the Education of the Deaf, DEAFSA, October, 1993:7).

- **Currently used terms**

Deaf; hearing-impaired; handicapped in hearing; aurally handicapped. No one term satisfies all authorities in the field (Knauf, 1984).

Ling (1976), currently the leading figure in speech teaching for children with hearing losses, uses the term “hearing-impaired” preferentially to apply to a wide range which includes the hard-of-hearing and the totally deaf child.

Calvert and Silverman (1983), well-known authorities in the field of Deaf education, state that they use the terms “deaf” and “hearing-impaired” interchangeably, because agreement on the precise definition of each is still not universal.

Personnel at the Institute Voor Doven Holland use the term “deaf” preferentially and precisely. They believe use of the broad, inclusive term “hearing-impaired,” causes confusion. This idea is well expressed by van Eindhoven, the then director of the school (1983:65). “You have asked me to speak about ‘Remediation With Hearing-Impaired Children’. With this proposal of the

subject, you have confused me a little. Why? I don't know what you mean by 'hearing-impaired'. Do you mean 'deaf' and 'hard of hearing' children?" van Uden, pioneer of the institute, uses the term "deaf" to describe individuals who have losses of 90 decibels or greater and who are deaf before language develops. He excludes children who have a hearing loss in the high frequencies only, and have relatively intact hearing in the lower frequencies (van Uden, 1982).

Pollock (1970), pioneer of the unisensory method, was not in favour of the term "deaf". She regarded it as having negative and outdated connotations.

The Deaf Federation of South Africa states: "... in South Africa, as elsewhere in the world, the only culturally accepted term is 'Deaf'. The term 'hearing-impaired' is not viewed as culturally acceptable." They distinguish between "Deaf" written with a capital "D" and "deaf" written with a lower case, small letter "d". The difference is explained as follows: "Deaf people view themselves as belonging to a different and separate minority cultural group with its own language, history, values, norms and morals. For that reason, the term 'Deaf' is written with a capital 'D'. Similarly, one will not speak of the 'Zulu people' and use a lower case 'z'. This practice has been internationally accepted" (Proposed Policy Document on Education for the Deaf, Compiled by DEAFSA, October 1994:7).

- **Rationale for chosen terminology**

The terms Deaf, deaf, and hearing-impaired are used according to various criteria: firstly, terminology of quoted authors is not changed. While it is acknowledged that this may lead to inconsistency as well as imprecision – in the way van Eindhoven describes – changing the terms of other authors is considered to have the potential to corrupt their intended message – especially with regard to contentious agendas.

When used to express this writer's view terms are used specifically and purposefully. The term "hearing-impaired" is used to designate a wide range of hearing losses in an imprecise way, to include individuals who are hard of hearing through to those who have profound losses. The term 'Deaf' with a capital 'D' is used to designate subjects addressed by the proposed speech programme – namely learners whose hearing is such that speech is compromised to the extent that they manifest predictable speech production errors congruent with what is known as "Deaf speech". This means that the degree of hearing loss is not the

only qualifying factor. Learners who have received timeous rehabilitation may exhibit normal/near normal speech despite the fact that they have severe /profound hearing losses. The term 'deaf' with a small 'd' refers to aspects of a loss of acuity, such as in the phrase 'profoundly deaf'.

### **1.7.2 Terms relating to personnel who assist pupils with the development of speech competency**

The complex problems of the Deaf require the co-operation of a multi-disciplinary team (Otis-Wilborn, 1992). Concerning the development of speech competency at schools, the main personnel are the school audiologist, the teacher and the communication pathologist (Calvert 1980; Otis-Wilborn, 1992).

A collaborative approach is necessary (Otis-Wilborn, 1992). The audiologist is not directly involved with teaching, but with selection of apparatus to improve speech reception. The communication pathologist has more theoretical knowledge, whereas the class teacher has greater opportunity to incorporate speech skills in natural settings (Otis-Wilborn, 1992). Each team member has a unique complementary role.

Major educationalists concur that speech teaching is a shared responsibility, a significant proportion of which rests on the teacher. This is evidenced by the following references:

- Ling's view is that once the child is at school, the class teacher should be primarily responsible for speech teaching. If any additional lessons are given by another person (for example, a communication pathologist), the teacher should ensure that they are congruent with the goals she has set for the child (Ling, 1976).
- Calvert and Silverman state: "... in a school, we do not depend just on a designated specialist, helpful as such may be, to improve the speech of children, but rather that **every teacher is also a teacher of speech**. We cannot stress this point too strongly" (Calvert and Silverman, 1979:4) (original author emphasis).

- van Uden's view is that although the class teacher should be able to do much of the work, "the refinement of speech demands specialised training and experience" (van Uden, 1971). He considers the specialist speech teacher to be either a teacher of the Deaf, or alternately a communication pathologist who has received additional training in speech teaching for the Deaf (Maas, 1984).

It is clear that, whatever the level of involvement, the teacher plays a significant role in speech development.

In addition to communication pathologist and teacher, parent and teacher assistants are included in the multi-disciplinary team. Learners may be assigned speech homework, either to reinforce sounds learned, or to make parents aware of specific speech targets at which the child is currently aiming. In this way, parents are encouraged to incorporate speech gains out of school. For example, the parent may be instructed to help the child identify and pronounce family names containing a specific phoneme. In less ideal situations where no speech instruction is available, the parent may need to take on a more active role. A teacher assistant who is trained to teach speech can aid the teacher, especially with regard to class organisation during individual speech lessons.

The term "teacher", as used in this study, refers to the person responsible for teaching speech. This may be the teacher, communication pathologist or even the parent. However, since the programme is designed for use in the classroom, the term "teacher" generally refers to the class teacher who is, at that time, is teaching speech. A fundamental principle is that the programme should be co-ordinated between all members of the multi-disciplinary team. The term "communication pathologist" is used consistently, in preference to "speech therapist" – the choice is idiosyncratic.

### **1.7.3 TERMS RELATING TO DEVELOPMENT RESEARCH**

The term 'preliminary programme' refers to an early form of the speech programme before empirical research was conducted. The term 'proposed programme' refers to the speech programme in its developed form, modified by the input of the empirical research.

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## 1.8 CONCLUSION

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This chapter has provided the argument to support the concept that a classroom speech programme for children with hearing losses is needed and is viable. The next chapter moves away from the philosophical nature of this discussion to an area that deals with concrete aspects. It places under the microscope the pathology that the study addresses – the deviant speech patterns of the Deaf.

## CHAPTER TWO : THE SPEECH OF THE DEAF

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### 2.1 INTRODUCTION

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The wide focus of chapter one now narrows to describe concrete observations relating to the problems of the speech of the Deaf, which are generally a predictable sequel to auditory loss (Yoshinaga-Itano, Stredler-Brown and Jancosec, 1992). The difference between the speech of the Deaf and the hearing is so marked as to render it different from normal speech in all aspects (Black 1971, cited by Markides, 1983), so distinctive that it is recognisable in any language (Monsen 1983), so generic that it is already noticeable in early infancy (Yoshinaga-Itano Stredler-Brown and Jancosec, 1992) - by six months Deaf infants can be seen to produce a smaller repertoire of phonemes than hearing infants (Stoel-Gammon and Otomo 1986) – and so ineluctable that even when deafness is suddenly acquired in childhood, changes in speech progress rapidly and predictably. Binne, Daniloff and Buckingham (1982) describe the speech of a five-year-old boy who suffered a profound hearing loss following meningitis. They state that six weeks after the hearing loss, “remarkable changes had occurred” in speech, and by nine months speech intelligibility had decreased by 30% (Binne et. al., 1982:47). The faults they report are congruent with those of Deaf speakers.

The aim of this chapter is to describe the speech of the Deaf, so that the design of the proposed programme (Chapter 6), is seen to rest on valid theoretical principles. This aim will be realised by discussing the variables that affect speech proficiency and the typical speech errors of the Deaf. Both subjects are extensive and thus definitive accounts are beyond the scope of this work. Therefore, only aspects, that have a direct bearing on the proposed speech programme, will be included. Where literature reflects opposing views the theoretical stance adopted in the proposed speech programme is explicitly stated.

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## 2.2 VARIABLES THAT AFFECT SPEECH PROFICIENCY

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Speech proficiency is influenced by a multitude of factors (Davis and Hardwick, 1981) and identification of every conceivable one would be impractical. Therefore only those gauged as the most relevant will be described.

### 2.2.1 DEGREE OF DEAFNESS

The amount of hearing is crucial - the better the child's hearing levels, the better his speech will be and the easier to develop (Calvert, 1982; Deal and Haas, 1996). This is demonstrated in the table below.

**Table 2.1**

**The relationship between degree of hearing loss and speech deviations**

Hearing levels for speech	Speech deviations anticipated
0 to 30 decibel loss	No speech deviations
30 to 55 decibel loss	Some defects in articulation
55 to 70 decibel loss	Abnormalities in articulation and voice
70 to 90 decibel loss or greater	Articulation and voice quality likely to be abnormal - will need to be taught to speak
90 decibels or poorer	Articulation and voice quality abnormal – speech must be developed with careful and extensive training

Source: Extracts from Calvert (1982:638)

It is clear from Table 2.1 that a loss of no more than 30 dB means that the speaker has defects in articulation, but suprasegmental production is relatively normal. Once a loss of 55 dB is sustained, suprasegmental aspects are also involved.

In reality, however, the relationship between speech performance and hearing level is less predictable and more complex than demonstrated in Table 2.1. As Monsen (1978:215) states: “A ‘good’ audiogram is a fairly reliable indicator of intelligible speech, but a ‘bad’ audiogram does not necessarily always predict poor or unintelligible speech.” The audiogram describes **how much** hearing is lost, but does not give information as to the **quality** of residual hearing available (Ling, 1976), or how hearing has been **influenced** by subsequent aural rehabilitation (Ling and Milne, 1981).

An exception to the way degree of deafness affects speech proficiency relates to high-frequency deafness, where there is a relatively mild loss for the low frequencies and a severe to profound loss for high frequencies. Such a child may score the same average decibel loss as a profoundly Deaf subject, but speech performance is generally relatively intact (Steward, 1969). Because of this, van Uden (1982:135) excludes children who have “a so-called ski slope hearing loss” from his criteria of what constitutes a Deaf child.

### 2.2.2 AGE AT ONSET OF DEAFNESS

Age when deafness is sustained is a primary factor in determining the disabling effects of a hearing loss (Davis and Hardwick, 1981). Early onset of deafness generally has a devastating effect upon the development of spoken language skills (Geers and Toby, 1992), and is probably the greatest barrier to spoken language (Ling, 1978, cited by Whitehead and Barefoot, 1992). A child with a pre-lingual hearing loss will have a significantly greater speech problem than the child who acquires a hearing loss post-lingually (Deal and Haas, 1996).

### 2.2.3 TYPE OF DEAFNESS

The type of Deafness impacts on speech development (Deal and Haas, 1996). There are four types of deafness: **conductive, sensorineural, central and mixed**. The problems of a conductive loss can often be overcome by medical means or amplification (Davis and Hardwick 1981). Consequently, speech may not be significantly affected. In contrast a sensorineural loss causes serious speech perception difficulties (Davis and Hardwick 1981) with corresponding speech pathology. In cases of central deafness, sensitivity for sound is unimpaired. Problems arise in the way the brain processes and encodes messages, and this is then reflected in speech production. Any of the types of deafness may occur together constituting a mixed loss, affecting speech according to how the elements of the disability are combined.



## **2.2.4 AGE OF THE CHILD AT DIAGNOSIS AND COMMENCEMENT OF AURAL REHABILITATION**

The sooner the child is diagnosed, fitted with a hearing aid and exposed to a programme of language and speech stimulation, the better his prognosis for speech (Davis and Hardwick, 1981; Ling, 1990). There is a critical period for language learning between birth and three years (Caleffe-Schenk, 1992), which can only be accessed if the hearing loss is detected early and, the child timeously fitted with quality hearing aids and exposed to a programme of speech and language stimulation (Caleff-Schenk, 1992).

## **2.2.5 QUALITY OF AN EARLY AURAL REHABILITATION PROGRAMME**

The quality of aural rehabilitation will influence speech development (McConnell and Horten, 1970; Balow and Brill, 1975 cited by Ling, Ling A H and Pflaster, 1977; Deal and Haas, 1996). This includes the quality of hearing aids, language and speech instruction (Pollack, 1972).

## **2.2.6 QUALITY OF LATER SPEECH TEACHING**

An important variable, considered by some to be the most crucial (Di Carlo, 1964, Markides, 1970) is the quality of speech teaching available. The rationale of this study is based on acceptance of this variable. Systematic speech teaching has been shown to improve speech proficiency. (Yoshinaga-Itano et. al., 1992).

A note of caution must be sounded against misplaced optimism which will lead to disappointment. Markides (1970 cited by Isseldyk, 1982:62) appears to hold unrealistic expectations when he describes speech teaching as so powerful a variable, that it has the potential to render degree of hearing loss of secondary importance. The assumption held for this study, is that speech teaching can make a significant improvement within realistic bounds of expectation.

## **2.2.7 ADDITIONAL DISABILITIES**

Additional disabilities affect speech development adversely (Deal and Haas, 1996). Disabilities such as cerebral palsy or blindness, are obvious barriers to speech proficiency. However, other more subtle problems may be masked by the overarching effects of deafness. van Uden (1981) has described less obvious motor and cognitive problems that may compromise speech.

He notes two motor problems, choreiformity and dyspraxia. Choreiformity is a condition where the child makes small, jerky, involuntary movements. If such movements are present in the fingers, they are almost always present in the lips and tongue (van Uden, 1981). This has obvious negative implications for speech production. Dyspraxia, termed “clumsy speakers” by van Uden (1981:113), manifest problems of control of speech organs. Synergistic movements of the speech organs are vital for accurate articulation (Calvert, 1982).

Cognitive problems labelled by van Uden as “dysymbolia”, describe aspects of central deafness.

He notes that dyspraxia and dysymbolia also occur in hearing children, but have less severe consequences. “In deaf children even a slight degree of these disturbances is already dangerous... the normal hearing child does not show any learning difficulty because they can compensate by hearing” (van Uden, 1981:117).

### **2.2.8 MOTIVATION**

The attitude of both the family (Davis and Hardwick, 1981; Deal and Haas, 1996) and the school (Vorce, 1974) are important determinants. A child’s speech attempts need to be positively reinforced.

Other influences on motivation are mode of communication used (signing or oral) and type of educational environment. A child in a mainstreamed environment may be motivated to speak more intelligibly in order to be understood by hearing peers, as compared with a child who attends school for the Deaf, where intelligible speech has little advantage among peers. In an environment where signing is used, a child may be less motivated to speak intelligibly, since he has recourse to another mode of communication, as compared with a child in an exclusively oral educational environment. However, where limited verbal skills are the only option, and the child struggles to be understood without recourse to signing, it is speculated that vocal strain may result and deviant strategies, such as exaggerated mouth movements, may be employed in an effort to be understood. These may be detrimental to speech performance (2.3.1.6). Paradoxically, increased motivation may impact negatively on speech performance.

### **2.2.9 AMPLIFICATION**

The quality of amplification and the consistency with which it is applied is an important factor in speech development (Deal and Haas, 1996).

### 2.2.10 INTERCONNECTEDNESS OF VARIABLES

The nine variables described do not stand in isolation, but operate within a fluid dynamic. For example child A, with a more severe hearing loss than child B, may develop better speech if child A is diagnosed and rehabilitated more timeously and effectively, and born into a family who value and reinforce intelligible speech more positively.

### 2.3 SPEECH AND VOICE ERRORS COMMON TO THE DEAF

There is a complex interrelationship between errors. In this regard Smith (1980, cited by Markides, 1983:101) comments: "... the deaf child does not have a speech problem. The speech problems exist in bunches or, more accurately, in stacks. A bunch has the possibility of being taken apart, so that one part can be tidied up at a time. A stack has one error built on another in some unknown order."

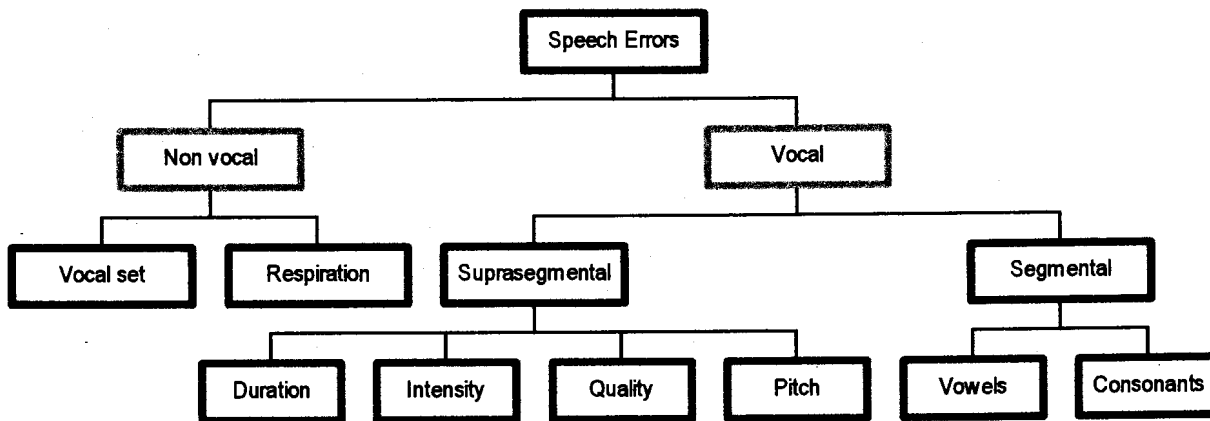
This section attempts to metaphorically "tidy" these stacks, thereby making the subject easier to view and comprehend. Two routes are used, systematic categorisation of errors and viewing speech errors from the vantage point of causes.

Systematic categorisation provides a sense of order by showing that the errors of speech of the Deaf are not random, but follow predictable patterns. This has been asserted by numerous writers over decades – e.g. (Haycock, 1933; Dodd, 1976; Abelhamied, Waldron and Fox, 1990).

Viewing speech errors from the vantage point of causation demonstrates an underlying logic to errors. Ling (1991) states pertinently that, problems can generally be treated more appropriately when causes are accurately identified.

Analysis of speech is divided into two main sections: firstly, non-vocal aspects of speech -vocal set and respiration – and, secondly, vocal aspects of speech - suprasegmental and segmental production. Because of the often inextricable relatedness of problems, a degree of repetition is unavoidable. The organisation of the discussion is shown in figure 2.1.

**Figure 2.1 Organisation of discussion relating to common errors of speech of the Deaf**



Source : Original

Figure 2.1 shows that the discussion starts with non-vocal aspects of speech production, namely vocal set and respiration, and proceeds to vocal aspects – suprasegmental features – namely duration, intensity, quality and pitch - and segmental aspects – namely production of vowels, consonants and connected speech.

### 2.3.1 NON-VOCAL ASPECTS OF SPEECH

This refers to speech functions that are not characterised by vocalisation.

#### 2.3.1.1 Deviant vocal set

The term “vocal set” has been coined for this study because of the absence of a satisfactory alternative to describe the concept. Gatty (1997:57) uses the term “posture,” in the following account to describe certain aspects of vocal set. Her description, however, does not encompass the total scope of the concept.

“Intelligible speech requires the talker to have relaxed control of the speech mechanism and maintain reasonable flexibility of the articulators. A velum which is normally lowered during speech produces nasality. Unnatural posture of the larynx and pharynx affect both pitch and voice quality. The jaw and tongue need to be mobile and flexible to produce patterns at a reasonable rate and the whole mechanism must be supported by adequate breath control.” (Emphasis added)

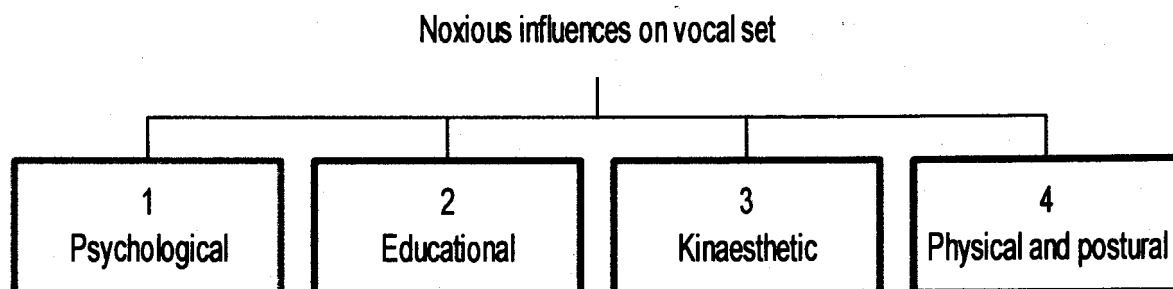
In the extract above, Gatty describes a variety of vocal behaviours necessary for the production of normal speech. However, she does not link these behaviours in a single dynamic.

The term “vocal set”, as used in this study, defines a concept that includes and extends the speech behaviours described by Gatty. It is an all-encompassing term that describes a multitude of simultaneously occurring factors, including the mindset of the speaker, his body posture, posture of the speech organs, and physical, neural and physiological changes to the speech organs, all of which result from his hearing loss. **The vocal set of the Deaf speaker will adversely affect speech even before a single syllable is uttered.**

Normal vocal production requires a complex and subtly orchestrated synchrony of vocalisation and physical movements. A deviant vocal set disturbs this synchrony, - analogous to an orchestra whose instruments, are faulty and whose playing is mistimed. This section analyses the structure and functioning of the vocal instrument that is necessary for normal speech.

Five influences are regarded as adversely affecting the vocal set of the Deaf speaker; psychological, educational, kinaesthetic and changes to physical, neural and postural aspects of the speech mechanism.

**Figure 2.2 : Noxious influences on the vocal set of the Deaf speaker**



Source: Original graphic supported by information from the following sources: Haycock, 1933;Hudgkins, 1937 (cited by Subtelny, 1989); Millard and Erikson, 1964, cited by McClumpha, 1969; Mazaheri, McClumpha, 1969; Stewart, 1969; Helm, 1970, cited by Black, 1971; Ling, 1970 and 1976; Ringel et al, 1972, cited by van Uden, 1987; Vorce, 1974; Wyke, 1974, cited by Binnie, Daniloff and Buckingham, 1982; Wets and Stalbech, 1975, cited by van Uden, 1987; Calvert, 1978; McGarr and Osberger, 1978, cited by McGarr, 1980; American Annals of the Deaf, Nov 1981, Vol 126 (no author: 911); Monsen, 1983; Stevens et al, 1983; van Uden, 1987; Perigoe, 1992

Figure 1 provides a graphic representation of five noxious influences that impact on the speech of the Deaf. Each of these is discussed in the section below.

- **Psychological**

When a hearing person speaks, he takes for granted the fact that he will be understood. Not so for the Deaf person, who soon realises that many of his utterances are not intelligible. Even before speaking, he is under psychological tension. He must try hard.

Heightened emotion leads to involuntary physiological changes caused by reaction of the sympathetic and parasympathetic branches of the autonomic nervous system, which can affect speech behaviour, even against the individual's will (Williams and Stevens, 1981). Changes include control of articulatory movements, respiratory control and the manner in which the vocal cords vibrate (Williams and Stevens 1981). It is speculated that the stress of needing to be understood, coupled with the anticipatory anxiety of not being understood, initiates such changes in the physiology of the Deaf speaker.

Implications of heightened emotion are even more severe for the Deaf speaker because, unlike his hearing counterpart, he cannot perceive the vocal correlates of his emotional state, and has therefore even less chance of monitoring emotion induced changes in vocal behaviour.

- **Educational**

It is ironic that teaching practices designed to improve speech may, in fact, be responsible for speech problems considered typical of "Deaf speech" (Ling, 1991:12). Deterioration of voice quality of pupils at schools for the Deaf, a documented cause of concern for over 60 years.

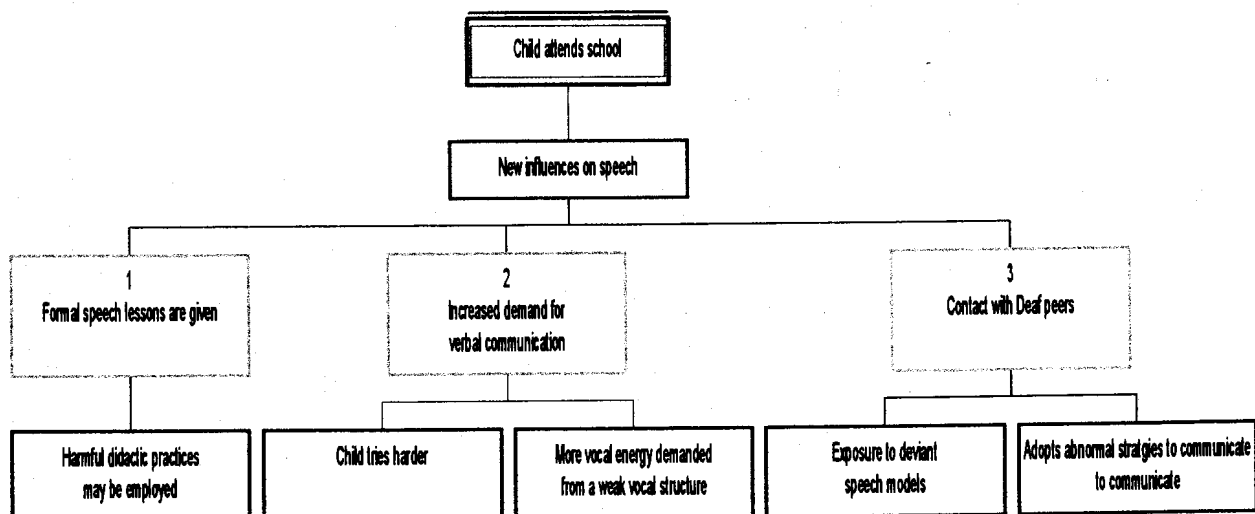
As early as 1933(:270) Haycock commented: "The earliest spontaneous vocal utterance of the young deaf child is, as a general rule, normal in quality and produced in an easy natural manner pleasant and agreeable to the ear and though they may be weak and thin ... are often delightfully free from those blemishes which are characteristic of the voices of the majority of deaf children in the upper classes of our schools."

Forty years later the same observation was made by Vorce (1974:27): “It is generally accepted that the voices of young deaf children are free of major problems. Unfortunately, something happens in the process of acquiring speech...”. She hypothesises that the cause may lie in traditional analytic teaching methods and tense didactic situations.

Ten years later Monsen (1983:12) comments: “Teachers of deaf children often report an intuitive feeling that poor voice quality develops as the children learn to speak. When children are very young and do not yet speak, teachers often feel that the voices are normal-sounding. As they teach children to speak, they often sense the development of abnormal voice quality but are at a loss to correct it or impede its further developments.”

With regard to such deterioration, it is speculated that when the child first enters school a new set of influences is set into motion that will affect speech performance. He may receive formal speech lessons for the first time, demands for verbal communication will increase, he will come into contact and communicate with Deaf peers. Figure 2 demonstrates how each influence impacts on speech.

**Figure 2:3 The influences of school entrance on speech**



Sources: Graphic supported by the following literature sources: Perigoe, 1992; Monsen, 1983; Mazaheri et al, cited by McClumpha, 1969; McClumpha 1969; Hugdkins, 1937, cited by Subtelny 1989; Ling, 1970; 1976; Ringel et al, 1972 (cited by van Uden, 1987); Vorce, 1974; Calvert, 1978; van Uden, 1987;

Stevens et al, 1983; Haycock, 1933; Stewart, 1969; Helm, 1970, cited by Black, 1971; Wyke, 1974, cited by Binnie, Daniloff and Buckingham, 1982; Wets and Stalbech, 1975, cited by van Uden, 1987; McGarr and Osberger, 1978, cited by McGarr, 1980; Photograph from Instructional Programme on Speech Production (no author quoted), American Annals of the Deaf, Nov 1981, Vol 126; Millard and Erikson, 1964, cited by McClumpha, 1969.

Figure 2.3 shows how a new set of influences is initiated on school entry which may affect speech production adversely. Firstly, the child may receive formal speech lessons for the first time. These lessons, aimed at improving speech, may have the opposite effect if harmful teaching strategies are employed – for example, touching the larynx or introducing a tense didactic situation. Tension undermines mastery (Gatty, 1992). Secondly, there may be an increased demand from teachers for speech. The child may perceive the need to try harder, leading to psychological tension reflected in vocal tension. These increased demands are made on a dysfunctional vocal structure. For example, the breath stream, the basic building block of voice, is inadequate and the vocal folds are underdeveloped. Because the vocal equipment is not working normally, more effort may be required to produce voice inducing vocal strain. Thirdly, the young Deaf child will suddenly come into contact with his Deaf peers. The implications of this, as it affects speech development, are twofold. In the first place, the child will be exposed to daily contact with a large number of deviant speech models. In the second place, he may adopt visible strategies, such as exaggerated mouth movements, in an effort to make himself understood. This will affect his speech production adversely.

- **Kinaesthetic**

Deaf speakers may receive more satisfying kinaesthetic feedback when using deviant, rather than normal speech patterns (Calvert, 1978). It is logical to assume that this will favour the use of deviant speech patterns. The strength of maladaptive kinaesthetic feedback is described by McCaffrey et.al., (2000) who note that children who receive a cochlear implant may retain speech patterns typical of profound deafness because the mislearned kinaesthetic pattern is preferred.

- **Physical, neural and postural changes to the speech mechanism**

Long-term deviant use of speech organs may cause changes in their physical structure (McClumpha, 1969; Ling, 1976), neural functioning of the mouth (van Uden, 1987) and habitual posture of the tongue (Ling, 1976). These physiological, neural and postural changes indicate that the vocal infrastructure of the Deaf speaker is different to that of the hearing speaker.



Table 2.2 Summarises the effect of deviant vocal set on speech production. For brevity and convenience the information is tabulated, showing how psychological, educational and kinaesthetic influences, as well as physical, neural and postural changes in the speech mechanism deleteriously affect the speech production of the Deaf child. References are noted in the table and where a concept is based on speculation, this is been indicated.

Table 2.2

**How deviant vocal set affects the speech organs and resultant speech production**

Primary mechanism affected	Noxious influences on vocal set				Primary resultant speech pathology
	Psychological causes	Educational causes	Kinaesthetic feedback	Physical, neural or postural changes of the speech mechanism	
Body	Bodily tension - the body is tense, reflective of an attitude of trying (speculation)	A tense didactic situation leads to the child becoming tense through apprehension (Ling, 1976)			Bodily tension may cause tension in the vocal apparatus (Ling, 1976) which may be reflected in voice production (Berry and Eisensohn, 1967)
Muscles controlling articulatory structures	Heightened emotion causes changes in the activation of the muscles controlling articulatory structures (Williams and Stevens, 1981). The stress involved in trying to be understood may activate this				May cause <ul style="list-style-type: none"> <li>• Changes in the <b>timing</b> of movements which modifies rate of articulation (Williams and Stevens, 1981). This may be a causal factor in the abnormally slow rate of the speech of Deaf (speculation). As a consequence of reduced speaking rate, the velum tends to break contact with the posterior pharyngeal wall (Bjork, 1961, Bzoch, 1965, both cited by McClumpha, 1969), resulting in an incompletely closed nasal port which allows vocalisation to escape through the nose causing nasalisation.</li> <li>• Different <b>amplitudes</b> of motion of the structures concerned. This will affect, firstly, the range of vowel qualities produced (Williams and Stevens, 1981). This may be a causal factor in the neutralisation of vowel sounds (speculation), which limits vowel range and, secondly, may affect the range of frequencies of vocal cord vibration (Williams and Stevens, 1981) – deviant pitch may be related to this factor (speculation)</li> </ul>

Primary mechanism affected	Noxious influences on vocal set				Primary resultant speech pathology
	Psychological causes	Educational causes	Kinaesthetic feedback	Physical, neural or postural changes of the speech mechanism	
Respiration	Heightened emotion may cause changes in the depth, rate and pattern of respiration (Williams and Stevens, 1981)	Inappropriate early instruction (Forner and Hixon, 1977 cited by Monsen, 1979)			This can influence the magnitude and time pattern of subglottal pressure and the position of the sternum (to which the larynx is attached through the strap muscles). These changes can modify the contour of fundamental frequency and acoustic characteristics of obstruent consonants which are produced by build-up of pressure behind a constriction (Williams and Stevens 1981)
Jaw	Exaggerated movements may reflect an attitude of trying - an attempt to make speech more visible (speculation)	Exaggerated jaw movements of teachers (Ling, 1976) and peers are imitated (speculation)	More satisfying kinaesthetic sensation results from exaggerated jaw movements (speculation)		Leads to abnormal tongue and lip behaviours (Ling, 1976) and consequent speech production
Lips		Exaggerated lip movements of teachers (Ling, 1976) and peers are imitated (speculation)	Heightened feedback (speculation)		Exaggerated lip movements mean that speech production must take longer (speculation)
Mouth		Poor oral tactile discrimination in children who sign (van Uden, 1987)		Neural sensitivity is compromised (speculation)	Lack of tactile discrimination will compromise speech because speech organs are less sensitive (speculation)
Consistency of saliva and level of moistness of mouth	Heightened emotion may lead to a decreased secretion from the salivary glands, leading to increased viscosity of the saliva and a drying of the mouth (Williams and Stevens, 1981)				This clinically observed phenomenon has not been documented for Deaf speakers. It is speculated that the "gluey" consistency of viscous saliva will impede quick movements of the tongue

Primary mechanism affected	Noxious influences on vocal set				Primary resultant speech pathology
	Psychological causes	Educational causes	Kinaesthetic feedback	Physical, neural or postural changes of the speech mechanism	
Tongue				Tongue carriage is immobile and retracted (Stevens et al, 1983)	Impedes production of vowels and consonants (Stevens et al, 1983; Tye-Murray, 1992). May contribute to the distinctive speech quality of Deaf speakers (Tye-Murray, 1992)
Pharynx	Psychological tension leads to pharyngeal tension (speculation)	Teaching strategies where child's throat or larynx are touched (Ling, 1976) lead to pharyngeal tension	Pharyngeal tension may give the child a positive feeling of voice generation (speculation)		Pharyngeal tension (Ling 1976) contributes to resonance problems as it affects laryngeal function, thereby inhibiting modification of pitch (Ling, 1976) and lowering frequency of the second formant (Monsen, 1983)
Velum			Nasalisation may provide stronger and more satisfying orosensory feedback (Kimbrough-Ollers and Ehlers, 1981). It is speculated that this may account in some measure for nasalisation described suprasegmentally (Deal and Haas, 1996), for vowels (Ling 1976) and for consonants (Di Carlo, 1964)	Velum shorter and thinner (McClumpha, 1969). Due to lack of use it atrophies (Mazaheri, Millard and Erikson, 1964, cited by McClumpha, 1969)	Velar pharyngeal mechanism is compromised. Deaf subjects have some degree of velar pharyngeal opening during vocalisation (McClumpha, 1969). This causes nasalisation (speculation)
Nasopharynx				Shorter (McClumpha, 1969)	Shorter (same dynamic occurs as for velum atrophy)

Primary mechanism affected	Noxious influences on vocal set				Primary resultant speech pathology
	Psychological causes	Educational causes	Kinaesthetic feedback	Physical, neural or postural changes of the speech mechanism	
Larynx	Tense larynx, reflective of an attitude of trying (speculation) - a spillover of generalised bodily tension (Ling, 1976)	The Deaf speaker gains the impression that laryngeal, rather than respiratory, muscles control air flow during speech (Hudgins, 1937, cited by Subtelny, 1989) when the teacher touches the child's larynx to, for example, encourage voicing or remedy pitch (Calvert, 1978; Perigoe, 1990)	Increased feedback from laryngeal tactile baro-joint and spindle receptors occurs with the production of faulty pitch (Wyke, 1974, cited by Binnie, Daniloff and Buckingham, 1982) caused by increased laryngeal tension		The extra effort of vocalisation of the profoundly deaf speaker (Wilbeman and Lee, 1967, cited by Subtelny et al, 1989) may result in an excessively high pitch (Subtelny et al, 1989), low pitch (Stevens et al, 1983) or harsh, throaty voice (speculation)
Vocal cords - (poor development)		Where signing is the chosen mode of communication there will be less need for vocalisation. Consequently the vocal folds will be less used and may atrophy (speculation)	Vocalisation provides little kinaesthetic or auditory feedback. This leads to decreased vocalisation which, in turn, means the vocal folds are little used and consequently do not develop normally (speculation)	Weak, partially atrophied vocal folds accompanied by poorly developed laryngeal valving action (Holm, 1970, cited by Black, 1971)	Poor development causes difficulty in approximating and maintaining tension of the vocal folds. This adversely affects the conversion of breath, causing an overlay of whispered noise along with voice and an inability to sustain vocalisation (Holm, 1970, cited by Black, 1971). This has important implications for speech as an ability to sustain vocalisation and speech intelligibility correlate (McGarr and Osberger, 1976, cited by McGarr, 1988)
Vocal cords (nodules)	An attitude of trying may lead a child to strain his voice and develop vocal nodules (speculation)	1. Teaching strategies that induce strain, such as touching the larynx (speculation) 2. Where signing is not allowed and the child is forced to speak, he may strain his voice (speculation)	Abusive use of voice may provide a more satisfactory kinaesthetic feedback (speculation)	Vocal cords that have nodules are physically different to normal vocal cords	Vocal nodules affect voice production (Berry and Eisenson, 1967)

Primary mechanism affected	Noxious influences on vocal set				Primary resultant speech pathology
	Psychological causes	Educational causes	Kinaesthetic feedback	Physical, neural or postural changes of the speech mechanism	
Vocal cords (moistness or dryness of the vocal folds)	A heightened emotional state may lead to a change in the moistness or dryness of the vocal folds (Williams and Stevens, 1981)				The condition of moistness and dryness of the vocal folds can modify the vibratory patterns and thus change the characteristics of the source of acoustic excitation of the vocal tract at the larynx, leading to a different overall spectrum shape for vowels, and possibly to deviation from regular periodic vocal cord vibration during voiced sounds (Williams and Stevens, 1981). This may play a significant role in the deviant characteristics of vowel production and unique vocal quality of the Deaf speaker (speculation)

Source: Based on the authors speculation and extracts from: Berry and Eisenson, 1967; McClumpha, 1969; Black, 1971; Ling, 1976; Calvert, 1978; McGarr, 1980; Williams and Stevens, 1981; Binni, Daniloff and Buckingham, 1982; Stevens et al, 1983; Monsen, 1983; van Uden, 1987; Subtelny, 1989; Tye Murray, 1992

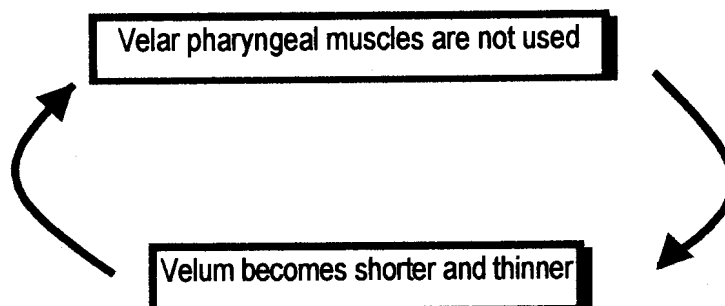
Table 2.2 demonstrates the complex interrelationship between psychological, educational, kinaesthetic, physical, neural and postural aspects of the speech production of the Deaf. It underscores the way the Deaf child's speech is compromised before a single syllable has been uttered.

- **Psychological aspects**, causing anxiety and frustration - have significant consequences for speech production. A negative dynamic is set up. Bodily tension causes laryngeal tension, producing vocal strain which affects the muscles controlling articulatory and vocal cord movement, and levels of moistness in the mouth.
- **Postural** changes, particularly of the tongue, influence speech production. Correct tongue posture is vulnerable to hearing loss, as demonstrated by superior tongue posture of children with high-frequency deafness only. (Stewart, 1969). Considering the importance of the tongue in phoneme production, the implications of impeded functioning are significant. Tye-Murray (1992) has suggested that jaw movement is, in fact, similar to the magnitudes of displacement demonstrated by hearing subjects, but that the difference is in the ratio between tongue and jaw displacement. Deaf subjects move their jaws but keep their tongues relatively immobile, while hearing subjects displace tongue bodies at least twice as much.
- **Physical** changes occur which render Deaf and hearing speakers different. McClumpha (1969) reports that the structure and functioning of the velum and velar pharyngeal mechanism of congenitally Deaf children is inferior to that of hearing children. Deaf subjects had shorter and thinner vellums and shorter nasopharynges. Hearing subjects maintained a velopharyngeal seal during vocalisation, whereas Deaf subjects had some degree of velar pharyngeal opening throughout vocalisation.

The Deaf speaker has no way of knowing whether velar pharyngeal closure has been effected, since nasalisation, a feature of lack of closure, is inaudible to him. He therefore does not develop the ability to sustain velar pharyngeal closure (McClumpha, 1969). McCaffrey et al., (2000) confirm the above by suggesting that Deaf infants produce more nasal than non-nasal consonants in babbling, because they cannot hear that the adult language is characteristically non-nasal. Therefore they are not motivated to close the velarpharyngeal port from the open position manifest in resting and quiet breathing. When the mechanism is not used, it atrophies (Mazaheri, Millard and Erikson, 1964, cited by McCumpha 1969). Nasality is therefore a fault that feeds on itself and leads to organ deterioration,

which in turn means less likelihood of effective use (Ling, 1976).

**Figure 2.4 The self-perpetuating negative cycle that causes the velum to become thinner and shorter**



**Source:** Original graphic based on McClumpha (1969)

The diagrammatic representation above depicts the self-perpetuating negative cycle which continues until the velum has been maximally attenuated.

It is surprising that McClumpha's observations have not been further researched. Currently no further literature is available on the velar pharyngeal structure or functioning of the Deaf population. Not only is his research seldom referred to (of the major workers in the field, only Ling (1976) and Calvert (1978) make brief reference to his finding) but, of even greater concern, many researchers seem unaware of it. Monsen, for example, in 1976 writes incorrectly: "Since the deaf are physiologically normal in all respects save hearing..." (Monsen, 1976:189) and, in so doing, completely ignores McClumpha's findings.

There have been few studies investigating the connection between physiology and speech of the Deaf (McGarr and Osberger, 1982). There are two possible reasons. Certain physical investigations may require invasive procedures researchers are reluctant to perform on children and in addition, this area is traditionally that of medicine, rather than education. Further progress may not occur until interdisciplinary co-operation between the two professions is better established.

A further physical factor is the normal development of the vocal folds which is influenced by frequency of vocalisation. Holm (1970, cited by Black, 1971) estimated the functioning of the vocal folds of a Deaf child of two-and-a-half years as equivalent to a normal child of six months, and that of a Deaf child



of six years as resembling a normal child of two-and-a-half years. Table 2.2 describes how voice quality is affected by poor vocal fold development. Additionally, the ability to sustain vocalisation is compromised and, since there is a correlation between ability to sustain vocalisation and intelligibility (McGarr and Osberger, 1978, cited by McGarr, 1980), this has important implications for speech proficiency.

Neural factors are important. van Uden (1987) has shown that well-developed orostereognosis is not automatic, but develops as a consequence of speech, and varies in Deaf children according to educational method. He cites two studies, one by Ringel et al (1972) showing that children who signed had inferior oral tactile discrimination to hearing children. The second study by Wets and Stalbech (1975, cited by van Uden, 1987) compared a group of what van Uden terms "well orally educated children" (1987:152) between 8 and 10 years of age, with a hearing group. Results showed no inferiority in oral stereognosis of the Deaf compared with the hearing group. In fact, the Deaf group were superior in certain respects. Since oral stereognosis and speech intelligibility correlate (van Uden, 1987), it is possible that this has important implications for speech proficiency.

Turning to **educational** influences, it is ironic that teachers' well-intentioned efforts may cause harm. This may be due to a tense didactic situation which, as Ling (1970) cautions, may cause the child to become tense through apprehension. He advocates that "fun and laughter, during which overall tension is minimal, will lead to a more natural voice than fear of failure" (:213).

Even where the teaching atmosphere is congenial, certain teaching strategies may cause harm. Touching the larynx has been noted in this connection. Another example is where exaggeration, used initially to clarify production, as demonstrated by the photograph below, is not discontinued once the child has mastered the skill (Ling, 1976). This may result in the exaggerated lip movements common to Deaf subjects (Ling, 1976).

**Figure 2.5 A photograph showing a teacher exaggerating her mouth movements during a teaching situation**



Source: Photograph from “Instructional Programme: Speech Production”, American Annals of the Deaf: Nov 1981, Vol 126 No 8:910 (no author noted)

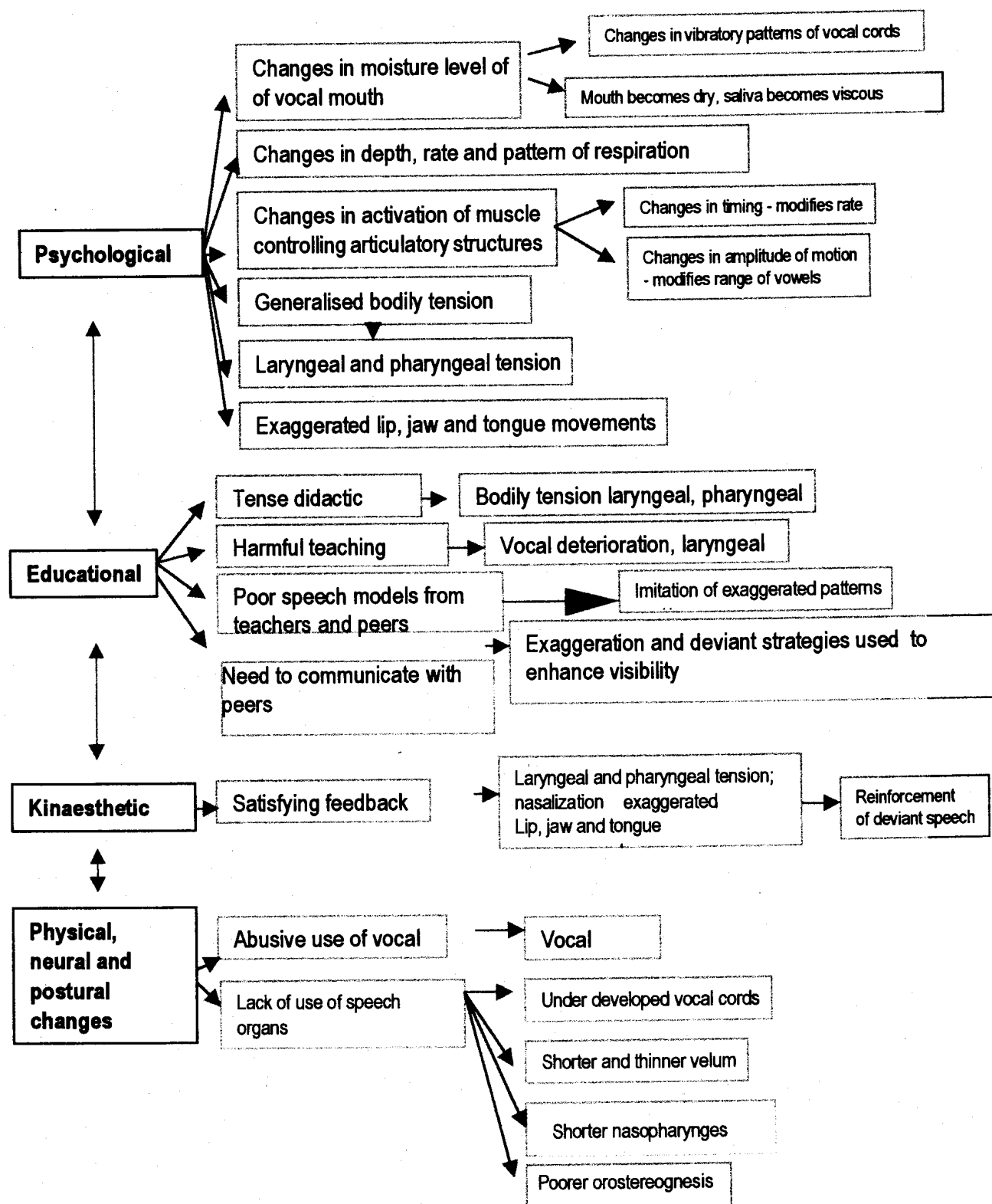
As can be seen, the teacher’s mouth is positioned in an exaggerated posture in an attempt to clarify sound production, probably /S/. The caption that accompanies the photograph reads: “Multi-sensory stimulation was used to improve speech production.”

A complicating factor is that a deviant vocal set may provide the child with a more satisfying **kinaesthetic** sensation. This means that laryngeal and pharyngeal tension, faulty pitch and exaggerated movements of the speech organs are experienced positively, and therefore reinforced.

The information presented in this table serves to highlight both the magnitude and the complexity of the problem of Deaf speech. It is speculated that by understanding the underlying causes, the resultant symptoms, expressed in the unique speech pathology of the Deaf speaker, will be better understood and, consequently, more accessible to remediation.

Figure 2.5 summarises the information from a different perspective.

**Figure 2.6**  
**Adverse effects of psychological, educational, kinaesthetic, physical, neural and postural factors on the vocal set of the hearing-impaired child**



Source Original graphic based on the same information presented in Table 2.2 based on the same speculations and literature references

Figure 2.5 reiterates how the Deaf child, born with a normal speech mechanism, is rendered different as a speaker in terms of psychological attitude, kinaesthetic appreciation, physical, neural or postural states, - even before a single vocal utterance has taken place. Psychological stress manifests physically, affecting speech in numerous ways. Vocalisation initiated on a mismanaged breath stream passes through a deviantly postured larynx which houses poorly developed vocal cords that cannot adduct with normal strength or sustain vocalisation. This already abnormal voice is misdirected through the nose, because of preferred kinaesthetic feedback, poorly functioning and physically different velarpharyngeal structure, and a slow rate of speaking. The resonance of the voice in the mouth is further affected because the velar arch is different and the tongue is retracted. Finally, superimposed on all these faults, exaggerated articulatory movements further compromise the outgoing vocal utterance. There is an interconnectedness of influences.

### **2.3.1.2 Aberrant use of the breathing mechanism**

Aberrant use of the respiratory mechanism among Deaf speakers has long been known (eg Kinsey, 1833; Bell, 1914, Henderson, 1930; Haycock, 1933 - all cited by Ling, 1976), and suspected by some to be a primary contributor to the speech production problems of hearing-impaired speakers (Hudgins, 1934; Rawlins, 1936; Woldring, 1968; Harris and McGarr, 1980 - all cited by Cavello et al, 1991). Clinically, it is a common observation that profoundly hearing-impaired individuals exhibit abnormal speech breathing patterns (Cavello et. al., 1991).

Investigations suggest that hearing-impaired subjects do not have an abnormal ventilatory function. The biochemical posturing of the chest wall at speech onset, including relative enlargement of the ribcage and compression of the abdomen, are normal (Cavello et. al., 1991). The abnormality lies in the management of the speech air stream (Ling, 1976), particularly the co-ordination and synchrony of the laryngeal and respiratory mechanism of phonation (Ling, 1976; Cavello et al, 1991). This is characterised by tendencies to, firstly, initiate speech from lung volume levels at or below functional residual capacity; secondly, continue speech at lung levels well below functional residual capacity; thirdly, inhale or hold breath at points that are not linguistically appropriate, and, fourthly, expend far greater average lung volumes than hearing speakers (Forner and Hixon, 1977; Whitehead, 1983 - studies cited by Cavello et. al., 1991). Cavello et al, (1991) suggest the last-mentioned factor may explain Forner and Hixon's (1977) finding that hearing-impaired individuals produce only 4,5 syllables

per expiration, compared with normally hearing subjects who produce approximately 13,5 syllables per expiration. Finally, hearing-impaired subjects often expend substantial volumes of air prior to initiation of utterance (Forner and Hixon, 1977, cited by Cavello et. al., 1991).

Improving breathing through instruction does not appear to be a simple solution. Monsen (1979:286) notes: "...it is difficult to describe how to teach systematically the proper control of air pressure and particularly of vocal fold tension to even an adult hearing-impaired individual". He suggests that teachers devote attention to the breathing processes during speech instruction. However, no body of research exists detailing which aspects of such instruction are effective, despite the fact that Hudgins had already, in 1937 (cited by Di Carlo, 1964), demonstrated a high correlation between speech breathing and speech intelligibility.

The complex interrelationship of speech problems of the Deaf is well demonstrated by reference to deviant respiratory functioning. Abnormal breathing patterns cause and exacerbate other problems, including laryngeal tension, straining and poor voice production, Monsen (1979) adds psychological frustration. Wastage of breath leads to lack of available breath, so that the child expends more effort because he must inhale more frequently.

### **2.3.2 VOCAL ASPECTS OF SPEECH PRODUCTION**

This section deals with aspects of speech once vocalisation is initiated.

#### **2.3.2.1 Suprasegmental deviations**

Each of the five areas of suprasegmental voice production can be abnormal in Deaf speakers (Ling, 1976), namely: duration, pitch, intensity, quality, rhythm and intonation.

- **Duration**

With few exceptions, the speech of the severe and profoundly hearing-impaired is perceived as too slow. Osberger and McGarr (1982), Volkner (1938, cited by Ling, (1976) found the average rate of utterance for hearing children was 210 words per minute. In contrast, Deaf children produce only 28-145 words per minute (Ling, 1976). Speech time is lengthened not only because speech segments are prolonged, but also because additional pauses are inserted (John and Howarth, 1965; Boone, 1966; Hood, 1966; Heidinger, 1972; Nickerson and Stevens, 1974; Stevens, Nickerson and Rolling, 1978 - studies cited by Osberger and McGarr, 1982). These may occur at syntactically inappropriate boundaries (Osberger and McGarr, 1982) and could result from poor respiratory control (Osberger

and McGarr, 1982).

Ling (1976) has suggested that prolongation of vowels results from poor teaching methods. Additionally, it is speculated that prolongation provides the hearing-impaired speaker with more satisfying kinaesthetic feedback, as there is more time for sensory appreciation to occur.

- **Pitch**

Among the most noticeable speech disorders of the Deaf are those involving fundamental frequency (Osberger and McGarr, 1982; Angelocci et al, 1964; Boone, 1966; Martony, 1968 - studies cited by Osberger and McGarr, 1982). The more common problem is an inappropriately high voice. A lower than normal pitch, and a pitch that fluctuates abnormally during speech, also occur (Osberger and McGarr, 1982). Pitch may also fluctuate as a function of vowel production (Smith, 1975; Steens et al, 1978; Monsen, 1979; Stuches, cited by Osberger and McGarr, 1982). This will be described in the section on vowels.

Psychological strain, pharyngeal and laryngeal tension which develop as a consequence of inappropriate teaching strategies and preferred kinaesthetic feedback have been noted as causal factors in table 2.2.

- **Intensity**

Speech may be too soft, loud (Markides, 1983) or inappropriate for the social environment (Calvert, 1978).

- **Voice quality**

Voice quality - an ill-defined term which generally appertains to the global impression of the way someone speaks (Monsen, 1979), is commonly deviant in speakers with severe hearing impairment. (Monsen, 1973).

The following are among the descriptors used for the voice quality of the Deaf. Where applicable, causes are suggested:

**Breathy voice** as noted in table 2.2, is caused by excessive and inefficient conversion of breath to voice (Calvert, 1982; McGarr and Osberger, 1982).

**Harsh and throaty** (Calvert, 1982), **strident voice** (Calvert, 1978) results from generalised constriction and tension in both the glottal and supraglottal areas (Calvert, 1978). As noted in table

2.2, the causes may be rooted in the didactic situation or in more satisfying kinaesthetic feedback (Calvert, 1978).

**Nasalised voice** (Deal and Haas, 1992) is function of poor velar pharyngeal closure, slower rate of utterance, preferred kinaesthetic feedback a atrophied velum (Table 2.2).

- **Rhythm (Calvert, 1978), stress (Osberger and McGarr, 1982) and intonation (Ring, 1976) are abnormal**

Early literature describes the speech of congenitally Deaf persons as monotonous and devoid of melody (eg Scripture, 1913; Story, 1917; Russel, 1929; Haycock, 1933; Rawkings, 1935 - studies cited by Osberger and McGarr, 1982). More recent investigations show that Deaf speakers do produce some pitch variations, but that these are substantially less reduced than those of normally hearing speakers (Osberger and McGarr, 1982).

#### **2.3.2.2. Segmental problems: vowels, diphthongs and consonants**

Numerous independent investigations have been remarkably consistent in identifying typical articulatory errors in the speech of hearing-impaired children taught by many different programmes (Osberger and McGarr, 1982). These similarities have been shown by investigations of a descriptive nature, as well as acoustic measurements (McGarr and Osberger, 1982).

#### **2.3.3.2. Comparison of the relative difficulty of vowel and consonant production**

Whether vowels or consonants are more difficult to produce correctly is arguable. Traditionally, it has been accepted that vowels are more likely to be correctly produced (Branne, 1966, cited by Osberger, 1980). Geffner (1980:447) expresses an acceptance of this when she uses the words, "as expected", to state she found more vowels correct than consonants. However, as Osberger (1980) argues, vowel targets are less precise than consonants, and consequently the listener may tolerate greater distortion and therefore report fewer vowel errors. Additionally, there are fewer vowels than consonants in running speech and therefore fewer opportunities for error (Osberger, 1980).

Nober (1967, cited by Ling, 1976) described 70% of vowels as being correct. This optimistic percentage may have been influenced by two confounding variables. Firstly, Nober used judges familiar with the speech of the Deaf (Ling, 1976) and who may consequently have found the speech of Deaf children easier to understand (Markides, 1983). Secondly, it is possible that Nober's subjects had a greater than

average exposure to amplification (Ling, 1976) and therefore made fewer errors.

There are differences between the way vowels and consonants are produced that have implications for the relative difficulty they present to Deaf speakers. Significant differences are summarised in the table that follows.

**Table 2.3 A comparison of relative ease/difficulty of production that vowels and consonants present for Deaf children**

Aspect under consideration	Vowels	Consonants	Judgement as to relative ease of production
1 Audition • Intensity  • Frequency  • Duration	Louder  Lower pitch  Longer	Softer  Higher pitch  Shorter	Vowels are more audible and therefore easier (Gatty, 1991)  Vowels more audible, therefore easier (Gatty, 1991)  The longer duration of vowels (Gatty, 1991) means there is more opportunity for them to be auditorally perceived. Therefore they are easier (speculation)
2 Range of variation required • Mechanisms of adjustment • Length of production • Frequency range • Intensity range	Less variation  Less variation Less variation Less variation	More variation  More variation More variation More variation	Vowels are easier, as fewer variations need to be learned (Ling, 1976)
3 Precision of articulatory movements required	Less precision required	More precision required (Osberger, 1980)	Vowels are easier (Osberger, 1980)
4 Strength of orosensory feed back	Weaker	Stronger (Ling, 1976)	Consonants are easier (Dagenais, 1992)
5 Accessibility of speech organs to description	Tongue positions for vowels do not provide reference points that can easily be described (Gulian et.al.,	Position of speech organs (including the tongue) are easier to describe, because the tongue is in	Since tongue positions for vowels cannot easily be described, they cannot be monitored for the Deaf (Gulian et.al, 1983). Consonants are easier to describe because the target, point of contact or near contact – is more precise.





Aspect under consideration	Vowels	Consonants	Judgement as to relative ease of production
	1983)	contact or near contact with another speech organ	Consonants are more accessible to description
6 Role of the tongue	All vowels are largely dependent on tongue position (Gulian et.al., 1983), particularly the tongue positioned horizontally. Deaf speakers habitually "bunch" or retract the tongue (Ling, 1976). This means that all vowels are compromised because the tongue posture is abnormal (speculation)	Some consonants do not require correct tongue position for intact production eg /m/ and /f/ Other consonants require a distinctive, virtually uncorruptible tongue position – eg /θ/ Or a tongue position that is not horizontal – eg /l/. This means that the retracted tongue is not a problem for all consonants, whereas it is problematic for all vowels (speculation)	Tongue retraction and immobility will cause more problem for vowels than consonants. As a consequence, consonants are easier (speculation)
7 Suprasegmental involvement	More involvement (speculation). All vowels are produced with the voice, therefore the vowels are compromised if the voice is deviant in terms of quality, pitch or nasalisation	Less involvement (speculation). Not all consonants are voiced. /f/, for example, is not dependent on suprasegmental features	Consonants are easier

Aspect under consideration	Vowels	Consonants	Judgement as to relative ease of production
8 Physical changes of the speech mechanism as a consequence of deafness	Affected more (speculation)	Affected less (speculation)	Consonants are easier
9 Ability of the listener to tolerate distortion	More ability (Osberger, 1980)	Less ability (Osberger, 1980)	Consonants are easier

Source: Compiled and developed from Ling 1976; Osberger, 1890; Gulian et. al., 1983; Gatty, 1991

The above table shows which features of vowels and consonants make for ease or difficulty of production. As can be seen, certain aspects point to the consideration that vowels are easier to produce. They are more audible, as they are produced on a higher intensity and in a lower frequency range that is more accessible to the Deaf (Gatty, 1991), they have less variation in terms of mechanisms of adjustment, length of production, frequency and intensity levels (Ling, 1976), oral/nasal direction and voiced/voiceless contrasts. The higher number of variations for consonants in these areas means that the Deaf child need learn many more vocal strategies and behaviours in order to produce consonants correctly, as compared with vowels.

There are, however, other factors operating which suggest consonants are easier. Most significantly, the orosensory pattern for many consonants is stronger than for vowels (Ling, 1976), as there is an additional tactile component when one speech organ is in contact with another (Ling, 1976). This contrasts to the somewhat "nebulous" (Dagenais, 1992:261) tongue position assumed for vowels, which does not provide strong feedback. Paradoxically, although the tongue position is "nebulous" in terms of feedback, production is complex and precise in terms of the slight variations that markedly affect vowel quality (Monsen and Shaugnesse, 1978 - cited by Guliam et al, 1983). This aspect of vowel production is well expressed by Calvert (1982), who describes in orchestral terminology, the synchrony of vowel production as needing exquisitely fine variations in mouth opening, place and height of arching of the tongue and rounding of the lips. Continuing the metaphor, production of vowels is akin to playing the violin. Positional demarcations and guidelines for the fingers are not clearly defined. Consonant production is comparable with playing the piano - the notes are predictably and clearly marked for easy reference. The demands for execution of a middle C on the violin are more stringent than for the piano, where simply striking the clearly demarcated middle C will produce the correct sound.

It is speculated, that where vowels cannot be learned directly through audition, they are ineffably difficult to teach. The stronger orosensory component of consonants makes teaching them easier.

Although more variations are required for the learning of consonants, the variety of articulatory skills and their contrastive nature may offer an experiential lucidity unlike the amorphous sameness of vowels. In addition, heightened feedback may mean that the finely-tuned articulatory movements of consonants which, at first glance, suggest greater difficulty, actually offer precise more tangible goals than those required for the “nebulous” (Dagenais, 1992:261) tongue positions of vowels, and that, once taught are easier to remember and replicate.

A second judgement of ease on the side of consonant production is that tongue positions, which are largely responsible for vowel quality, do not provide reference points that can be easily described by the teacher (Gulian et al, 1983). It is easier, for example to describe the tongue position for the consonant /n/ (ie “the tongue is up against the palate”) than it is for the vowel /æ/ (ie “the tongue is higher than for /e/ but lower than for /ɜ/”). It is therefore harder to teach vowels by description of tongue position.

A third judgement that works on the side of consonants is the role of the tongue - vowel production relies mainly on the position and shape of the tongue (Monsen and Shaugnessey, 1978 - cited by Gulian et al, 1983). Considering the retracted position and general immobility of the tongue of the Deaf speaker, it is understandable that vowel production is severely compromised. Not all consonants rely on the tongue for correct production; some such as /t/ and the/l/, have an unambiguous movement pattern that overrides habitual tongue immobility and retraction. In contrast, it is probable that the horizontal position needed for correct production of vowels - with the tip resting behind the bottom teeth and the blade subtly lowered or raised - is severely compromised by tongue retraction and immobility.

A fourth judgement viewing consonants as easier, is the speculation that vowels are more dependent on suprasegmental features - than consonants. Pitch, for example, is not a consideration with voiceless consonants. Faults related to duration for vowels seem more noxious than consonants. An /s/, for example, remains an /s/ sound, whether it is short or long, but an /I/ and an /i/ are different phonemes based solely on the element of duration.

A fifth judgement is that physical changes to the speech mechanism, such as the velar arch, may alter vowel resonance, whereas the less subtle movements required for consonant production are more

resistant to these changes. A vowel may be more prone to nasalisation due to lack of velarpharyngeal closure than a consonant because of the clear, orosensory sensation of orality. Two examples illustrate this. A /b/ is virtually propelled orally. An /f/ requires a forceful oral breath stream. Intra-oral pressure will motivate for maximal velarpharyngeal contact. This may compensate for some velarpharyngeal incompetence.

Finally, the superiority that vowels have been accorded on the grounds of more accessible acoustic properties may, in fact, not translate into a relevant basis for improvement of speech production. This is demonstrated in Subtelny, Orlando and Websters (1980) research on consonants and vowels in relation to auditory discrimination and speech production. A pre- post test design was followed. Skills were measured and training was then given in auditory discrimination and speech production. Table 2.4 sets out the results.

**Table 2.4 : Subtelny et.al.,’s 1980 investigation of improvement of vowels and consonants following training in auditory discrimination and speech production**

	Status before training	Improvement following training
<b>Auditory discrimination</b>	Vowels superior	Consonants improve more
<b>Speech production</b>	Consonants superior	Consonants improve more

Source : Based on Subtelny et.al. 1980

Table 2.4 demonstrates that:

- Vowels start as superior in **auditory discrimination**. This is a predictable result as vowels have superior acoustic features.
- Following training in auditory discrimination and speech production, **auditory discrimination** improves more for consonants. Subtelny et.al., (1980) express confusion at this result. According to their expectations the superior auditory features of vowels should have meant they were more accessible to training. This author suggests that speech training activates the speech production – speech perception link (3.1.2.1.). Vestigial auditory traces were potentiated through the haptic avenue when one speech organ is in contact or near contact with another. This is not available to vowels. The production – perception link is not therefore activated.
- Consonants start off superior in speech **production**. Subtelny et. al., (1980) were surprised by this. They expected vowels to be produced better because of their superior acoustic features. The author suggests that consonants are better because the secondary school aged children had received prior

speech training for vowels and consonants. Speech training for vowels did not bring about improvement, whereas speech training for vowels did.

- Consonant **production** improved more following training than vowel production. Subtelny et.al., (1980) were surprised at this result. They expected greater improvement in vowels because of their better acoustic features. The writer suggests this finding supports her belief that, although consonants have inferior auditory features, they are more accessible to training because of superior orosensory gestalts.

The observations that cause confusion to Subtelny et. al., (1980) support the author's view that vowel production is less accessible to training than consonant production. This gives a clear mandate for the emphasis on consonant development in the proposed programme.

The following two sections look at common production errors of vowels (and diphthongs) and consonants among Deaf speakers. Stress is laid on understanding causal factors. In this vein, speech faults are viewed as an entry point to understanding the Deaf child's perception of speech i.e, what he is producing is the result of what he perceives. Speech production is therefore a good guide to speech perception (Montgomery, 1967 - cited by Monsen, 1978). Faulty production of speech is a valuable clue to the nature of the misperception.

#### **2.3.2.2.2 Common vowel and diphthong errors**

Lip spreading and rounding are visible for certain vowels. They are not, however, complete sources of information, since the major player, the tongue, cannot be seen. Additionally, visual clarity is influenced by several variables, including the speaker's characteristic mode of production, whether speech is accompanied by a smile, and what sounds precede or follow the vowel (Ling, 1976). Tongue position can sometimes be seen (Ling, 1976), but is, for the most part, invisible (Wold et.al., 1994). A complication in categorising vowel errors is the lack of absolute delineation between suprasegmental aspects and vowel elements. Consequently pitch, intensity, duration and voice quality, described above for suprasegmental aspects, impact on vowel production.

In addition to suprasegmental considerations, five problems are associated with vowel production – prolongation, neutralisation, substitution, diphthongisation and exaggeration (Ling, 1976; Markides, 1983).

These are represented in table 2.5.

**Table 2.5 : Common faults of vowel production and their causes**

Fault	Causes
Neutralisation	Inability to hear the second formant (Deal and Haas, 1992) Tongue position is generally invisible (Wold, 1994). Weak orosensory feedback from nebulous tongue position (Dagenais, 1992)
Substitution	Tongue position is generally invisible (Wold et.al., 1994). Weak orosensory feedback from nebulous tongue position (Dagenais, 1992)
Prolongation	Harmful teaching practices (Ling, 1976) Provides heightened orosensory feedback (speculation)
Diphthongisation	Vocalisation continues after completion of vowel production while the tongue moves to a new position (speculation)
Nasalisation	Compromised velarpharyngeal function (McClumpha, 1969) Increased kinaesthetic feedback (Kimbrough-Oller and Eilers, 1961) A consequence of slower rate of speech (Bjork, 1961, Bzoch, 1965 - Studies cited by McClumpha, 1969)

Source: Compiled from: Hudgkins 1934, cited by Kimbrough-Oller and Eilers, 1981; Manigan, 1961, cited by McGaffrey and Sussman, 1994; Angelocci, 1964, cited by Ling, 1976; Boone, 1966, cited by McGaffrey and Sussman, 1994; Dickerson and Bolling, 1976, cited by Kimbrough-Oller and Eilers, 1981; Ling, 1976; Monsen, 1978; Wold et.al., 1994; Osberger and McGarr, 1982; Markides, 1983; Deal and Haas, 1992; Perigoe, 1992; McGaffrey and Sussman, 1994

Table 2.5 demonstrates invisible tongue position, heightened orosensory feedback from faulty production, lack of orosensory feedback from nebulous tongue position, and harmful teaching practices combine to cause faulty vowel production. The discussion that follows expands on these premises.

- **Neutralisation**

Vowels approximating the neutralised schwa are often produced in place of those which require a more specific vocal tract configuration (Ling, 1976; Deal and Haas, 1996). Neutralisation of certain unstressed vowels is a normal speech process. However, Deaf speakers neutralise vowels extensively and inappropriately (Ling, 1976). This is the most common vowel production fault (Angelocci, 1964, cited by Ling, 1976; Perigoe, 1992; McGaffrey, Osberger and McGarr, 1982). It has been observed

**perceptually:** one vowel sounds very much like another (Angelocci et al, 1964 - cited by Ling, 1976) as a neutral, indistinct, schwa-like sound (Monsen, 1978); **acoustically** measured formant frequencies show vowels tend to / / (Osberger and McGarr, 1982; Angelocci, Kopp and Holbrook, 1964; Monsen, 1976. Latter two references cited by Dagenais, 1992) and, **physiologically**, the tongue shows relatively minimal movement (Daenais and Critz Crosby, 1992; McGarr and Gelfer, 1983; Tye-Murray, 1991 - all cited by Dagenais, 1992).

It is suggested that lack of hearing of the critical second formant is the cause (Deal and Haas, 1996).

- **Substitution**

Neutralisation is a form of substitution (Ling, 1976; Osberger and McGarr, 1982). The general rule for substitutions is that they are exchanges among near neighbours along the vowel quadrilateral (McGaffrey and Sussman, 1994).

- **Prolongation**

This fault is closely linked to the problem of speaking rate, described earlier. Vowels may be inappropriately lengthened. Calvert (1961 cited by Kimbrough-Oller and Eilers, 1981) found that durations of unstressed vowels were nearly five times as long, and stressed vowels nearly twice as long in deaf subjects compared with hearing speakers (Kimbrough-Oller and Eilers, 1981).

Ling (1976) ascribes harmful teaching practices as an almost exclusive cause of prolongation. The author suggests further additional factors may also contribute. Firstly, the extended length of the phoneme may provide more satisfying kinaesthetic feedback, providing a longer temporal opportunity to experience an orosensory gestalt and, secondly, prolongation may be reflective of an attitude of trying.

- **Diphthongisation**

A vowel sound may be produced in two parts, as if it were a diphthong (Markides, 1983). The authors speculates that the child inadvertently continues vocalising after he has completed vowel production, while the tongue moves towards its next target, thus producing an additional sound.

### **Nasalisation**

A high proportion of vowels of hearing-impaired speakers are nasalised (Hudgkins, 1934, cited by Kimbrough-Oller and Eilers, 1981). This has been physically demonstrated (Nickerson and Bollins, 1976, cited by Kimbrough-Ollers and Eilers, 1981).

Lack of velarpharyngeal closure, functional changes of the velum, increased feedback and slower rate of speaking have been ascribed as causes (Table 2.2).

- **Exaggeration**

Exaggerated movements of lips and jaw occur with considerable frequency among Deaf speakers (Ling, 1976). This fault is exacerbated by prolongation, which allows time for the articulators to assume extreme positions (Ling, 1976).

This fault has been discussed in the section describing vocal set. Causes were ascribed to poor teaching methods and speech models (Ling, 1976), and the authors speculation that exaggerated lip movements provide a stronger orosensory feedback. Additionally, it is possible that exaggeration may be used as a strategy to gain greater visual clarity to promote understanding by peers.

- **Omission of one element of the diphthong and prolongation of the other**

Diphthongs – being made up of two or more vowel sounds – are subject to the same errors as described for vowels. In addition, one component – usually the final – may be dropped, and the remaining one prolonged (Markides, 1983).

#### **2.3.2.2.3 Aspects of maximal vowel contrast**

Boundaries of vowel changes are close and definitive descriptions for each vowel and corresponding production faults would be cumbersome and repetitive. For this reason, the productions of vowels in positions of greatest contrast, are described. Rules for intermediate vowels can be extrapolated on a continuum basis.



**Table 2.6 : A comparison of correct production and pitch stability of contrastive vowels**

Vowel contrast	More often correct	Reason
<b>High</b> compared with <b>low</b> vowels	Low vowels (Osberger and McGarr, 1982)	Habitual retracted tongue position favours low vowels (speculation)
<b>Back</b> compared with <b>front</b> vowels	Back vowels (Mangan, 1961; Boone, 1966; Nober, 1967; Smith, 1975; Geffner, 1980 - all cited by McGaffrey and Sussman, 1994)	Habitual retracted tongue position interferes with front vowels (Wold et.al., 1994; Boone, 1966 - cited by Osberger and McGarr, 1982) and favours back vowels
<b>High back</b> vowels compared with <b>high front</b> vowels	High back vowels (Monsen, 1978)	Firstly, habitual tongue retraction interferes with high front vowels and favours high back vowels. Secondly, the highest back vowel, /u/, has a more intense, lower frequency than the highest front vowel, /i/ (Wold, 1994). This may make it more audible. Thirdly, the distinctive rounded lip position for /u/ may "trick" listeners into believing they have heard /u/ correctly (speculation)
The <b>highest vowels</b> (/u/ and /i/) compared with all other vowels in relation to pitch stability	All other vowels	Tongue position for /u/ and /i/ causes laryngeal involvement and consequent pitch change (Honda, 1981, cited by Osberger and McGarr, 1982)

Source: Original graphic based on speculation and the following references: Mangan, 1961; Boone, 1966; Nober, 1967; Smith, 1975; Geffner, 1980, all cited by McGaffrey and Sussman, 1994); Monsen, 1978; Wold, 1994; Honda, 1981, cited by Osberger and McGarr, 1982.

Table 2.6 demonstrates that back vowels and low vowels are more advantaged by habitual retracted tongue posture than their contrastive partners. The highest vowels, both front and back, ie /u/ and /i/, are subject to abnormally high pitch production that does not occur for relatively lower vowels. Deaf subjects who have a relatively normal or characteristically monotonous voice, may produce the vowels /u/ and /i/ on a higher than normal pitch (Honda, 1981, cited by Osberger and McGarr, 1982). This may be caused by movement of the tongue root forward for the production of these two high vowels, which causes the thyroid bone to move upwards thus increasing tension of the vocal folds and raising pitch.

#### 2.3.2.2.4 Common consonant errors

There is an overall pattern of consonant error among the hearing-impaired that has been replicated in numerous studies (Osberger and McGarr, 1982).

The traditional grouping of consonant faults according to omissions substitutions, distortions and additions is used to categorise faults of Deaf speakers. This system has been adopted by numerous researchers, (Hudgkins and Numbers, 1942; Geffner, 1980; Calvert, 1982). Geffner (1980) gives the following figures for vowel and consonant production errors:

**Table 2.7: Proportion of omissions, substitutions, distortions and additions in deviant consonant production**

Omissions	91%
Substitutions	72%
Distortions	1%
Additions	0,19%

Source: Geffner (1980) presented in a tabulated form

The table clearly demonstrates that omissions are the largest category of speech fault, followed by substitutions and, to a far lesser degree, distortions and additions.

The section that follows examines each category of error.

- **Omissions**

Table 2.8 views consonant omissions.

**Table 2.8 : Consonant Omissions**

<b>Consonant type/phonetic environment</b>	<b>Pathology</b>
Single consonants	Back consonants omitted more frequently than front consonants (Geffner, 1980)
Affricates	One element dropped, usually fricative element (Osberger and McGarr, 1982)
Clusters and blends	Elements omitted (Kimbrough-Oller and Eilers, 1981)
Sonorous and fricative consonants	Consonants of sonority and frication omitted more frequently (Geffner, 1980)
Consonants according to position in words	Consonants are omitted in all positions – i.e., initially, medially, and finally - most often finally (Osberger and McGarr, 1982)

Sources: Geffner, 1980; Kimbrough-Oller; Osberger and McGarr, 1982

Table 2.6 demonstrates several important principles. The first is that back consonants are more problematic. It is logical to assume that visibility plays a role, and therefore the invisible back consonants are more disadvantaged. The second principle is the vulnerability of the feature of continuance. The feature of continuance consists of the combination of sonorous and fricative consonants, both of which are more frequently omitted. Underscoring this premise, in affricates the fricative element is more frequently omitted than the plosive.

One further example, not included in table 2.6, provides additional support for this theory.

- /k/ and /ŋ/ present equal difficulty in terms of position - both are back consonants, therefore cannot be easily seen. Yet /ŋ/ is more frequently omitted (Geffen and Freeman, 1980).

These examples support the author's new view that the feature of continuance in consonants is extremely vulnerable. Consonant and vowel production in the Deaf seem to operate in a temporally, diametrically opposed dynamic. **Vowels are prolonged** (Markides, 1983) **and consonants are generally shortened**. It is possible that this abnormal temporal dynamic plays an important role in creating the unique quality of the speech of the Deaf.

- **Substitutions**

Where audition is not available, lip-reading is the primary source of speech production information (Dodd, 1976). Lip-reading is a confusing avenue for speech information. Only /f/v/ and /θ/ð/ have direct visual cues (Ling, 1976) and, even then, the voicing distinction between surd-sonant pairs is invisible. Many sounds which are auditorially different are visually identical (Markides, 1983). Sounds which share the same visual appearance are termed visemes (Owens, 1978). It follows that sounds that cannot be heard to be different, and look identical, will be pronounced identically. The following is a fundamental concept : **substitutions occur frequently within viseme groups, but seldom across them** (Osberger and McGarr, 1982). This is tabulated in table 2.9.

**Table 2.9 : Common substitutions and rationale**

Substitution	Cause
Voiced/Voiceless counterparts may be substituted, (Ling, 1976; Monsen, 1976; Calvert, 1982; Osberger-McGarr, 1982)	Voicing is an invisible feature which cannot be lip-read. Therefore surd/sonant cognates are substituted.
Nasal/Oral substitution occurs (Ling, 1976; Calvert, 1982). Nasal consonants become oral stops (Osberger and McGarr, 1982). This is especially common for visemes (Calvert, 1982)	Nasality and orality are invisible features which cannot be lip-read., Therefore they are confused - The vulnerability of the feature of continuance is demonstrated.
Glottal stops substituted for any phoneme (Osberger and McGarr, 1982)	The neutral /ʔ/ sound made by sudden adduction and abduction of the vocal cords is invisible and relatively amorphous, cannot be lip-read, and is therefore randomly substituted
Plosives substituted for fricatives, not vice versa (Osberger and McGarr, 1982)	A plosive and a fricative within the same viseme group are visually identical. The vulnerability of the feature of continuance is again demonstrated.

Sources: the authors views and Monsen, 1976; Calvert, 1982; Osberger and McGarr, 1982

Table 2.7 demonstrates the limited amount of information lip-reading provides and the confusion it causes. As regards voiced/voiceless confusion, some controversy exists as to whether the voiced or voiceless counterpart is most commonly used. Heider (1941) and Car (1943) (both cited by Osberger and McGarr, 1982) believe the voiceless counterpart to be most commonly substituted. Nober (1967), Markides (1970) (both cited by Osberger and McGarr, 1982) and Monsen (1976) - who used acoustic analysis - hold the view that the voiced counterpart is most often incorrectly substituted. The assumption held by the author is that the voiced counterpart is more frequently incorrectly substituted. This judgement is partly subjective based on clinical experience, and partly an evaluation of the difficulty of quickly changing vocalised voice production into unvoiced production to accommodate a voiceless consonant. The vocal act of maintaining vocalisation would seem to be easier and more natural and thus more frequently used. Additionally, teaching a voiceless consonant is easier than teaching a voiced consonant, because the voiceless counterpart is contrastive to ordinary vocalisation, and offers a clearer experiential gestalt, and is less able to be corrupted because suprasegmental features are not operative. Teaching a voiced consonant is held to be more difficult because of the lack of a clear experiential gestalt.

Table 2.7 demonstrates, the vulnerability of the feature of continuance - plosives are substituted in place of fricatives, not vice versa, and nasal continuants become oral stops. Features of frication and sonority, which combine to form continuance, are shown to be extremely vulnerable.

- **Distortions**

Distortions of the intended phoneme may resemble non-English phonemes or be unidentifiable (Osberger and McGarr, 1982). Stops, /p/t/k/b/ and /g/, may be distorted by the excessive degree of force used in their production (Calvert, 1982).

- **Additions**

Sounds may be incorrectly added, termed epenthesis (Ling, 1990).

- There may be cluster creation - a /t/ becomes /st/ (Kimbrough-Oller).
- The neutral swcha may be erroneously added, firstly within a word, creating two separate syllables where there should be one (van Uden, 1987), secondly, word finally (Deal and Haas, 1996), as in the following example van Uden 1987:8): “We went(e) to town(e)” and, thirdly, in between the elements of a blend - for example, as in “g-lad” (Van Uden, 1987:8).

Harmful teaching methods have been suggested as the cause (Ling, 1976; van Uden, 1987).

#### 2.3.2.2.5 Vowels and consonants in connected speech

Any description of single vowels and consonants as static entities is simplistic. Phonemes in connected speech influence each other in complex ways, and a definitive description of each phoneme in its myriad phonetic contexts is not within the scope of this study. The examples below to demonstrate some of the complexities.

- Although /f/ and /v/ are classified as fricatives, they are not inevitably characterised by turbulence. In running speech /v/ - as in the word “very” - may have no fricative turbulence, and /f/, as in the word “fat”, very little. They may be pronounced as if they were alveolar or dental stops (Reddy, 1967, cited by Ling, 1976).

- Not all nasals are voiced. Following /s/ as in the word “small”, the /m/ may be partly or wholly unvoiced. The /n/ is unvoiced in the word “snow” (Ling, 1976).
- Acoustic measurement has shown that for normal speakers, the same vowel is shorter when it precedes a voiceless consonant than when it precedes a voiced consonant in stressed syllables (Denis, 1955; House and Fairbanks, 1953; Peterson and Lehiste, 1960; House, 1961, studies cited by Osberger and McGarr, 1982). Additionally, where a vowel precedes a voiceless plosive, the duration of the occlusion of the plosive is longer than when the vowel precedes a voiced plosive (Van Uden, lecture material, 1987 international course). The example below demonstrates both these principles.

In the word “hoppy”            -/p/ is a **voiceless** plosive  
   -/o/ is shortened  
   - the duration of lip occlusion for /p/ is lengthened

In the word “hobby”            - /b/ is a **voiced** plosive  
   - the /o/ is lengthened  
   - the duration of lip occlusion for /b/ is shortened

These examples serve to underscore the precise and complex nature of phonemes as used in connected speech.

#### 2.3.2.2.6 Intelligibility and type of speech error

The relationship between specific error type and intelligibility has not been clearly established. Traditionally, vowels were associated with sonority and consonants with intelligibility (Ling, 1976). This could be because of the analogy with writing (Monsen, 1978), which shows that consonants carry meaning. However, vowels sounds also differentiate between words (Ling, 1976).

Correlational studies at the segmental level show a high degree of association between the frequency of errors and reduction of intelligibility. Of the various error types that have been studied, the highest correlations have been reported for overall amounts of phonemic errors, omissions of phonemes word-initially medially, substitutions involving a change in the manner of articulation, substitutions of non-English phonemes, and unidentifiable or other gross distortions of the intended phoneme. At the suprasegmental level, timing errors and errors involving poor phonatory control have been found to have a negative effect on intelligibility (summarised from Osberger and McGarr, 1982:276).

Over and above the common faults described, there is some instability of fault patterns (Mets et al, 1990).

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## **2.4 CONCLUSION**

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This chapter describes variables and problems relating to speech of the Deaf. The aim is to provide not just a simple catalogue of speech faults, but to go beyond that parameter, and provide an understanding of the underlying dynamics which cause these systematic deviations, and demonstrate that a coding structure is operative (Osberger and McGarr, 1982, cited by Abdelhamied, Waldron and Fox, 1990). This causes speech to be produced consistent with typical Deaf patterns and, as such, creates a Deaf norm (Abdelhamied, Waldron and Fox, 1990). A major clue to understanding the different coding structure, is the appreciation of the concept that speech production errors are a good guide to faulty speech perception (Montgomery, 1976, cited by Monsen, 1978). A major cause of error is related to the incorrect and confusing messages lip-reading provides. The general rule may be simplistically stated: As they perceive it, so shall they pronounce it.

The following chapter moves away from a focus on problems and views potential solutions that have been devised by educators in various geographical and historic contexts. These will be appreciated against the backdrop of the theory set out in this chapter.



## **CHAPTER 3 : THEORIES OF SPEECH TEACHING FOR THE DEAF**

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### **3.1 INTRODUCTION**

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The direction taken now shifts from a focus on problems to one of solutions, what has been done historically is being done contemporarily and can be done potentially. This “menu” of available options provides a theoretical framework for Chapters Four and Five which describe empirical research into educator needs for speech instruction. This chapter details what is available to fill those needs. Similarly, it provides a theoretical framework for Chapter Six which describes the proposed speech programme. The description and evaluation of available options presented in this chapter substantiate, to a large degree, the rationale for design of the proposed programme. The theory presented in this chapter thus forms a basis for the understanding of subsequent chapters.

Where a system or theory is well documented, as is, for example, Ling’s (1976), - or is only important historically, less detail is provided. In contrast, those theories considered significant and which have not been described in depth as they relate to speech teaching for children with hearing losses, are described in greater detail. An exception to this, is the lack of detail accorded to techniques of vocal improvement used in speech and drama. Although these have not been described in relation to speech improvement for children with hearing losses, the vastness of the subject has means that only a brief foray could be made explaining basic precepts.

The chapter begins with a brief account of the historical roots of speech teaching for the Deaf. Some issues are still relevant. These include paradigm shifts in attitude towards the Deaf as a group, which occurred as a result of advances in medicine, science and changes in societal norms. Additionally, theories and strategies that have stood the test of time are briefly reiterated, and the genesis of the oral-manual controversy is viewed within historical context. Following that, an overview is given of the development of speech teaching for the Deaf in modernity, describing and evaluating the work of

important educators in the field, as well as technological advances. A description is given of how newer educational trends can be exploited to improve the speech of Deaf children. These include approaches both in general education and speech pathology. Evaluations of singing and vocal techniques used by actors, are the final items on the menu of available options.

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### 3.2 SPEECH TEACHING FOR THE DEAF HISTORICALLY

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This brief account describes major figures and trends and attempts to demonstrate how speech teaching reflected issues of the time. Awareness of the time link is an important consideration in analysing how current trends are influenced by contemporary issues.

The distinction of **first teacher** is generally accorded to Spanish Benedictine monk, Pedro Ponce de Leon (1510 (?) - 1584) (Lowe, 1991). Deafness was relatively common among upper-class Spanish families as a result of inter-marriage. Wealthy parents were anxious that their Deaf children learn to speak because Spanish law decreed that only those Deaf who were able to speak were entitled to full legal rights (Kapp, 1976). Few records remain, but it is known that De Leon based his teaching on written language. He educated numerous Deaf pupils, drawn exclusively from aristocratic families (Markides, 1983). The wording on Ponce's epitaph supports the then prevailing view that teaching the Deaf to talk was largely regarded as the realm of the miraculous: "Here lies the venerable Father Pedro Ponce who deserves to be eternally remembered for his gift, given to him by G-d, for making the dumb to speak." (Markides, 1983:7).

The **first textbook** on teaching the Deaf is credited to another Spaniard, Juan Pablo Martin Bonet (1579 - 1633) (Kapp, 1976). Bonet was not a teacher but a soldier, man of letters and politician who served an aristocratic Spanish family of a Deaf boy (Markides, 1983). In order to help the child he observed, and subsequently published, the methods of fellow Spaniard, Ramirez de Carrion in a book he entitled "Simplification of the Letters of the Alphabet and Method of Teaching Deaf-Mutes to Speak" (Bonet, 1620 in Markides, 1983). He made no mention of De Leon or De Carrion and was accused of plagiarism and fraud (Markides, 1983).

Bonet described how a leather tongue could be used to clarify tongue position to the Deaf speaker. It is interesting to note that Ling (1976), still advocating this strategy, uses Bonet (1620) as the formal reference. Bonet described a system of using the written form with the spoken form of the alphabet (Markides, 1983) which has much in common with the Association Phoneme Method described much later by Mildred McGinnes (Davis and Hardwick, 1981). Bonet noted the connection of good speech production and a relaxed teaching situation, and advocated that speech teaching be conducted in restful surroundings (Kapp, 1976). The potential of a tense didactic situation to deleteriously influence voice, as described in Chapter 2 (2.2:18) remains a problem. The influence of the Spanish pioneers spread throughout Europe (Markides, 1983).

The 17th century was a turning point in the education of the Deaf, as it was then that the assumption that dumbness was the inescapable and incurable accompaniment to deafness was rejected (Kapp, 1976). In addition, economic prosperity created a favourable climate for the advancement of science and there was an increasing interest in deaf-mutism as a scientific phenomenon among doctors and philosophers (Kapp, 1976). One of the most influential teachers of that time was Joseph Amman (1669 - 1724), a Swiss-born doctor who lived in Holland. His influence was significant because he published an account of his teaching methods. This was in contrast to many of his contemporaries who, for financial gain, jealously guarded their techniques (Kapp, 1976).

Today, while speech-teaching strategies are not withheld for financial gain, a similarity remains in that many remain unknown to the vast majority of educators - what is known scientifically does not necessarily find its way into the classroom (Ling, 1976). This may be in part because speech teaching is so complex a task that it is difficult to set down and describe. Over and above that consideration, lack of and inappropriate literature reflects the paltry and inferior effort that has been extended towards making methods accessible for teachers.

Amman gave a detailed analysis of sounds, dividing them into vowels, semi-vowels and consonants, and demonstrated a wide area of knowledge, such as the structure and function of the soft palate and the modified formation of sounds in combination (Kapp, 1976). The connection between writing and speech was used extensively (Markides, 1983) - a practice advocated in modern times by Van Uden (Van Uden, 1968).

As the education of the Deaf proceeded, motivation changed from religious benevolence, scientific curiosity and financial gain to one of social conscience (Kapp, 1976). This led to the establishment in 1700 of the **first schools for the Deaf**.

This century also saw the beginning of the long controversial “**war of methods**” **between oralists and manualists**. An example of how personalities affect the course of education can be seen in a description of the following event. In England Braidwood established an oral school for the Deaf which acquired a prestigious reputation for speech skills (Markides, 1983). At the same time, in France, Abbé de l'Epee conceived of the idea of education for all Deaf children, including the poor (Markides, 1983), using signs as the medium of communication (Kapp, 1976; Markides, 1983). Thomas Hopkins Gallaudet was sent to England to learn the oral method; however, the secretiveness of the Braidwood's led him to France, where he was given generous help by Abbe de l'Epee in the signing method, which he subsequently established in America. The Gallaudet College of America, which teaches Deaf college students using the medium of signing, has its roots in this event (Markides, 1983). Although the secretiveness displayed by the Braidwood's is no longer a feature of Deaf education, the polarisation that existed even then remains a problem.

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### 3.3 SPEECH TEACHING FOR THE DEAF CONTEMPORARILY

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#### 3.3.1 IMPORTANT EDUCATORS

Because Deaf education originated sporadically in different countries and many pioneers tried to keep their strategies secret, diverse methods arose (Kapp, 1976). Change arose out of technological advances, especially in the improvement of hearing apparatus, and in the sharing of knowledge when educators published techniques.

##### 3.3.1.1 England: Haycock and The Ewings

- **Sibley Haycock**

In England Sibley Haycock published *The Teaching of Speech* in 1933 (Chapter 2). It has become a classic and has been reprinted 19 times, the last printing being in 1979 (Markides, 1983), and is

still referred to frequently. Both Ling (1976) and Markides (1985) include it among their references of notable books for speech teaching.

Haycock's method was systematic (Markides, 1983). He trained both prosodic and articulatory aspects of speech and gave accurate descriptions of phoneme production (Markides, 1983). In addition, he described a variety of strategies for teachers on sound acquisition and correction. The method was primarily visual, dependent on lip-reading and direct imitation assisted by touch and kinaesthetic sensation (Markides, 1983). A critical evaluation has already been presented in Chapter 1.

- **The Ewings**

Also in England, a short time later a married couple, the Ewings, exerted a significant influence. They were particularly interested in the development and teaching of speech (Markides, 1983) and described their methods in a book entitled *Speech and the Deaf Child*, published in 1954. Methods were similar to those put forward by Haycock (Markides, 1983). One difference was their emphasis on the use of residual hearing, as they were able to take advantage of recent hearing aid advances.

In 1964 they described a new speech teaching technique they termed the Simultaneous Listening, Reading and Speaking (LRS) method, which relies heavily on the use of residual hearing and reading. The teacher reads the material aloud, employing natural prosodic patterns and uses a pointer simultaneously to follow the printed line being spoken. The pupil then approximates the teacher's utterance while keeping pace with the movement of the pointer (Markides, 1983). McMahon and Subtelny (1981) re-evaluated the effectiveness of this method and found that intelligibility, both for oral reading and spontaneous speech, improved significantly.

### **3.3.1.2 America: Daniel Ling**

In America several books were published on speech teaching. Examples include those by Calvert and Silverman, first published in 1975, and Vorce, first published in 1974. However, the first book that set out a sequential speech teaching model (Davis and Hardwick, 1981) was that of Daniel Ling (1976), some aspects of which have been discussed in Chapter 1, and will not be reiterated. The "Ling thing" (Davis and Hardwick, 1981:276) grew rapidly in popularity and was soon established as the teaching method most followed (Newton and Dunne, 1985; Bunch, 1987). It is unusual to come across an article dealing with speech that does not refer to Ling's methods (eg Le Blanc, 1985; Perigoe 1991; Cole,

1992; Gatty, 1992; Dagenais, 1994, etc). Davis and Hardwicks' observation in 1981, that Ling's system constitutes the most systematic and best thought-out programme, remains valid 20 years later. Possibly a major reason for his popularity is the planned security offered by the programme. Following his step-by-step approach, the teacher knows where to start and how to proceed.

The approach is largely phonetic, - the underlying assumption being that automaticity on the phonetic level will carry over to the phonological level. Seven sequential stages of speech acquisition are listed: voice on demand; control of suprasegmental patterns; vowels; consonants by manner contrast; consonants by manner and place contrast; consonants by manner, place and voicing contrast; and, lastly, word initial and final blends. Lessons are of short duration, with a heavy emphasis on drills. Little use is made of the mirror (Ling, 1976).

### **3.3.1.2.1 Critique of Ling**

Despite the acknowledged contribution, it is also clear that there are inherent weaknesses in the system. Two of these namely, the level of language used to explain the programme to teachers, and the lack of a child-centred approach, were discussed in Chapter 1. Three additional criticisms are:

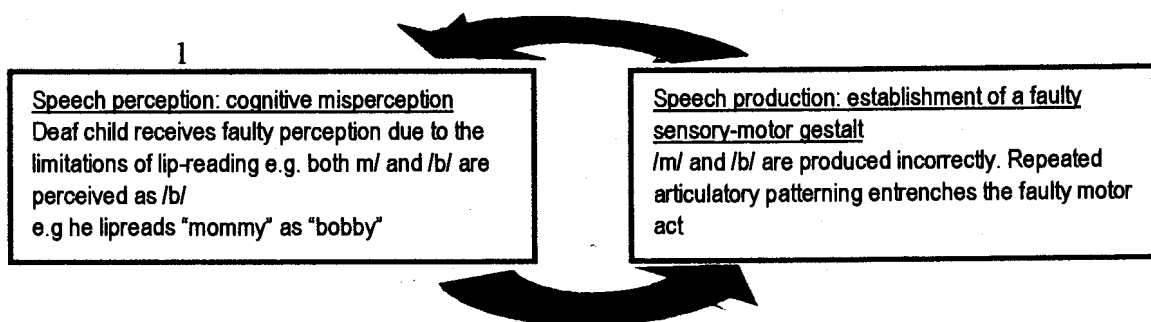
Too little emphasis is placed on the phonological aspect (Newton and Dunn, 1985). Ling believes that skills fully mastered at the phonetic level will require little, if any, instruction at the phonological level and suggests complete mastery at the phonetic level before beginning work at the phonological level (Newton and Dunn, 1985). Criticism has been levelled at the disproportionate amount of time expended on the phonetic level of training, especially with children who have useful residual hearing (Newton and Dunn, 1985). Additionally, it has been postulated that working on nonsense syllables may not facilitate generalisation of motor speech skills to meaningful linguistic units (Osberger, 1983; Abraham and Winer, 1985, both cited by Newton and Dunn, 1985). The direction taken in this author's study is that the amount of phonetic practice Ling lays down is appropriate, but there is a lack of additional provision for practice on the phonological level.

A second source of criticism relates to the fact that Ling deals with a specific sound and then moves on to the next one without a planned structure for revision. It is as though he regards the completed drill sequences as permanently "fixing" or "curing" the incorrect sound. The comments of DiCarlo (1976), who reviewed Ling's book the same year it was published, support the criticism that Ling seems to be

describing a foolproof formula based on a model that looks good on paper, but may not be valid in practice. Di Carlo asks: “The model imposes a lawfulness deductively derived and consistent with logico-mathematical models. But does the model satisfy logical necessity, rather than the processes and operations that fall within the rubric of empiricism?” (DiCarlo, 1976:230)

It is speculated that Ling’s model portrays an unrealistically optimistic outcome that does not reflect how exceedingly resistant incorrect production is to permanent remediation. The Deaf child continuously receives incorrect perception of sound production through the confusion inherent in of lip-reading. An example to clarify this is the Deaf speaker’s tendency to substitute /m/ and /b/ sounds. He does not hear that the phonemes are different, and when lip-read in connected speech, they appear to be identical. Consequently he may pronounce “mommy” as “bobby”. Every time he is presented with the word “mommy”, he will lip-read and cognitively internalise the faulty pattern, ie “bobby”, thus creating a negative cycle whereby the fault becomes entrenched. This is represented diagrammatically in figure 3.1.

**Figure 3.1: The negative cycle of speech perception and production**

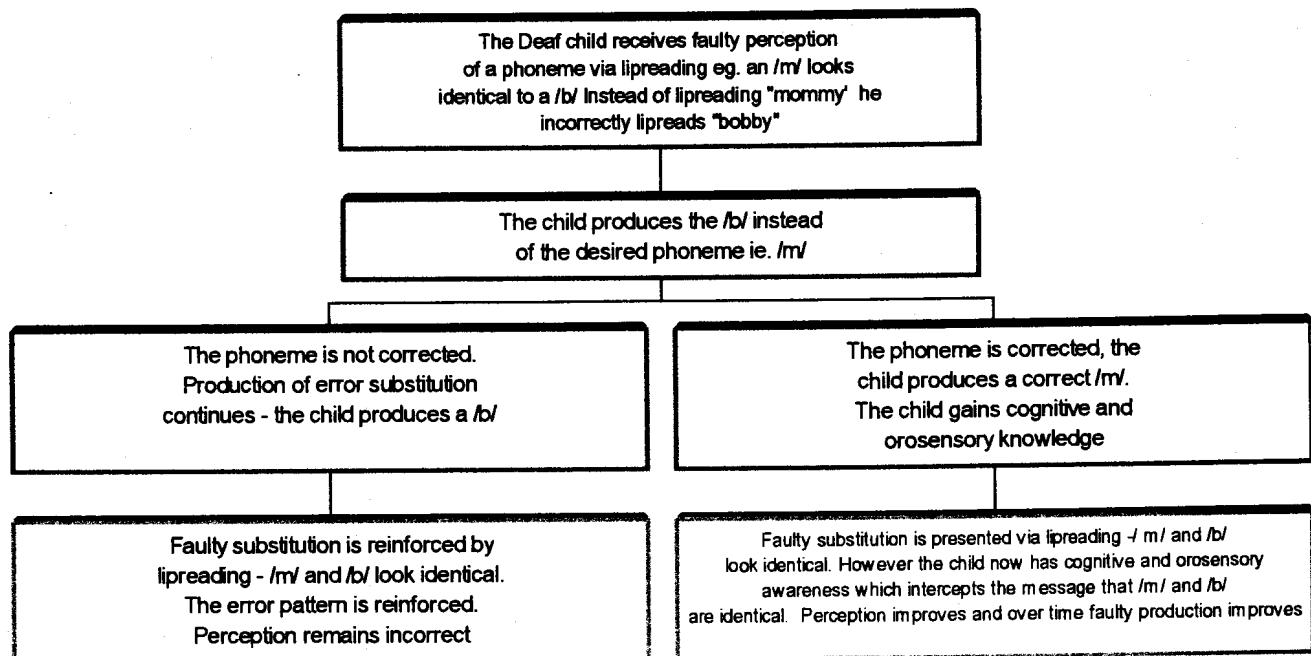


Source: Original graphic based on speculation

Figure 3.1 shows the negative cycle that faulty speech reading may perpetuate and how speech faults become entrenched due to incorrect cognitive patterning.

Figure 3.2 graphically represents a possible contrast between deviant production left uncorrected and deviant production that is corrected.

**Figure 3.2: Contrast between deviant production left uncorrected and deviant production that is corrected**



Source: Original graphic

Figure 3.2 shows the speculated link between production and perception. In this example, the child receives the faulty perception that /m/ and /b/ are identical and incorrectly substitutes /b/as /m/. The faulty perception is entrenched as a cognitive structure and reinforced by repeated motor, articulatory acts (represented by the statements boxed in blue). Where the sound is corrected (represented by the statements boxed in green), the child gains cognitive and sensory-motor awareness that modify the faulty message lip-reading provides. Substantiating the proposed theory that lip-reading not only affects but is affected by speech production, is the research finding of Conklin and Subtelny (Subtelny, 1980), who showed that small but significant gains in lip-reading occurred as a consequent of speech teaching. Remediation of phonemes, in terms of speech production, lead to an improvement in speech perception, ie lip-reading. The important point is that this will take time, repeated cycles of intervention being needed. Ling's model seems to imply that once the correct phoneme has been drilled to automaticity,



the task has been completed and the teacher can move to the next specified target. Where the teacher has conscientiously followed the steps Ling has set out, she consequently expects a sound to be permanently corrected. Once she finds this is not the outcome, she may feel a sense of inadequacy which may lead to a negative attitude to speech teaching.

A third criticism of Ling's approach, is that it is not integrated into other aspects of the educational curriculum, but remains a separate domain unrelated to, for example, reading, writing or spelling. This is in contradiction to modern tenets of education, which are discussed more fully later in this chapter (3.2:21-31).

### 3.3.1.3 Europe: van Uden

In Europe, Guberina (1952) of Yugoslavia became known for his verbotonal method. He asserted that body movements and bodily contact with low frequency vibration assisted in both perception and production of speech (Northern and Downs, 1984). His method is currently seldom mentioned.

A more enduring figure in Holland, Antony van Uden, originator of the well-known oral school, The Instituut Voor Doven, also uses sound perception in his programme. However, he remains best known for his system of language development termed the Conversational (or Maternal Reflective Method) which is based on of natural language learning as it occurs normally in the mother-child dyad. His system of speech teaching is less well known, as it has been little documented. However, the writer studied under van Uden in 1986 at the Instituut Voor Doven, graduating with the Maternal Reflective Diploma (1986), and is therefore au fait with his speech teaching system.

Several important principles are integral to the method:

- **Speech is taught in the context of language.** A typical lesson focuses on correction of a phrase, spontaneously spoken by the child.
- **The mirror is used extensively.** Teacher and pupil sit side by side facing a mirror. Child and teacher both watch the mouth of the speaker, ie the child watches his own lip movements when he speaks, and the teacher's when she speaks. Mirror usage goes beyond the idea of looking at the mouth for information on speech production. It is regarded as a tool for developing proprioceptive awareness. The child's perception of his own mouth movements is regarded as important for building

a motor sensory gestalt (van Uden, 1987), which affects perception and production of speech and development of lip-reading (Maas, 1984; van Uden, 1987).

- **Children are taught technical terminology from a relatively early age** (Van Uden, 1987). Terms such as “vowel”, “consonant”, “accent” and those describing tongue position, are used consistently.

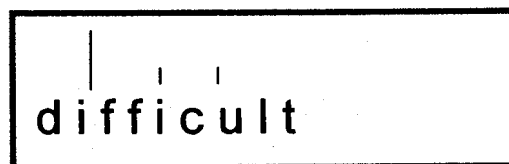
This is demonstrated by the following example: “To a child who, for example, says ‘hurd’ instead of ‘hurt’... one can say: ‘You are changing the last consonant into a voiced one; it should be breathed: hurt!’” (van Uden, 1987:31).

“To a child who is inclined to change all nasal sounds into plosives, say, for example, ‘sigs’ for ‘signs’: ‘You are using a plosive, but it should be a nasal sound.’ (van Uden, 1987:31).

Such an approach demands a serious attitude towards speech from pupils, - as evidenced by the level of concentration required from even young children (observed by the author in 1986).

- **Knowledge of syllable structure is regarded as indispensable.** Children need to know, the number of syllables a word contains and, which syllable has the accent (van Uden, 1987).

**Figure 3.3 : Stress analysis of the word “difficult” according to the system of van Uden**

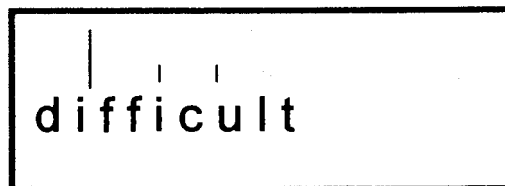


Source: Application of theory observed at the Instituut Voor Doven (1986)

Figure 3.3 shows how vertical lines of different lengths are used to denote number of syllables and stress pattern.

After the major and minor stress patterns have been demarcated, a structure termed the “melody bow” is superimposed to denote the unbroken rhythmic structure of the word, as demonstrated below in figure 3.4.

**Figure 3:4 The melody bow superimposed on the graphically represented stress accents**



Source: Application of theory observed at the Instituut Voor Doven in 1986

Figure 3.4 shows how the melody bows both repeats and emphasises the stress pattern and additionally denotes the unbroken fluidity of word production.

Figures 3.3 and 3.4 demonstrate the link between accent and rhythm. It is significant that during both phases – ie the first phase, scoring the vertical lines denoting stress and syllable structure and the second phase, superimposing the curved melody bow - are done in a manner which replicates the Listening Reading Speaking method described by the Ewings (1964). The pupil does not look at the teacher’s mouth, but attends to the written representation as the teacher simultaneously vocalises and draws.

- **Hand analogies are used.** One of the most frequently observed was the movement of the fingers imitating a motion akin to pulling a piece of string out of the mouth to signify the narrow, continuous breath stream required for correct articulation of the /s/ sound.
- **Writing is used extensively.** Words are taught initially by imitation, the written form being provided directly afterwards. Writing also forms an integral part of language training. Conversations are written down and form the basis of future learning, including rules of grammar. Van Uden terms these written conversations “deposits”. He humorously reasons that in the same way as a deposit of money in the bank will lead to financial growth in the form of accrued monetary interest, so will language “deposits” lead to incremental language growth (lecture material, van

Uden, 1986). Speech correction and development are constructed along similar lines. The correction of phonemes is written down as a “deposit”, which can later be revised and extended.

van Uden asserts that Deaf people need the written form to aid memory for words (van Uden, 1987). He notes that writing, as a support for speech and language, is used naturally by hearing individuals. Underscoring both the normalcy and efficacy of this strategy, he asks rhetorically:

“How often have we heard hearing people ask: ‘How do you write this?’ when they meet a new term? Deaf people can learn to visualise a certain word in writing and pronounce it thus” (van Uden, 1987: 27).

During speech lessons the teacher writes on the mirror, since the child cannot look down to a book and at the teacher’s mouth simultaneously (van Uden, 1987). Later the “deposit” is written in the child’s speech book.

#### 3.3.1.3.1 Critique of van Uden

Despite the acknowledged merits of the system, certain criticisms are pertinent.

- **The serious attitude to speech learning is not child centred.** It is possible that this method may not be appealing or appropriate for young children and could even cause negative attitudes to speech.
- **The lack of published material renders this method inaccessible to the majority of teachers.** Its use is limited to individuals who have observed such teaching.
- **The lack of a chronological model detailing teaching steps is a severe obstacle for inexperienced teachers.** The amount of knowledge needed at outset is enormous. It would seem to be a method best suited to educators experienced in teaching speech.
- **Extensive use of the mirror may cause exaggerated movements the visible speech organs.** Direct attention to the mouth may cause the pupil to exaggerate his lip and mouth movements habitually.

### 3.3.1.4 Comparison between Ling and van Uden

There are several important contrasts between the training methods of van Uden and Ling. These are summarised in the table below.

**Table 3.1: Comparison between the speech teaching methods of Ling and van Uden**

Ling	Van Uden
Phonetic approach	Phonological approach
Extensively published material available	Very little published material available
Prescribed sequential order for teaching sounds	No sequential order. The teacher chooses speech targets from the child's conversation
The teacher has access to a pre-planned basis of incremental knowledge – Ling's (1976) book	The teacher has no access to material and needs a vast amount of existent knowledge
Mirror is seldom used	The mirror is used extensively
Writing is not used	Writing is used extensively
Less integrated into other aspects of education	More integrated into other aspects of education

Source: Original table based on material from Ling (1976), Maas (1984) and van Uden (1987)

The table above delineates seven major points of difference between the two methods.

- Ling's method is almost exclusively phonetic. van Uden, on the other hand, spends very little time at the phonetic level. Brief mention is made of the importance of babbling exercises for developing rhythm and training memory (Maas, 1984), details of which have not been extensively published.

A comparison between this aspect of the two educators reveals different strengths and weaknesses.

It is possible that Ling's stress on phonetic training produces more natural speech patterns, because the repeated motoric act become habitual (termed by Ling as the level of automaticity), and correct production is no longer part of conscious, cognitive awareness. van Uden's method, on the other hand, based on cognitive awareness, may demand that pupils be continuously aware of speech production. This may cause psychological strain. However, as an advantage, van Uden's immediate integration of correct speech into language may make correction more cogent. Possibly the contrastive aspects could be combined to maximise the benefits.

- A second major difference is that Ling lays down a prescribed teaching order, whereas the content of van Uden's lessons arises out of the child's spontaneous conversation. On the one hand, a prescribed teaching order is an aid for the novice teacher, giving a sense of security. On the other hand, repeating the same prescribed order for numerous children may become tedious once she is no longer a novice. Additionally, teaching that arises out of spontaneous conversation, which is relevant to the pupil, is a more integrated approach.
- The fourth difference relates to availability of published material. Ling's method has been documented in his book, "Speech and the Hearing-Impaired Child", whereas little of van Uden's speech method has been published. As a consequence, few teachers have the opportunity of learning van Uden's methods.
- Fifthly, because of Ling's prescribed structure, the teachers can use compartmentalised areas of knowledge. Working according to van Uden's method, the teacher needs to have a ready storehouse of knowledge, since spontaneous conversation is used as a basis for speech teaching. Working within the confines of compartmentalised areas of knowledge, as laid down by Ling, is easier for the inexperienced teacher. A vast amount of available knowledge is needed in order to be able to correct spontaneous speech, without a teaching model.
- A sixth contrast is the role played by writing. Ling suggests that writing is not only unhelpful but, if used too early, may be harmful, causing speech problems such as impaired speech fluency and cognitive processing (Ling, 1976). This is in contrast to van Uden, who regards such usage as a normal process for clarifying phonemes which is particularly suited to Deaf individuals.

The direction taken by the author is that writing is a useful tool, both because it clarifies the confusing message purveyed via lip-reading and because it is a fixed reference point, compared with the fleeting image that occurs for phonemes in connected speech. However, the manner in which writing is integrated into the proposed speech programme differs substantially from Van Uden's system.

The use of writing integrates speech lessons into general education. Ling's system, as stated, has little connection with other areas of education. van Uden's system is relatively more integrated, not only in the use of writing, but also in the teaching of poetry and the writing of phrases and sentences as part of spelling (van Uden, 1987). van Uden regards these familiar educational practices as important for speech improvement of the Deaf. The integration of areas of education is a basic tenet of modern didactic practice.

- A final point of divergence concerns mirror usage. Ling seldom finds the need to use a mirror because, in his view most speech production cues are invisible (Ling, 1976). This is in contrast to van Uden, who regards the mirror as indispensable, not only for correcting speech errors (Maas, 1984), but also as an aid to developing proprioceptive awareness of the speech organs.

As Pflaster (1976) notes, mirrors have held a traditional role in speech teaching for hearing-impaired children. However, there is a diversity of opinion between writers as to their efficacy. van Uden (1987), advocates continuous mirror usage. Others recommend that mirrors be employed to correct specific errors (Bell, 1916; Haycock, 1933; Calvert and Silverman, 1975). Ling (1976) questions its value, and Ewing and Ewing do not even mention its usage (1964, cited by Pflaster, 1979). As recently as 1992, Gatty (:53) somewhat tentatively states: "... the availability of a mirror ... **may** also be helpful" (this writer's emphasis). Gatty's unsure tone reflects Pflaster's (1979) observation of the absence of research to provide evidence to either support or contradict mirror usage. The direction adopted in the proposed speech programme is that, in general, the mirror offers little help. The child's production errors reflect phoneme - vizeme confusion caused by lip-reading – and, as such, the same confusion will simply be repeated by viewing a mirror image of the same viseme. Hand analogies, and tactile cues which seek to replicate orosensory gestalts, are regarded as superior cues for production.

### 3.3.2 TECHNOLOGICAL ADVANCES : COMPUTERS AND BIOFEEDBACK

During the last 20 years, use of technological devices to make speech visible to Deaf people have increased rapidly (Ryals, et.al., 1994). Two main avenues exist (Dagenais, 1992). The first provides a visual display of the acoustic signal (for example, through computers such as the IBM speech viewer), which has had a significant impact on the development of speech training aids for the Deaf (Garry, 1992). The second avenue, which is more recent and less studied, is the use of biofeedback. This includes glossometry and palatometry instrumentation (Dagenais, 1992).

There is little available research demonstrating clinical effectiveness of either (Dagenais, 1992; Ryals et. al., 1994; Ryals et al, 1995). Some research findings show that alternate sensory channels can improve speech (Gulian et.al., 1983). A study described a group of profoundly Deaf children using technological aids who made greater gains in vowel production and had better retention after six months than a group who had the same training without such input (Gulian et. al., 1983). As discussed in Chapter 2 vowel production is particularly problematic for Deaf speakers, therefore any system which points to possible improvement is noteworthy.

#### 3.3.2.1 Advantages and disadvantages

There are several **advantages** to these systems. The major one is that Deaf individuals have, through technology, access to input that neither hearing, lip-reading nor touch can provide (Gatty, 1992). Secondly, most systems use a game-like design (Gatty, 1992) which is interesting and motivating to children (Ryals et al, 1994) and, thirdly, use is supposedly independent of teachers (Gatty, 1992).

Several **disadvantages** have also been noted. Firstly, the system is not wearable and therefore does not provide consistent reinforcement (Gatty, 1992). In a certain sense this criticism is unfair, since the device is for training purposes, analogous to a speech teacher, who also cannot be available to the child throughout the day. Another criticism is that where the design of the feedback is simple, the image of the sound may not be complete and, conversely, where the visual image is complete, it may be too complicated for practical use with children (Ling, 1990). A third noted disadvantage, is the apparent difficulty in using these devices for connected speech, especially in contexts of co-articulation (Gatty,



1992; Dagenais, 1992). The subtleties and complexities of co-articulation are important and difficult to teach. In Ling's (1976) view co-articulation constitutes the final hierarchy in teaching speech. Thus a system that does not provide aid in this area does not contribute to a complex problem that has not been solved by other strategies, and as such, falls somewhat short of the mark. Fourthly, the idea that the pupil is independent of a teacher is not a true representation. The pupil may well be less dependent on the teacher, but effective use still requires considerable skill on the part of the teacher (Gatty, 1992). As Ling (1990) cogently states, technological aids like most other tools, can either be used skilfully or poorly. The machine cannot simply be switched on. Professionals need clear concepts about a range of factors underlying the acquisition and treatment of deviant phonology if they are to use this system effectively (Ling, 1991). Fifthly, the financial expenditure required to purchase such systems may be beyond the scope of some schools.

### **3.3.2 THE WHOLE LANGUAGE APPROACH (WLA): A NEWER DEVELOPMENT IN LANGUAGE TEACHING**

The basic construct of the WLA is that language is an integrated, componentially complex system and, as such, is more than the sum of fragmented parts (Cummins, 1983; Oller, 1979; Shuy, 1981 – studies cited by Norris and Damico, 1990). Thus language cannot be taught as it was during the preceding behaviourist era, by being broken down into small units so that modification of easily observable behaviours could take place (Norris and Damico, 1990). In fact, such fragmentation of language into the smallest parts, often with the least contextual support, is viewed as increasing, rather than decreasing, linguistic difficulty (Norris and Damico, 1990). An integrated approach to language learning is congruent with a trend in general education towards holism. (Shapiro, 1990)

#### **3.3.3.1 Implications of the WLA to the Deaf child in the classroom**

Norris and Damico (1990) note two important implications of the WLA, both relevant to speech development of the Deaf child.

### **3.3.3.1.1 Importance of non-linguistic variables are important.**

Additional variables, such as motivation and anxiety, influence language learning (Norris and Damico, 1990). Meaningfulness, for example, is pivotal to motivation. Children do not learn language in order to articulate correctly or speak well-formed sentences, but rather to derive meaning and accomplish purpose (Norris and Damico, 1990).

It follows that Deaf children attending special schools will respond equally to aspects of motivation and anxiety. Therefore, speech should be taught in educational contexts that are motivating and relaxing. Fortunately, the WLA provides the teacher of the Deaf with opportunities to use naturally appealing activities such as story-telling, drama (Sauder, 1995; Whitesell and Klein, 1995) and poetry (Sauder, 1995). With regard to anxiety, in addition to its negative affect on motivation, the deleterious influence tension has on the speech production mechanism has been accentuated (Chapter 2).

### **3.3.3.1.2 Inter relationship of language components and processes.**

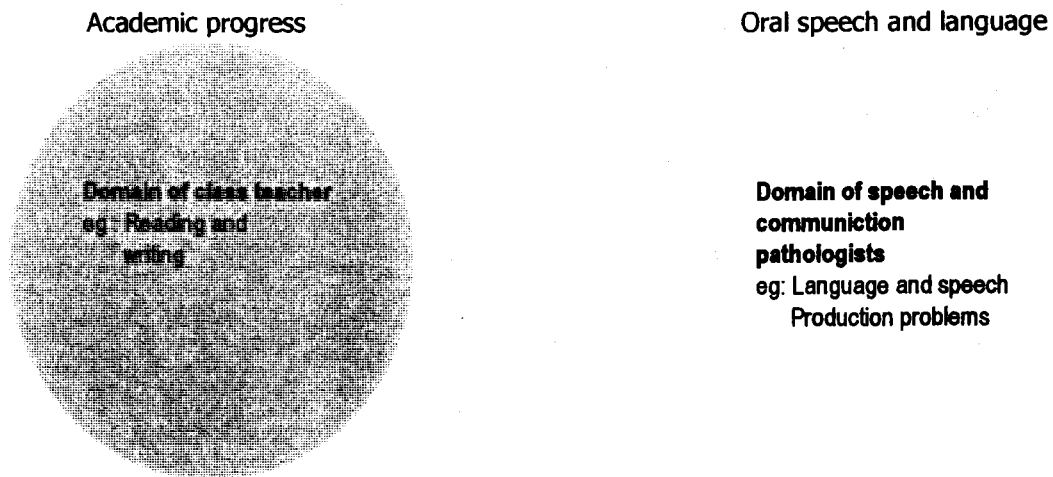
The WLA proposes that language components (e.g phonology and syntax) and processes (e.g speaking and reading) are interconnected. (Harste, Woodward and Burke, 1984; Goodman, 1986; Crystal, 1987; studies cited by Norris and Damico, 1990). This occurs to the extent that one individual component or process cannot change without affecting and being affected by the other.

Two important consequences that have relevance to the speech development of the Deaf child are sourced in this inter-relationship. There is a connection between, firstly, speech and language and academic progress (Catts and Kami, 1987; Simon, 1991; Larson and McKinley, 1995 – studies cited by Stewart et al, 1997) and, secondly, between phoneme and grapheme errors. Each of these is discussed below.

- **Relationship between speech and language and academic progress**

This modified the roles of educators in regular classrooms (Norris and Damico, 1990; Shapiro, 1992; Stewart et al, 1997) and has relevance for educators in special schools for Deaf children. Traditionally, the domains of communication pathologist and class teacher were seen as separate. Academic progress was the responsibility of the class teacher, whereas problems of speech and communication fell to the communication pathologist. (Figure 3.5).

**Figure 3.5: Two separate spheres of responsibility: class teacher and communication pathologist**

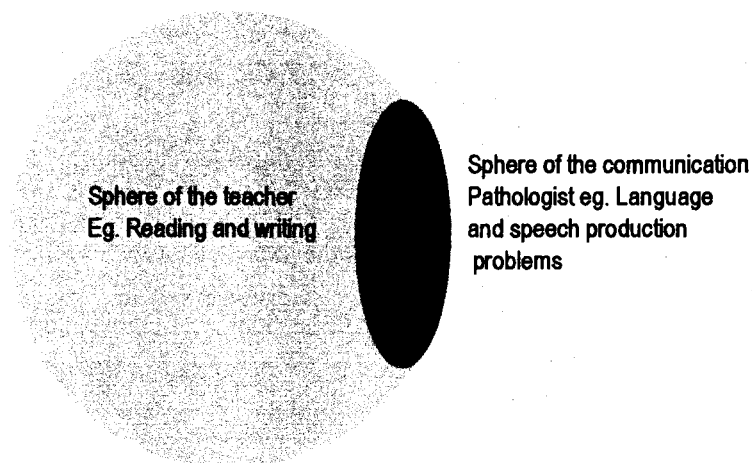


Source: Original graphic

Figure 3.5 shows how the areas of responsibility of speech teacher and communication pathologist were regarded as separate domains.

A prerequisite of the WLA is that the two domains become interconnected. This is graphically depicted in figure 3.6.

**Figure 3.6: The WLA emerges as a new system when the areas combine**



Source: Original graphic

Figure 3.6 shows how, analogous to the mixing of colours, a new entity - ie the Whole Language Approach, - is activated when the two domains are meshed. The colour analogy above demonstrates how blue (the teacher's domain) and yellow (the communication pathologist's domain) combine to form something different, i.e green (the emergence of the WLA).

A consequence of the need for relatedness is that aspects of speech and language previously deemed solely the province of the communication pathologist, are now considered part of basic educational practices (Norris and Damico, 1990; Shapiro, 1992; Stewart et.al, 1997). Consultation and collaboration between teacher and communication pathologist are a prerequisite if this new area of knowledge is to reach the child in the classroom.

Currently little information is available to describe how pathologists and teachers negotiate and divide responsibilities for speech-related skills at schools for normally hearing or Deaf children (Otis-Wilborn, 1992). There is an acknowledged need for such collaboration (Tomes and Sanger, 1986, cited by Otis-Wilborn, 1992).

- **There is a relationship between phoneme and grapheme errors**

Several studies present compelling evidence attesting to the link between the grapheme errors and speech performance in normally hearing children (Harris, 1958, cited by Hoffman 1990; Hoffman and Norris, 1989, cited by Hoffman, 1990; Hoffman, 1990).

- Harris (1958, cited by Hoffman, 1990) showed that children misspell words containing phonemes they misarticulate more frequently than words they articulate correctly.
- Hoffman (1990) demonstrated an even more precise connection. Children who delete final consonants in speech are likely to delete final consonants in reading and spelling. He suggests that attention to reading and writing could remediate speech faults.

Hoffman's (1990) suggestion, that attention to the grapheme could support phoneme correction, is a core assumption supporting the view that the WLA could be used to improve speech production of Deaf children in the classroom.

A prefacing question is whether Deaf children, who do not acquire phonemes in the same way as hearing children (ie through the auditory channel), will be able to profit from such an inter-relationship.

Derman's (1987 – this writer's) analysis of spelling errors of Deaf children demonstrated a strong relationship between grapheme and phoneme errors as evidenced in misspelling, but did not test Hoffman's hypothesis that attention to the grapheme could aid correction of phonemes.

In her research, pupils with hearing losses were shown a picture of the target word, given opportunities to imitate a spoken model provided by the teacher and then told to write the word. Results showed, firstly, that only a small proportion of spelling errors were typical of those made by hearing children; secondly, that there was a link between level of speech proficiency and number of atypical errors; and, thirdly, congruent with Monsen's (1981:47) statement that "there is a logic to even the most deviant and unintelligible **speech** produced by a profoundly Deaf speaker" (emphasis added) - there appeared to be a logic to even the most deviant and incomprehensible **spelling** of the child with a hearing loss. The basis for this logic was located in phoneme/viseme confusion. This is demonstrated in Table 3.2 which explains the logic for the misspelling of a Deaf child of the Afrikaans word "klippe" (English translation: "stones") as "lem".

**Table 3.2 The underlying logic of a Deaf child's misspelling of the word "klippe" as "lem"**

Correct spelling	k	L	I	p	p	E
Deaf child's incorrect spelling		L	E	m		
Explanation of deviant logic according to phoneme/viseme confusion	The /k/ phoneme, often invisible, is in this case completely obscured by the upward movement of the tongue in preparation for production of /l/ phoneme. The "k" grapheme is therefore omitted in the child's misspelled version	the /l/ phoneme is visible – the child sees the tongue move into position. The corresponding "l" grapheme is correctly written	the /i/ phoneme represented by the "i" grapheme is written by the child as the grapheme "e". This can be understood as a logical substitution, since the two vowels are closely related	"p" grapheme is incorrectly substituted by a "m" grapheme. /p/ and /m/ present as one viseme. The child has taken the viseme of the lips closed as representing the /m/ phoneme and therefore writes the "m" grapheme		The "e" grapheme is omitted finally as the child assumes the word is completed with the closing of the mouth for what he perceives is the final phoneme – a /m/. He does not hear the final syllable and perceives the viseme as the lips parted in silence

Source: Derman, 1987

Table 3.2 demonstrates how the Deaf child's misspelling can be understood with reference to phoneme/viseme confusion.

The correlation between the common genesis of speech and spelling errors, strongly suggests that, in the same way as for hearing children, attention to the grapheme could aid phoneme correction in Deaf children. Such a connection has not yet been exploited in speech programmes for Deaf children. The grapheme offers numerous advantages which are, as van Uden (1987) states, even more significant for a Deaf than a hearing child. These include:

- The grapheme is accessible as it is visible. The phoneme may be neither visible nor audible.
- Graphemes are not confusing, as are lip-read phonemes.
- The grapheme is constant, whereas the phoneme is a fleeting image.
- There is a fortuitous correlation between grapheme and phoneme (Olefsen and Lundber, 1983) in

Anglo-Saxon languages which can be exploited for the Deaf child. It is not present in all languages. Chinese orthography for example, relies on associations between individual printed words (Treiman and Baron, 1983) and not phoneme-grapheme correlation.

- Teachers may feel more comfortable teaching speech as part of familiar educational activities such as spelling, reading or writing, rather than in the unfamiliar arena of speech pathology.
- The printed word is freely available. No monetary expense need be incurred, unlike the financial outlay required to purchase technological aids such as computers or mechanisms for biofeedback.
- Spelling, reading and writing constitute regular scheduled periods during the school day. If speech lessons were incorporated into an existing infrastructure, there is a greater likelihood that they will be taught regularly.
- Finally, the Listening, Reading, Speaking (LRS) method, proven in speech improvement, could be incorporated into existing academic structures such as of spelling, reading and writing.

In conclusion, selected aspects of the WLA could be effectively incorporated into a speech programme for Deaf children. The only disadvantage is that currently no body of literature exists describing its implementation or efficacy.

### **3.3.4 THE PHONOLOGICAL APPROACH: A NEWER METHOD IN SPEECH REMEDIATION FOR CHILDREN WITH NORMAL HEARING**

A newer method, termed the phonological approach, has been developed for remediation of speech faults of hearing children. The discussion below will demonstrate its applicability to Deaf children.

Thus far the term “phonological” has been used, as does Ling (1976), to describe remediation of speech at the level of language in contrast to the term “phonetic”, which describes remediation of speech in non-meaningful contexts. In this section the term “phonological” is used differently and to refers to a method of speech therapy. Qualifying descriptors such as “approach” or “method” will be used for clarification.



### 3.3.4.1 EVALUATION OF THE BASIC TENETS OF THE PHONOLOGICAL APPROACH TO SPEECH REMEDIATION OF DEAF CHILDREN

There is general agreement amongst proponents that three principles are basic to this approach (Elbert, 1992; Fey, 1992, Gieret et.al, 1996). These are set out in table 3.3 in conjunction with a description of applicability to Deaf children.

**Table 3.3: Evaluation of the basic tenets of the phonological approach in relation to speech remediation of Deaf children with hearing losses.**

<b>Basic tenet of the phonological approach</b>	<b>Applicability of tenet of the phonological approach in relation to the remediation of the speech of children with hearing losses</b>
<p><b>Principle One</b> There is an emphasis on a modification of <b>groups of sounds</b> which are treated in the same fashion by the child (Elbert, 1992). The rationale for the efficacy of phonological treatment rests on the basic assumption that pronunciation patterns are rule-governed and predictable (Grunwell, 1985 – cited by Khami, 1992). It is a conceptually based system of remediation which investigates and treats underlying patterns of production that account for several errors at one time (Klein, 1992), thereby introducing a change into the child's sound system (Gieret et al, 1996)</p>	<p>This principle is highly applicable to remediation of the speech errors of children with hearing losses because their pronunciation patterns are rule-governed and predictable (Dodd, 1976; Monsen, 1981). A major source of errors is phoneme-viseme substitution due to the limitations of lip-reading. Misarticulated sounds can therefore be grouped so that underlying patterns of production are identified which can account for several errors at one time</p>
<p><b>Principle Two</b> There is an emphasis on the establishment of <b>previously neutralised phonological contrasts</b>, rather than sound production per se</p>	<p>This has limited applicability. On a positive level, it can be utilised in relation to supplying the child with an accessible visual or tactile "gestalt" of the process he is neutralising. On a negative level, the child with a hearing loss will need direct feedback to know whether or not he has achieved a target sound. It will not automatically follow that the establishment of previously neutralised contrasts will lead to correction of specific phonemes if no direct attention to the phoneme is given</p>
<p><b>Principle Three</b> There is an emphasis on the use of speech sounds of <b>communication purposes</b>, rather than correct production of the sound as a goal in itself (Elbert, 1992)</p>	<p>This option exists. Ling's emphasis is on the phonetic level, whereas van Uden teaches sounds in a meaningful context. Due to the rarity of comparative evaluations of speech training methods (Dagenais, 1996), the efficacy of one approach over another has not been definitively assessed</p>

Sources: Dodd, 1976; Monsen, 1981; Elbert, 1992; Khami, 1992; Gieret et al, 1996; Dagenais, 1996

As Table 3.3 demonstrates, the first principle, correction of groups of sounds, is the most applicable to Deaf children.

The phonological method provides educators with a conceptual framework for grouping sounds according to underlying error patterns. The important proviso is that error patterns are correctly identified in relation to the unique system of speech errors that exists for Deaf speakers. There is a plethora of evidence to support the view that the phonological approach is more effective than the traditional approach with normally-hearing children (Klein, 1992). It is suggested that appropriate adaptations would similarly render the method more effective than traditional methods of speech remediation of speech in Deaf children.

#### **3.3.4.2 EVALUATION OF THE BASIC TENETS OF THE TRADITIONAL APPROACH TO SPEECH REMEDIATION OF CHILDREN WITH HEARING LOSSES**

A brief description of traditional speech teaching serves two purposes: firstly, it clarifies the essence of the phonological method by juxtaposing contrastive principles; secondly, it delineates those aspects of the traditional method which cannot be discarded, thereby rationalising their continued inclusion in speech remediation protocols for Deaf children.

Klein (1992:318) specified six criteria that represent a traditional approach. These are presented in Table 3.4 in conjunction with an evaluation as to their applicability to Deaf children. All references given under principles of traditional therapy are from Klein's (1992) article.

**Table 3.4 – Criteria of traditional therapy**

<b>Principle of traditional therapy</b>	<b>Applicability to Deaf children</b>
Direct instruction in the mechanism of phoneme production using techniques such as successive approximation (Van Riper, 1972) and prompts such as mirror, tongue depressor, peanut butter, pictures of the mechanism or motor posturing	Direct instruction, using the strategies described, are applicable. The question of mirror usage has been discussed earlier (3.1.4)
Use of motor exercises (eg Scripture and Jackson, 1927), sensory-motor training (McDonald, 1964) or a comparable strategy, with the goal of increased motor control	Use of motor exercise forms the basis of Ling's approach. Therefore gaining increased motor control is compatible with established tenets in the remediation of the speech of Deaf children.
Use of sound discrimination training (eg Winif, 1975) in order to remediate a supposed underlying auditory discrimination problem	The hearing child has an auditory dysfunction; the Deaf child has an auditory loss. Sound discrimination training will be of limited use. Where a sound cannot be perceived, training is pointless. This principle has extremely limited applicability
Extensive use of modelling and subsequent requests for direct imitation by the children	This has little applicability as the faulty production is largely a result of the perception gained from direct imitation. Giving additional opportunities will not change faulty perception
In all cases, except where the sensory motor approach (McDonald, 1964) was used, production began at the isolated sound level and then progressed through syllables and higher levels of production. During use of the McDonald (1964) programme, therapy began at the syllable level.	Ling's system progresses in the manner described for McDonald.
Therapy is directed at one or, at most, two incorrect sounds.	This is currently applicable to Deaf children. The effectiveness of dealing with one sound versus a group of sounds, as in the phonological method, has not been documented

Source: Klein's (1992:318) criteria, with original commentary

Table 3.4 describes five criteria representing the traditional paradigm. One strategy – direct instruction in the mechanism of phoneme production – appears to be indispensable. Two strategies are common practice in speech teaching for Deaf children, although their effectiveness has not been evaluated, ie motor exercises and using the phoneme or syllable as a first step to the progression of higher levels of production. Two strategies appear to have extremely limited applicability: firstly, auditory training, which can only be of benefit if the potential for hearing is present and, secondly, direct imitation, which simply repeats the confusing visual cue that is the genesis of the speech fault.

In summary, it would seem that the basic assumptions of a purist phonological approach cannot be adopted *carte blanche*. Aspects of the traditional articulation-orientated approach appear to be indispensable and need to be incorporated. In this regard, Ling's (1991) comments are cogent: work in accordance with the phonological process theory does not refute work based on the established principles that underlie more traditional procedures (Ling, cited by Hoffman and Daniloff, 1990). The purpose of evolving theory is to extend, rather than replace, established practice.

### **3.3.4.1 DISADVANTAGES OF THE PHONOLOGICAL APPROACH FOR DEAF CHILDREN**

A major disadvantage of using relevant aspects of the phonological method with hearing-impaired children is the lack of current research (Ling, 1991). It is unlikely that this method can simply be transplanted without adaptation. Several important factors support this cautionary note. These include:

- Even where faults are similar to those produced by hearing children, causal mechanisms and treatment differ (Ling, 1991). This is analogous to a skin rash, which may be caused by exposure to poison ivy or to – symptoms are similar, but cause and treatment differ.
- Certain faults are idiosyncratic to the Deaf. As Monsen (1981:846) notes, referring to the English-speaking Deaf population: “When Deaf speakers make an error, they don't just substitute some other English sound but... frequently... produce a sound that does not occur in English...”
- The transition from immature, faulty phonology to mature, correct phonology, which occurs naturally for hearing children (Edwards, 1992) as a consequence of normal development (Fey, 1992), has little applicability to the Deaf. The absence of audition compromises the development of articulatory behaviours (Tye-Murray, 1992). Deviant speech patterns described for adult Deaf speakers give support to this argument. No amount of accrual in terms of chronological age can obviate a speech fault that stems from a lack of auditory acuity.

Seen in the light of these considerations, Kimbrough-Oller et. al.,'s (1978) account of similarities between phonological processes of young hearing and hearing-impaired speakers does not seem useful.

Possibly the plethora of speech faults in the hearing-impaired means that parallels may be drawn with

hearing speakers which result from a maximum of opportunity, rather than from valid similarities.

#### **3.3.4.4 ADVANTAGES OF EMPLOYING THE PHONOLOGICAL APPROACH WITH DEAF CHILDREN**

As Ling (1991) pertinently states, little has been written on the benefits or limitations of this method in relation to the speech of the Deaf. Two benefits are, however, clearly apparent that may render the phonological approach even **more** suitable for the Deaf than for hearing speakers.

- **Unintelligibility and multiple speech faults are common among Deaf speakers**

Unintelligible children with multiple speech faults are considered to be the most suitable candidates for phonological remediation (Hodson, 1992). Hearing children seldom have multiple speech faults which render them unintelligible (Hodson, 1992). In contrast Deaf children are well described as being highly unintelligible and exhibiting multiple speech faults. According to these criteria, proportionately more Deaf children are suited to a phonological approach than hearing children.

- **A single causal factor to explain the majority of underlying error patterns**

This has been constantly alluded to throughout the study, ie the rule-governed nature of speech errors of Deaf speakers. Monsen's pithy statement is repeated to support this argument (1981:847): "There is a certain logic to even the most deviant and unintelligible speech produced by a profoundly Deaf speaker."

Dodd (1976) ascribes the genesis of this pathological "logic" the inefficiency of lip-reading, the primary avenue of information available to Deaf children which governs phonological output. The Deaf speaker may not be able to perceive certain phonemes and or to differentiate between others. This confusion is reflected in expressive speech patterns (Dodd, 1976). Ling's reference in 1991 to Dodd's 1976 article on the phonological approach, demonstrates that Dodd's theory is still considered relevant. This single causal factor gives rise to a stringent set of rules which are predetermined, predictable, logical and unique.

### **3.3.4.5 CRITIQUE OF LING'S (1991) EVALUATION OF THE PHONOLOGICAL METHOD FOR THE DEAF**

Since Ling is the foremost figure in speech-teaching for the Deaf and has been one of the few educators to evaluate the phonological method, it is important to take cognisance of his comments. His view of the “benefits and banes” of the method, as they relate to the Deaf, is as follows (Ling, 1991:15).

He notes the following advantages:

- The emphasis on stringent evaluation procedures. This authors view is that stringent evaluation is insufficient, if it is to serve remediation according to a phonological approach. It must not only be congruent with principles of phonological assessment, but must also take cognisance of the rule-governed error pattern unique to the Deaf. Currently no such assessment procedure exists.
- The focus is on treatment of related phonemes. This is congruent with the authors view and has been emphasised throughout the discussion. Errors in related phonemes have a logical basis arising out of the limitations of lip-reading, which are reflected in predictable speech errors.
- The emphasis is on the relationship between speech and language. The author feel that it is unclear whether this relationship will improve speech production, since no comparative studies exist. In fact, Ling appears to be criticising his own method, which has a strong phonetic basis.

He notes the following disadvantages

- The phonological method is only concerned with segmental aspects and does not address prosodic features. The author agrees with Ling. Suprasegmental faults also need to be addressed in the speech remediation of the Deaf. The phonological approach is focused on articulation. This demonstrates again, how systems designed around the needs of hearing children cannot be simplistically transposed to fulfil the needs of Deaf children. Suprasegmental problems among Deaf speakers are common (Chapter 2).
- Co-articulation is neglected. Paradoxically, he states elsewhere in the same article that attention to phonological contrasts among groups of sounds, rather than a phoneme-by-phoneme approach, permits the use of anticipatory set. It is speculated that the development of anticipatory set enhances the cognitive pre-planning needed for co-articulation. However, in agreement with Ling, it is noted

that direct and detailed attention is not accorded to the problems of co-articulation. Unlike the hearing child, it cannot be assumed that the Deaf child will learn these skills naturally.

- Specific treatment strategies and prerequisites for ameliorating the production of sounds common to a particular process are not described. This criticism seems less of a limitation since such strategies are, as Ling himself notes elsewhere in the article, "... scattered throughout the literature" (Ling 1991:15). This is not a new obstacle to speech work with hearing-impaired children.
- There is relatively little objective evaluation of outcomes of application with hearing children and more so with Deaf children. It may be said that this criticism extends to all methods of speech teaching for the Deaf, Ling's included, as comparative evaluations of speech training programmes are rare (Dagenais, 1996).
- Remedial emphases are not a productive alternative to the prevention of deviant patterns through appropriate verbal interaction from early infancy.

This criticism lacks clarity. Ling (1991) confuses strategies for development of normal speech with strategies for correction of deviant speech. It is axiomatic that prevention of deviant patterns is paramount. The phonological method does not presume to develop speech, but offers an opportunity to correct sounds that have not developed naturally or have developed incorrectly.

### **3.3.5 CREATIVE APPROACHES TO VOCAL IMPROVEMENT**

#### **3.3.5.1 Speech and drama**

The techniques used in speech and drama to improve speech and voice among the normally hearing have not been exploited for use with Deaf children.

It is suggested that the wide repertoire of techniques used by actors for vocal development could be adapted for Deaf children. Some have been passed down traditionally in theatre schools, others have been documented in books on voice production. These include, for example, *Freeing the Natural Voice* (Linklater, 1976), which describes relaxation techniques and provides clear, visually suggestible illustrations, and *Speech Training for You* (Sneddon, Second Edition, no date given), which uses more formal phonetic drill patterns.

There is a lack of material that describes or evaluates the use of such techniques for Deaf children. Several strategies taken from the creative elements of speech and drama appear to have direct applicability to the Deaf child. These include:

- **The phoneme is used to improve speech production.** Examples of how the phoneme is used to effect vocal improvement are /b/ to effect forward vocal placement and /m/ to improve resonance. Phonemes may be combined in tongue-twister-type formats to promote articulatory dexterity. The Deaf child's habitual use of cul-de-sac resonance (Ling, 1976) and lack of articulatory dexterity due to tongue retraction and immobility, make each of these aspects relevant.
- **Imagery is used.** The actor may be told to imagine his voice moving to the back of the theatre or flowing like oil. Such images, if chosen for maximum visual suggestibility, may provide important sensory referents which create orosensory gestalts.
- **Relaxation is seen as a prerequisite for healthy vocal performance.** Synchronising body movement and vocalisation is commonly used to aid vocal relaxation. This has similarities to Guberina's (1981) verbatonal method. The adverse effects of vocal tension were described in Chapter 2.

### 3.3.5.2 Singing and music

Educators from several countries have advocated the use of music to improve speech performance. These include Claus Bang (1996) of Denmark Guberina (1981) of Yugoslavia and composer Carl Orff of Germany (Hummel, 1971).

Two attitudes prevail. The first is that involvement with music (and song) is merely "a fun thing" (Hummel, 1971:242) for Deaf children. The second is that music and song can be used remedially to effect speech and voice improvement. van Uden was described as "probably the world authority on music for very young deaf children" (Hummel, 1971:243) is an example of the second attitude. He uses a system termed the sound perception method whereby children are given bodily experience of sound through two mediums. The first is contact resonance, whereby the child touches the musical source and feels the vibrations. The second is bodily resonance, whereby the child does not touch the instrument, but stands on a non-vibrating surface so that his own body becomes the resonating chamber. The "play-song" is central to the method. Briefly described, the "play-song" is improvised during the lesson.



Words have musical notation scored according to stress patterns. The child then plays the tune on a blow organ. Later he listens to a tape-recorded version of the song sung by a male singer with a strong, bass voice. Finally, the pupil sings and dramatises the “play-song”. van Uden sees benefits in increased breath control, memory, rhythmic stress patterns, auditory perception and creativity (van Uden, printed lecture material entitled: Text of the Video-tape Shown in the Lecture on Musical Development, Auditory Training, 1987). A clinical evaluation of this method indicates that the tune constructed out of stress patterns cannot be judged to be lyrical or attractive to children and, as such, is difficult - even for a hearing individual - to memorise.

It is speculated that this structured, somewhat artificial method for music and singing may fall into the same trap as the now discarded highly structured language systems of the past, such as the Fitzgerald Key, which attempted to simplify structured language teaching in a behaviourist type mode. The underlying assumption was that the sum of the parts was equal to the whole. According to more recent holistic educational trends, modifying easily observable aspects of behaviour is not viable, since more complex processes need to be taken into account (Norris and Damico, 1990). The play-song is an example of simplification that does not take into account the complex nature of musicality, and creates material which is unappealing and therefore more difficult to learn. The author believes that natural musical input should be used.

In a rare article on singing in relation to hearing-impaired children, Tait (1986) reports benefits in the classroom. A limitation to his study is that children who could not hear voice, were excluded. This means that the gains described cannot be extrapolated to all Deaf children. The author’s clinical experience, supports the view that even children with the most profound hearing losses react positively to singing. Gains reported by Tate, may therefore apply to children with all levels of hearing loss.

**Table 3.5 Tait's (1986) Research on the benefits of singing for hearing-impaired children**

Function that improved	Tait's (1986) research findings	Author's commentary on potential for speech improvement
<p><b>1</b></p> <p><b>Sensory input</b></p> <p><b>Lipreading</b></p>          <p><b>Auditory function</b></p>	<p>Children looked at the teacher twice as much during singing, as compared with speech</p> <ul style="list-style-type: none"><li>• 80% of the time during singing</li><li>• 40% of the time during speech</li></ul> <p>Auditory training improved for children who could hear voice. This was judged by the child's ability to indicate an object after listening to the word in a spoken or sung phrase. Tate suggests that even if this is because the auditory task is easier, since singing is louder and more sustained, the important point is, that sound is presented to the Deaf child in an acoustic form to which he can gain access</p>	<p>(The benefits of both lip-reading and auditory aspects are dealt with together because of the inter-relatedness of functions)</p>          <p>It is possible that singing not only makes the auditory task easier, but also that the archetypal appeal of a song reaches the child's psychic core. He therefore focuses with heightened auditory concentration and improves auditory functioning. The importance of non-linguistic variables, particularly motivation, was described in 3.2. Where auditory stimulation is appealing, the child with a hearing loss does not need to be directly instructed to concentrate, but does so of his own volition.</p> <p>van Uden (1987 lectures) describes the love of music as located in the soul, not the ear, and therefore also available to the Deaf individual.</p> <p>Because of the child's motivation to gain a maximum of sensory input, it is suggested that he simultaneously attends more acutely to the mouth and in this way supplements the auditory stimulus. Congruent with a holistic approach, the child attends to lip-reading and auditory input as a whole. He does not fragment the task by separating it into discrete, formalised, uninteresting learning experiences</p>



Source: Tait (1986); Ling 1976; van Uden; 1987 (lecture material) and additional original commentary

Table 3.5 demonstrates the importance of singing for the vocal and psychological development of the child with a hearing loss.

This is in contrast to an attitude that views singing as only a “fun thing” which, although enjoyable, is not considered to be significant. The excerpt by Beattie (1992:71) exemplifies such an attitude. He describes the role of singing as “an activity (that) may be a favourite pastime of small groups, ... practising of songs for a public performance (eg Christmas concerts)”.

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### 3.4 CONCLUSION

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A wide variety of approaches to speech-teaching for the Deaf has been described. Few, such as Ling's (1976), are well documented for Deaf children. van Uden's method, designed specifically for Deaf children, is available to a limited number of educators because of a lack of published material. Computers remain unknown to the majority of educators, and the high cost prevents their becoming common aids (Khami, 1992). Newer educational trends, such as teaching speech within a holistic, integrated setting or using a phonological approach to correct faults, are seldom described in relation to the speech of the Deaf child. Speech and drama techniques, known since antiquity, have not been described in terms of vocal improvement for the Deaf. The benefits of singing and music have received little emphasis.

Additionally, comparative evaluations of known speech training programmes for hearing-impaired speakers are rare. While many protocols demonstrate improvement (Monsen and Shaugnessy, 1978; Osberger, 1987, cited by Dagenais, 1992), the efficacy of one approach over another has not been empirically tested (Dagenais, 1992). Because of this limitation, the choice of elements included in a speech programme, although based as far as possible on available scientific evidence, also relies on subjective preferences. These are rationalised as far as possible in accordance with theoretical principles.

This chapter concludes the background information of problems of Deaf Education and problems of

vocal deviance and availability of options. Using the theoretical underpinnings as a background, a new focus is presented assessing the attitudes and needs of educators working in the field of Deaf education. This is done by entering into their life-world. Chapter 4 opens the door to this new world. It describes the research methodology used to gain entry.

## CHAPTER FOUR : AN INVESTIGATION INTO THE NEEDS OF EDUCATORS OF THE DEAF RELATING TO A SPEECH PROGRAMME - RESEARCH DESIGN AND METHODOLOGY

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### 4.1 INTRODUCTION AND OVERVIEW

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The material covered in previous chapters - it describes what is **known** in available literature. The following chapter charts a new course into the **unknown** cartography of literature - the needs of educators of children with hearing losses with regard to speech development.

The aim of this chapter is to describe the methodology used for the investigation. It opens with a restatement of aims set out in Chapter One, to ensure that they remain at the forefront of the investigation and are seen to be congruent with methodology. Following that a description is given of methodological choices available and rationale for selection. This includes inherent methodological vulnerabilities and the strategies adopted to, as far as possible, obviate these. The remaining three sections deal with more tangible research aspects, namely the subjects the research instrument (the interview), procedure and data analysis. The chapter concludes with a summary.

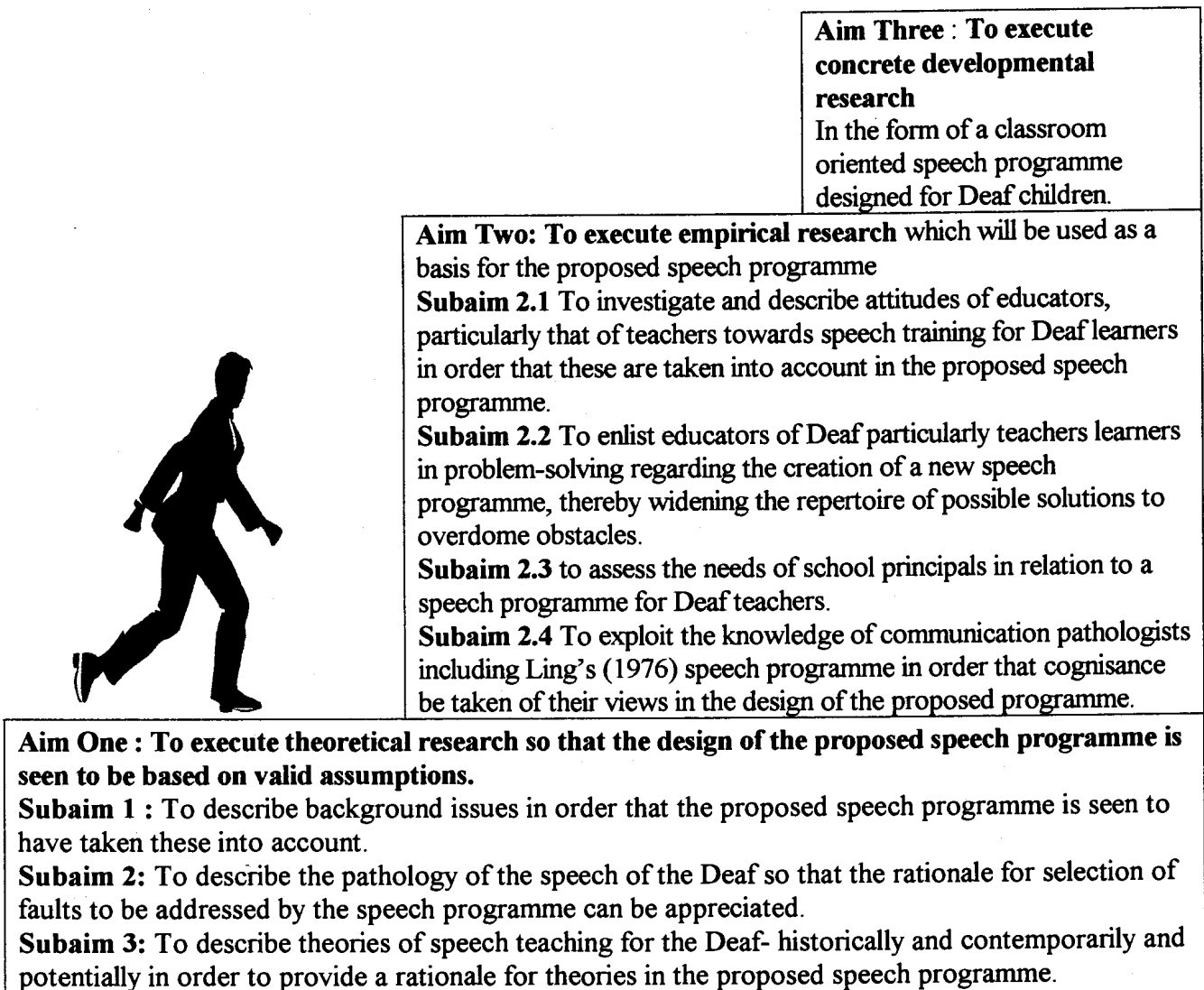
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### 4.2 RESTATEMENT OF RESEARCH AIMS

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Aims fall into three broad categories:- theoretical, empirical and developmental. These are graphically depicted below in figure 4.1 as steps. Each large step, represents a major aim which is sub-divided into sub-aims.

**Figure 4.1 The aims and subaims of the study**



Source : Original

Table 4.1 graphically depicts aims that motivate the study and shows which have been covered, are dealt with in this chapter and those that will be discussed in Chapters 5-6.

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### 4.3 RESEARCH OPTIONS EXAMINED

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Two diametrically contrasting research options, quantitative, and qualitative are available. A longstanding debate, even ‘paradigm war’ (Gage, 1989:4) continues between proponents. Quantitative research embodies principles of traditional science, where the investigator enters the field with predetermined hypotheses, tests them using objective tools (Rockhill, 1982) and describes results in quantifiable, usually numeric terms (Omry, 1983). In contrast the qualitative researcher enters the field suppositionless (Kvale:1983) without predetermined hypotheses, since a priori theories are believed to narrow or ‘blinker’ perception. The whole picture is not viewed and consequently important observations may be missed. Instead of numeric formulations or predetermined questionnaires, the researcher relies on powers of human reactivity and comprehension to understand the inner reality of subjects (Rockhill, 1982). Table 4.2 Summarises important differences between these methods.

**Table 4.2 Contrast between of qualitative and quantitative research**

<b>Qualitative Research</b>	<b>Quantitative Research</b>
A broad, holistic approach – the whole is greater than the sum of its parts.	Narrowly defined variables are isolated
An inductive approach – no specification of variables. Hypotheses emerge after data collection and analysis.	A deductive approach - specification of variables. Hypotheses are formulated prior to data collection.
Theory will emerge – emphasis on discovery	Theory is tested – emphasis on hypothesis testing and verification
Enquiry aimed at understanding phenomena in naturally occurring states – an unlimited set of outcome variables	Controlled conditions - a limited set of outcome variables
Data in the form of words denoting themes and categories	Data in the form of numbers providing descriptive and inferential statistics
Seeks to explain people from their own frame of reference – their inner reality	Seeks to explain human behaviour from viewpoint of the scientific observer – the external reality

Sources: Seashore Louis, 1982; Rockhill, 1982; Omery, 1983; Smith and Heshusius, 1986; Rudestam and Newton, 1992



Table 4.2 shows fundamental differences between approaches:- wide versus narrow focus, indicative data captured in words versus deductive data captured in numbers, focus on subjective inner versus objective outer realities, naturalistic, discovery orientated enquiry versus controlled experimentation. These differences embody the dilemma described by Rudestam and Newton (1992) of the control of quantitative research versus the meaningfulness of qualitative research. Quantitative research emphasises control by eliminating influences of as many confounding variables as possible - findings may inspire confidence but may not be meaningful. Qualitative research relies on observation of complex human behaviour but does not invoke control of confounding variables - findings may be meaningful but may also be uncontrolled and therefore not inspire confidence.

Both are therefore potentially flawed. However, within these vulnerabilities where there is integrity of design and methodology, each is legitimate (Smith and Heshuisius, 1986), and capable of providing scientifically important information (Plante et al., 1994). The choice rests on which approach best answers the research question posed. As Plante et al., (1992:53) cogently state: "What makes any instance of research good or bad is not whether it is qualitative or quantitative but whether it employs the most appropriate method for the problem under investigation. It is not the case that the investigator has two equally suitable methodological approaches available to answer the research question posed. The specific question dictates the best approach."

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#### **4.4 RATIONALE FOR THE CHOICE OF A QUALITATIVE RESEARCH DESIGN**

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Qualitative research was selected as the approach most suited to answer the research question posed, for three reasons:

#### **4.4.1 LACK OF RELEVANT LITERATURE**

There is a paucity of research literature describing what teachers need in terms of a speech programme and their attitudes and feelings towards speech teaching. Ling (1976), virtually the sole speech training programme currently available, makes little mention of research into these areas. Because no predetermined theories exist research needs to be exploratory and open minded to facilitate emergence of valid theories.

#### **4.4.2 PHENOMENOLOGICAL FOCUS**

The focus of the study is phenomenological, it explores human issues - the inner world dynamics of educators of the Deaf. Social phenomena are different to those of the hard sciences (Seashore Louis, 1982) - indeed the validity of applying a logico-positive approach to human behaviour is questionable.

#### **4.4.3 WORDS RATHER THAN NUMBERS ARE SUITED TO CAPTURING THE ESSENCE OF THE DATA**

As Rockhill (1982) pertinently states where phenomenological data are described in numbers human perspective may be lost in favour of statistical accuracy.

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### **4.4 VULNERABILITIES OF QUALITATIVE RESEARCH AS THEY RELATE TO THIS STUDY**

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Clarity of vulnerabilities is necessary so that they may be obviated where possible and where this is not so, flaws may be explicitly stated in order to enhance validity of the study. Four vulnerabilities need to be addressed: firstly limitations of generalizability of findings, secondly lack of objectivity, thirdly esoteric terminology and fourthly lack of control.

#### 4.5.1 LIMITATIONS OF GENERALIZABILITY

The qualitative approach makes little claim on the power to generalise to other populations (Rudestan and Newton, 1992). Findings are thus limited to the context in which they were elicited. It is argued that this disadvantage does not apply to a significant degree to this study as the world of educators of the Deaf is regarded as similar. If this were not the case, articles addressed to educators of the Deaf as a group in journals would also be invalid. This follows Plante et.al.'s (1994) view, that reasoned generalizability of situations exists – unless populations are highly dissimilar. Educators of the Deaf, who share common experiences and problems with regard to speech development can be regarded as essentially similar populations. Although educators interviewed in this study are all situated in the South Africa, generalising to other geographical environments does not seem problematic, as judging by literature, the situation of educator's abroad seems the same.

#### 4.5.2 LACK OF OBJECTIVITY

A principal concern is that a qualitative enquiry does not have the same claim to objectivity as does quantitative enquiry (Smith and Heshusius 1986). The subjectivity of the experience as captured through the lens of the researcher is taken as a given (Rockhill, 1982).

There are three replies to this criticism.

- Subjectivity is the key to objectivity (Rockhill 1982). Following Rockhill's argument, understanding a phenomenon as it is manifest outside the self, involves getting inside the subjective experience of the "other".
- There is no neutral, disengaged investigator, even in quantitative research (Rudestan and Newton, 1992). The presence of an observer inevitably alters that which is being observed – therefore, the investigator cannot be separated from the object of enquiry (Rudestan and Newton, 1992). This has been described even for modern physics (Popper 1965; Toulmin 1972; Teyerabend, 1981a, 1981b; - cited by Rudestan and Newton, 1992;). Although this vulnerability is common to both approaches, it is probable that it affects qualitative research to a greater degree.

- A safeguard against bias was part of the design. Results were analysed separately by an impartial analyst. This is a sound measure for researcher transparency (Lincoln and Guba 1985 - cited by Krefting 1991).
- The nature of the investigation does not favour bias. If the investigation were to compare efficacy of speech programmes, including a programme designed by the researcher, bias could well be an issue. The investigator would have strong motivation, stemming from self-interest, to demonstrate that the self designed program was superior. However in this case comparative efficacy is not a factor. Analogous to commercial marketing the formula of the product is a fait accompli - theoretical assumptions that underlie the programme are accepted. The investigator seeks to uncover concepts that will “package” the product for maximum acceptance. Therefore it is in the researchers best self interest to employ strict scientific rigour in order to accurately gauge and describe teacher attitudes and needs.

#### 4.5.3 LACK OF CONTROL

The deliberate lack of control of qualitative research was to some extent curtailed. Certain predetermined criteria of school and subject selection were employed. The execution of the investigation does therefore not follow a purist approach. This hybridization is regarded as strengthening the validity of the research without compromising its qualitative nature.

#### 4.5.4 ESOTERIC TERMINOLOGY

Terms employed by qualitative and traditional researchers differ. Examples of this are given in Table 4.3 below.

**Table 4.3 Comparison of terminology used in qualitative and quantitative research**

Qualitative term	Quantitative term
Credibility	Internal validity
Transferability	External validity
Dependability	Reliability
Confirmability	Objectivity

Source: Extracts from Krefting, 1991

As table 4.3 demonstrates nomenclature differs significantly.

Qualitative terminology being more recent may be less familiar to other researchers and this may limit readership thereby compromising the impact of the research contribution. In agreement with Giorgi (1985) the way findings are presented depends largely on the type and diversity of audience the researcher has in mind. Research findings of this study are directed to the wide audience of researchers and educators of children with hearing losses, in order that what is researched scientifically can become part of classrooms practice. Research methodology is written using traditional terms because it is more likely to be familiar to readers. Although this compromises the purity of the approach, advantages are considered to outweigh disadvantages.

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## **4.6 CRITERIA FOR SCHOOL AND SUBJECT SELECTION**

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Twenty-eight subjects were drawn from four schools in the provinces of Gauteng and Kwa-Zulu Natal. Congruent with the aims of the study, three categories of educators were selected – teachers, the largest group, communication pathologists and school principals.

### **4.6.1 CRITERIA OF INCLUSION APPLIED TO SCHOOLS**

- Schools at which the researcher had been employed previously were excluded. This principle was followed even where a decade had elapsed since employment, and the principal and majority of staff members had changed. It was hypothesised, that even if subjects had not personally known the researcher, the methodology instituted may still have been operant, or the researcher may have been known by reputation positively or negatively, - and this may lead to bias. Because of this, no schools in the Western Cape, the province in which the researcher had been employed, were included.
- Schools where the policy was that class teachers held no responsibility for helping pupils develop speech were excluded. It was hypothesised, that educators who had no responsibility to improve speech would not be stimulated to solve a non-existent problem and they would therefore have no need for a speech programme.

- Communication mode of the school was not considered. Schools that followed either oral or signing philosophies was included.

Table 4.4 summarises information regarding the selection of schools for the study regarding language and mode of communication.

**Table 4.4 Number of schools in relation to language and mode of communication.**

Number of schools	Official Language		Communication Mode	
	English	Afrikaans	Signing	Oral
4	3	1	3	1

Source: Research data

As table 4.4 demonstrates the majority of schools selected represented English speakers and used signed communication.

#### **4.6.2 CRITERIA OF INCLUSION APPLIED TO SUBJECTS**

The following criteria of inclusion were applied to all three categories of educators – i.e. to teachers, school principals and communication pathologists (criteria that apply to specific categories of educators are dealt with in 4.6.3, 4.6.4 and 4.6.5).

- All subjects needed to be conversant in either English or Afrikaans, as these are the languages spoken by the researcher. This applied irrespective of nationality, race, religion or any other consideration. Where other languages were spoken, an additional moderator would have been needed to translate and validity of translation and continuity of discussion could have been problems.

- Problems of subject/interviewer familiarity were anticipated because the interviewer was also the researcher, and had been actively involved in education of children with hearing losses in South Africa over a period of decades. The world of educators of the Deaf is circumscribed, and subjects and interviewer/researcher could have been in contact at congresses or lectures given by the researcher. To counteract this, it was decided that if familiarity became apparent during a single interview session, the interview would be terminated. If familiarity became apparent during a group interview, the interview would continue in order to obviate disturbance of group cohesiveness, provided subject and interviewer/researcher had never been employed simultaneously at the same school.
- Only subjects currently involved in education of children with hearing losses were included. It was hypothesised that educators not currently involved with teaching would be out of touch with their feelings or needs regarding speech teaching.
- Gender was not taken into account. Teaching is generally a female dominated profession and it was predicted that most of the educators would be female. However, it was speculated that male teachers would have the same needs in terms of a speech programme.

#### **4.6.2.1 Criteria of inclusion applied to teachers**

Certain criteria applied specifically to teachers.

- Selection was purposive and convenient according to Abdellah and Levine's (1979) definition that participants are selected because they are available for participation in the study at the time it is conducted. Principals were asked to arrange for teachers to participate in group and single interviews at a specific time. This method of sampling fulfilled an additional research need. If teachers were given a choice of participating, the sample may have resulted in a skewed population where only teachers with highly charged attitudes to speech - either positive or negative - responded. By selecting subjects according to availability, it was hoped that a spread of attitudes would be reflected in accordance with the principles of random sampling. Additionally as Krueger (1994) notes, randomisation removes bias in selection, since all participants possess an equal chance of involvement in the study. He stresses the importance of randomization in studies, such as this, where inferences are made to a larger population.

- All teachers were required to teach classes. The programme is designed for use in the classroom and teachers who taught in one-to-one situations were considered to have different needs to class teachers working with groups.
- Supervisory teachers were excluded as superior hierarchical relationships among participants can inhibit discussion (Krueger, 1994). For example, teachers who were expected to give speech instruction and did not do so, or felt their ability to be inadequate, or held negative attitudes to speech instruction, may not have wished to disclose this to senior staff members for fear of repercussions.
- The level of qualification was not taken into account. Given the general lack of training in speech teaching, even for qualified teachers (described 1.2.2) it was speculated that both qualified and unqualified teachers would have had insufficient training. Furthermore investigation into the level of certification was considered as having the potential to cause insecurity or defensiveness among participants, which would not be conducive to the creation of the secure environment necessary for conducting a successful interview.
- Familiarity among group members was not taken into account. Krueger's (1994) suggestion that group members be strangers, was not followed due to the logistics of organising teachers from different schools - often a great distance apart - to meet as a group.

#### **4.6.2.2 Criteria of inclusion applied to communication pathologists**

In contrast to teachers, communication pathologists have a background of theoretical knowledge in addition to practical experience. They fit Krueger's (1994) description of the client that possesses characteristics that render him more critical because of an added knowledge base.

- Communication pathologists were selected using the same principle of randomization, as were teachers. In practice scarcity meant that the single communication pathologist employed at the school was the subject interviewed.
- Only communication pathologists whose function included a significant amount of time in speech and language therapy were included. Those whose duties were exclusively related to audiological assessment were excluded. It was speculated that these involved solely with audiological aspects would have different needs.



#### 4.6.2.3 Criteria of inclusion applied to school principals

Principals have a different pedagogic function to teacher or communication pathologist, as they are not generally involved with daily teaching. They fit Krueger's (1994) description of organisational decision makers with budgetary authority.

It was speculated that the programme would need to be acceptable to them, because although not involved in day to day teaching, they had organisational and fiscal decision making power. A speech programme that did not satisfy the needs of school principals is therefore unlikely to be selected, and may therefore never reach potential users.

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### 4.7 RESEARCH INSTRUMENT: THE INTERVIEW

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The interview was selected as the most suitable research instrument. Its function is to allow the researcher to enter into the other person/person's perspective (Patton, 1980 - cited by Merriam, 1991) in order to gain an understanding of experiences, feelings and actions (Kvale, 1983). The interviewer can be compared to a doctor, whose initial task is to question the patient in order to obtain a description, which provides relevant material upon which to draw conclusions. (Kwale, 1983).

#### 4.7.1. VALIDITY OF THE INTERVIEW

Kvale (1983) notes that although the interview is one of the **most used** methods in psychological research, it is one of the **least analyzed** methods within the theory of science - as judged by the paucity of available developed theory. He regards this situation as reflective of the inherent complexity of the interview situation, which makes development of theory problematic. Correct rules of interview technique rely on sensitivity and creativity - qualities, which cannot be formalised or guaranteed. Consequently the interview appears unscientific from a quantitative view of science, where only data that are reproducible and quantifiable are valued. He notes the irony that interviews are used in commercial marketing where the ability to predict and control behaviour is crucial.

#### **4.7.2 RELIABILITY THE INTERVIEW**

The interpretative nature of the data means reliability measures are not within the same frame of reference as quantitative research. The qualitative terms “dependability” and “triangulation of data” are probably more suited to describe this aspect of research.

A co-analyst received identical, unmarked transcripts of interviews. These were analysed independently, using the same method of analysis, and findings were compared. Employing a co-analyst served two functions: Firstly, to ensure that categories and themes described by the researcher were not idiosyncratic, and secondly as a safeguard against bias.

#### **4.7.3 RATIONALE FOR USE OF BOTH GROUP AND SINGLE INTERVIEWS**

Group and single interviews were employed. Each served a different but complementary purpose.

##### **4.7.3.1 Rationale for use of focus group interviews**

A focus group session is a discussion in which a group of respondents, under the guidance of a moderator, talk about topics important to the investigation. Participants are chosen from a target group whose opinions and ideas are germane to the investigation. Usually more than one group session is conducted to ensure adequate coverage. (Folch-Lyon and Trost, 1981).

Focus group interviews were limited to teachers. The logistics of gathering the scarce supply of school principals and communication pathologists into a group was considered impractical. The distances between schools and the paucity of numbers – especially once criteria of had been applied – meant forming a group was outside the scope of this study. Interviewing teachers in groups was less problematic as a group of teachers could be formed at one school without undue problems of organisation. Since the proposed programme is designed to be used primarily by teachers, not principals or communication pathologists – this situation was regarded as acceptable. Single interviews were deemed satisfactory for gaining the necessary information from principals and communication pathologists.

Focus group interviews were particularly well suited to the fulfilment of subaim 2.2, - to stimulate creative problem solving among teachers with regard to a speech programme. Interaction between participants creates a dynamic, whereby the synergy of the group has the potential to uncover constructs which may be lost with individually generated data (Kingry, et.al 1990) - the gestalt-like energy generated transforms the group into more than the sum of its participants (Krueger, 1994).

Teachers were regarded as having potential to make significant contributions to the design of the programme if they were provided with the opportunity. Such belief in the wisdom of the participants is regarded by Krueger (1994) as a prerequisite for conducting a successful focus group.

There are parallels between designing a speech programme using focus groups and commercial marketing techniques. In this study, the client is the educator of the Deaf, and the product is the proposed speech programme. As in private commercial enterprise the focus group investigates psychological issues of consumer behaviour (Folch-Lyon and Trost, 1981) so that the researcher learns what the needs are, and is thus able to formulate strategies to meet them (Labouw, 1985 - cited by Krueger 1994). The academic research of this study is not regarded as an end in itself - the ultimate goal is to develop a speech programme that fulfils real needs. A speech programme developed in the environment of an academic ivory tower may not do this.

Following Krueger (1994) smaller groups ranging from five to seven participants were conducted because they are easier to recruit and host, more practical to set up and manage, and more comfortable for participants. Additionally in cases, such as this, where participants have specialised experience in the topic, smaller groups provide more in depth information.

#### **4.7.3.2 Rationale for employment of single interviews**

Singe Interviewers were also conducted with individual subjects. Folch-Lyon and Trost (1981) note some individuals experience a greater feeling of anonymity in a group, whereas others feel safer disclosing information in a one-to-one situation. The research design makes provision for both alternatives with teachers only, as their input is the focus of the study. Principals and communication pathologists were only interviewed in single interviews.

All single interviews with teachers, principals and communication pathologists targeted subaim 2.1, to investigate attitudes of educators towards speech teaching. Additionally, they were tailored to probe specific areas pertinent to the three categories targeted. To this end:

- Three unstructured, single, phenomenological interviews were held with teachers. The climate of emotional freedom, empathy and safety was considered to foster revelation of deeper emotions. Phenomenological interviews address subaim 2.1 to investigate the attitude of educators with special attention to teachers.
- Two semi-structured interviews were held with school principals. Rogerian techniques were used, but specific questions were added. This was directed to subaim 2.3, to assess the needs of school principals in relation to a speech programme for the Deaf.
- Two semi-structured interviews were held with communication pathologists. Once again Rogerian principles applied, but questions were added to garner information specifically in relation to Ling's (1976) speech programme. This addressed subaim 2.4 – to access the general knowledge of communicational pathologists with special reference to Ling (1976).

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#### 4.8 PROCEDURE

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An extensive **pilot study** was undertaken to uncover potential weaknesses in the design. None of the subjects or schools interviewed in the pilot study was used in the final study. Four focus groups were held at schools – one was a preschool attached to a university. The central question and interview techniques were changed for the final study.

The problem of including personnel from different hierarchies in a single focus group was experienced. A need for exclusion of supervisors or school principals was accentuated at the organisational phase of the final study and confirmed before the commencement of the focus group interview.

One principal was interviewed in the pilot study. An attitude of defensiveness due to the incorrect perception that the purpose of the investigation was to assess comparative merits of schools was uncovered. The introductory information presented to school principals for the final study was changed to obviate this.

Two communication pathologists were interviewed as a dyad, in an attempt to gain the interactive synergy of focus groups. This was discarded because no scientific precedent could be found.

The **main study** was initiated by contacting school principals telephonically to obtain permission and arrange a date and venue for interviews.

Ten interviews were conducted.

- focus group interviews with three different groups of teachers
- single phenomenological interviews with three different teachers
- single semi-structured interviews with two different school principals
- single semi-structured interviews with two different communication pathologists

All interviews were held during school time, so that staff would not feel resentful at extending their school day. No children were allowed to be present to avoid distraction. Aspects of confidentiality and anonymity were discussed at the outset and repeated at the conclusion of the interview. This was regarded as crucial for the creation of the safe environment necessary for honest disclosure. Participants who feel apprehensive at the possibility of exposure will not fully disclose thoughts or feelings. (Krueger, 1994). All interviews were taped and transcribed verbatim. The function of the tape recorder as an aid to written transcriptions was explained. Open-ended questions and techniques of clarification and amplification were used consistently.

**Focus group interviews with teachers.** Focus Group 1 consisted of five teachers, Focus Group 2 of seven teachers and Focus Group 3 of seven teachers. By the end of the third Focus Group, no new knowledge was seen to emerge. No additional focus groups were therefore interviewed.

Groups sat in a semi-circle to promote a feeling of contact and intimacy, to facilitate communication - so participants could see each other - and to underscore equality - no participant was seen to be in a position designated superior (e.g. at the head of a rectangular table) or inferior (e.g. at the back of the room).

Teachers were informed about the nature of the research so that they would perceive themselves as research collaborators (Erikson, 1990) generating ideas that would be valued and have practical results. This was believed to encourage meaningful discussion.

It was stated at the outset that each participant's perceptions were relevant and no opinion could be regarded as correct or incorrect. Stewart and Shamdasni's (1990) observed that securing participation is important at the beginning of focus group discussion to reassure the reticent respondent, and deal with dominant members of the group. Every attempt was made to create a congenial, non-judgemental, safe atmosphere, conducive to easy, honest sharing of ideas.

One central question was posed: "What would you need from a speech programme for Deaf Children?" This was reiterated at the end of the interview.

- **Unstructured single phenomenological interviews with teachers.** Moderator and participant sat facing each other. A single question was asked: "How do you feel about speech teaching?" No other questions were posed – the focus was on exploration of feelings.
- **Semi-structured interviews with communication pathologists.**  
Participants and moderator were seated facing each other to maximize eye contact and ease of communication. Three questions were asked in the order given below, opinions on Ling, and needs.  
"How do you feel about speech teaching?"  
"What are your opinions regarding Ling's programmes?"  
"What would you need from a speech programme?"  
Each question was posed separately and discussed until the moderator sensed no new information was emerging.
- **Semi-structured interviews with school principals.** Principals were contacted telephonically, informed of the nature of the research, and asked if they were willing to be interviewed to discuss speech teaching. Reassurance was given that the purpose was not to gather comparative data on merits of different schools. Choice of seating was left to the principal. In both instances the principal sat at the desk facing the moderator. This arrangement was satisfactory in terms of eye contact and ease of communication. Further, it was in accord with the status of the principal.

Two questions were asked one gauging feelings, the other needs.

“How do you feel about speech teaching?”

“What would you like from a speech programme?”

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## 4.9 DATA ANALYSIS

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### 4.9.1 AN ART AND A SCIENCE

Data analysis, the process of making sense out of the raw data (Merriam, 1991), is both an art and a science. It is science in that it follows a preplanned protocol and an art in that certain individuals possess an aptitude over others (Krueger, 1994). As Krueger (1994) states, good analysts like good athletes are born with certain skills. Expertise is substantially dependent on the mental make up of the analyzer and this cannot be dictated. He provides examples of qualities that define a good analyst. They include openness to new ideas, ability to step outside personal experience, to understand ideas from the vantage point of others, psychological security necessary for encouraging divergent views and, finally superior oral and written communication skills.

### 4.9.2 SYSTEM OF ANALYSIS ACCORDING TO GIORGI (1985) AND LINCOLN AND GUBA (1985 CITED BY MERRIAM 1991)

The system of analysis combined the similar methods of Giorgi (1985) and Lincoln and Guba (1985 - cited by Merriam, 1991). There were four analytical steps.

- **Step one: The transcript is read in its entirety.**

The text is read as a whole to get a sense of the general meaning. It is not “interrogated” (Giorgi, 1985:11) by further analysis. This was modified in this study in that psychologically laden gestalts were recorded and analysed. There seemed to be little point in only reading and not recording valuable information.

- **Step two: Units of meaning are identified**

The researcher re-reads the transcript, identifying units of meaning. A unit of meaning can be found in a phrase, sentence or paragraph (Lincoln and Guba - cited by Merriam, 1991) and occurs when the researcher becomes aware of a change of meaning that appears to be “psychologically sensitive” (Giorgi, 1985:11). Giorgi (1985) suggests scorings these directly on the text. Lincoln and Guba’s technique (1985 - cited by Merriam, 1991) whereby each unit of meaning was written on a separate card, was chosen because of the flexibility offered.

- **Step three: Everyday expressions used by respondents are transformed into scientific language and grouped according to common criteria.**

Step three has, therefore, two phases. The first centres on language whereby appropriate scientific terms are selected. The second is conceptual - themes are probed so that they can be grouped into conceptually similar categories. A discussion section was added to each theme so that excerpts could be appreciated in context with immediacy and clarity.

- **Step four: Transformed units of meaning are synthesized into a cohesive statement (Giorgi, 1985)**

This level of analysis transcends categorisation. It seeks to develop theory through interpreting and relating aspects of data. (Merriam, 1981). Results are written as structure which can communicate with other researchers (Giorgi, 1985).

#### **4.9.2 COMPLEMENTARY QUANTITATIVE DESCRIPTION AND ANALYSIS**

The research methods of Lincoln and Guba (1985 cited by Merriam) and Giorgi (1981) were followed in the main. A major departure is the inclusion of complementary quantitative descriptive methods.

One such quantitative measure was the division of themes into major, moderate and minor categories. A theme was accorded major status if it emerged in 70% - 100% of interview situations, moderate if it emerged in 50 - 70% of interview situations, and minor if it emerged in below 50% of interview situations.

The ten different interview situations were described in 4.8: Three group interviews with



teachers, three single interviews with teachers, two single interviews with principals, single interviews with communication pathologists. Creation of a major theme did not depend on the

responses of a single interview situation. If that were the case one participant or group could reiterate a theme and cause it to be scored as major – even though it was only important to that participant or group. An example of this is in Focus Group 3. A single participant forcefully reiterated the idea that speech training for Deaf children should take place in conjunction with hearing children. No other teachers, communication therapists or principals raised this issue. If the theme was scored according to the number of times it was raised in that interview, it would have been accorded the status of a major theme – even though it was only important to one perseverative participant. The rule was therefore, that for a theme to be accorded the status of a major category, it needed to be raised at least once in 70% **each** of the ten interview situations. Similarly a moderate theme needed to be raised at least once in 50% – 70% of the ten interview situations, and a minor theme at least once in 10% - 50% of the ten interview situations.

Quantified analysis is further refined by taking into account the category of educator who raised the theme. Thus, for example the theme of Level of Training constituted a major theme for teachers, but was not raised by principals or communications pathologists. This is important for interpretation of data. In this example it demonstrates that only teachers perceive a lack of training in speech instruction.

The scoring system was deliberately weighted in favour of teachers, congruent with the aim that the proposed speech programme is designed for class teachers. The inclusion of school principals and communication pathologists is used to gain data that will add to information on needs of teachers. Thus whereas principals and communication pathologists are represented in a total of four interview situations, teachers are represented in six. Additionally a greater number of teachers were involved.

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## **4.10 CONCLUSION**

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This chapter describes the methodology used to execute the research. Rationale was provided for the eclectic mix of quantitative and qualitative approaches. The major thrust of the design is qualitative; quantitative descriptions are used as a support to address vulnerabilities that the qualitative design presented, and also to heighten and clarify relevant aspects of information.

The following chapter sets out the results of the research.

## CHAPTER 5 : RESULTS OF THE INVESTIGATION

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### 5.1 INTRODUCTION : AIMS AND OVERVIEW

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This chapter sets out the results of the investigation. Two aims are traversed. The **first**, to pioneer complementary studies into the attitudes and needs of educators working at special schools for the Deaf with regard to speech teaching. Motivation for this was developed a reaction to Ling and Stoker's (1992:1 telling statement: "... many educators have **confided** to us, that teaching speech is the subject they find most threatening". (This writer's emphasis) The research seeks to move observations into a scientific realm, where attitudes are made explicit and investigated with scientific rigor, in contrast to the current knowledge base which relies on hearsay. The chapter is lengthy because of the pioneering nature of the investigation. Quoted excerpts are unique and invaluable for understanding a thus far unexplored area. As such, they deserve to be appreciated in their original form, uncorrupted by overlays of interpretation or summarisation. Dangers of misinterpretation can be illustrated with reference to the children's game, Chinese telegrams. Here the first player conceives of a message and whispers it to the next player, who whispers it to subsequent players. The humour occurs when the final message, repeated aloud, bears little resemblance to the original. To obviate the risk of corrupting the message of educators, direct quotations are used. Although selectivity was employed, too much pruning was considered to limit the access of future researchers to the rich fund of material. The length of the chapter may thus err in the number of quotations included. However, in view of their unique value this was considered a worthwhile drawback. To compensate for this, repetition of previous data is strictly curtailed.

The **second**, indeed the major aim, is to use the empirical data to substantiate the claim that the proposed programme (described in chapter 6) does not grow out of a set of idiosyncratic preferences, but is firmly rooted in researched data, both theoretical - described in previous chapters, and empirical - presented here.

The chapter proceeds according to the four step plan described previously: first, transcripts are read as a whole; second, units of meaning are identified; third, units of meaning are categorised according to scientific language and in the fourth step results are written up as a cohesive whole

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## 5.2 STEP ONE : THE TRANSCRIPT IS READ AS A WHOLE

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Congruent with qualitative research methodology, the emotional responses of the researcher are regarded as essential – they are the subjective lens through which the data are captured. Gestalts experienced are described in the following order: firstly for focus group interviews with teachers, secondly for the phenomenological single interviews with teachers, thirdly for single interviews with communication pathologists, and finally for semi-structured single interviews with communication pathologists. (A fuller description is provided in Appendix C.)

All participants seemed keen to share their views – this extended across the board to focus group and single interviews.

Different emotional climates in **focus groups** were experienced. Focus Group 1 demonstrated a palpable negativity towards speech instruction. This was directed strongly at the communication pathologists who had designed and implemented the speech programme, based on Ling (1976). There was a distinct “us the teachers” versus “them the communication pathologists” dichotomy. One participant became emotional to the extent that negativity was perceived to be directed against the researcher. What was even more perplexing was that this same participant had been interviewed a year earlier as a participant of phenomenological interviews, and was then labelled the ‘positive’ teacher.

Focus group 2 demonstrated a relaxed attitude to speech instruction – despite the fact that it was viewed as a difficult task which, with the exception of one teacher, (discussed following this) believed they were unable to fulfil. The paradoxical combination of failure without angst did not perplex the interviewer as the principal of the school had been interviewed previously, and her attitude towards speech proficiency was that it was of minimal importance relative to the psychological development of the pupil. This perception was heightened when they mentioned

the previous principal, whose attitude towards speech instruction caused feelings of anxiety and failure.

A disconcerting incident occurred when it was revealed that the teacher, described by her colleagues as an expert, had been using the researchers preliminary programme for over a decade. This occurred midway through the interview, although the teacher had recognised the researcher at the onset of the interview. A sense of awkwardness was perceived; it seemed as though the teacher was embarrassed that she had not shared material – easily reproducible designed to be photostatted – with colleagues. Another facet of unease, was this teachers attitude to communication pathologists – a sense of defensiveness was noted when their expertise was praised by other teachers. It seemed as though other teachers were aware of this At one point this teacher describes how she could not correct a pupil's deviant pitch. Another teacher said softly and somewhat pointedly, "the speech therapist did". An undercurrent of hidden agendas appeared to be operating.

The third focus group demonstrated a surprising willingness to teach speech, despite the fact that there was no infrastructure. This was shown by innovativeness in gaining skills and utilising resources, including utilising the researchers' preliminary programme. There was a sense of valiant cheerfulness in the face of lack of support.

The emotional responses experienced in **phenomenological interviews with teachers** demonstrated the virtues of random sampling, Teacher 1 had a negative attitude to speech instruction. Teacher 2, on the surface, a positive attitude towards speech instruction, and Teacher 3 a moderate attitude – speech instruction was important but was also acknowledged as problematic. A closer examination of the 'positive' teacher's responses reveals a highly complex dynamic. Each positive statement regarding speech instruction is abuted by a negative or ambivalent statement. A sense of lack of connection and congruence with regard to this participant was experienced by the researcher during the interview. This was not experienced with any other participant. In the following year this same participant was re-encountered as a member of Focus Group 1. Her reactions here were highly negative. She is the participant described as being emotional to the extent that she was perceived as aggressive towards the researcher. This elicited a somewhat confused attitude in the researcher.

At this point, although on a more analytical than purely gestaltist note, it is possible to conjecture that a complicated psychological dynamic was played out over the year that elapsed between the

two interviews. In the earlier phenomenological interview, the teacher suppressed feelings of negativity towards instruction because she believed speech instruction would bear fruit. She suppressed negative emotions out of a feeling of guilt – they were internally censored as being unacceptable. Once more Ling and Stoker's (1992: 1) term "confided" is recalled. This teacher may not have had the conscious awareness of negative feelings or the confidence and trust to "confide" to the researcher. One year later her efforts have not borne fruit, and she, with the support of her colleagues, is able to express negativity towards speech instruction. Her highly charged emotional stance may be a reaction to the cognitive dissonance she felt in relation to earlier interview, to which she made no allusion.

The **single interviews with communication pathologists** were characterised by a rational tone, both describing negativity towards speech instruction without heightened emotion or defensiveness. This is discussed in the theme eleven "Multidisciplinary team".

Two different reactions were experienced during the **single interviews with school principals**. A sense of relaxation with one, who demonstrated confidence, probably due to involvement with Deaf education over many years, and a sense of discomfort with the other, who demonstrated lack of confidence. Probably a result of inexperience with Deaf children.

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### 5.3 STEP TWO : IDENTIFICATION OF UNITS OF MEANING

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Units of meaning were identified and transposed, in their original form, onto index cards.

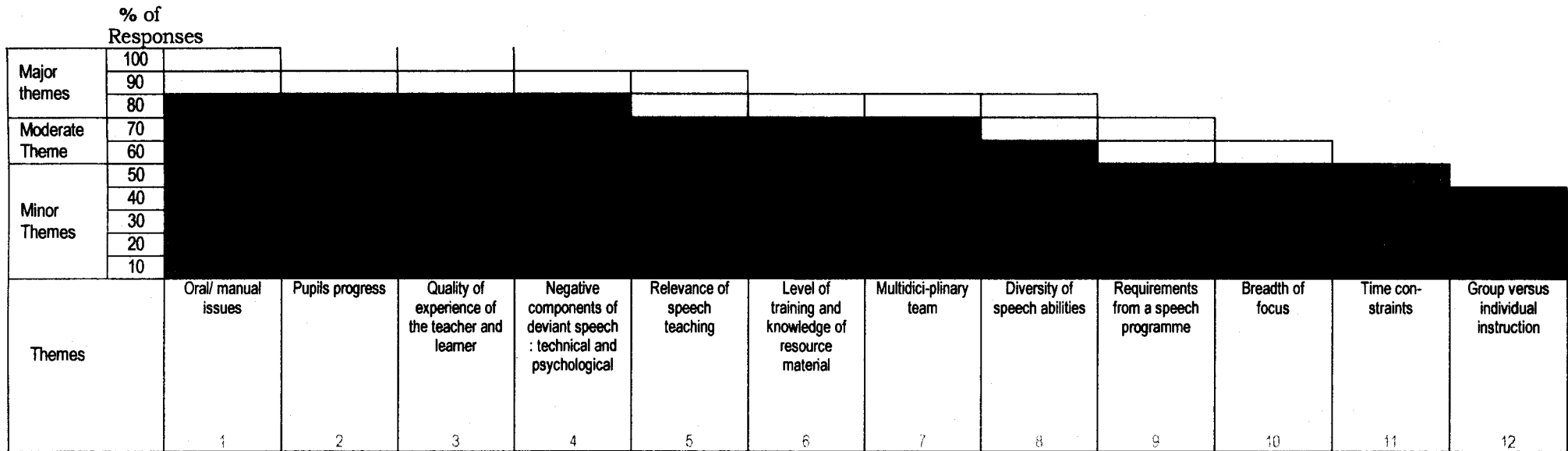
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#### **5.4 STEP THREE : CATEGORISATION OF UNITS OF MEANING AND TRANSFORMATION INTO SCIENTIFIC TERMINOLOGY**

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Figure 5.1 identifies the themes; quantifies them into major, moderate and minor categories, and shows the spread of educator responses.

Figure 5.1 Identification and quantification of themes according to category of educator



Key		Interviews with school principals – each block represents one interview
		Interviews with communication pathologists – each block represents one interview
		Interviews with teachers – each block represents one interview
		Group interviews with teachers – each block represents one interview

Major theme = 80 – 100%  
Moderate theme = 60 – 70%  
Minor theme = 10 – 50%

Source : Developed out of research data



As figure 5.1 demonstrates twelve themes emerge:

- **Nine major themes:** oral/manual issues – 100%; pupil progress – 90%; quality of experience of educator and learner – 90%; negative components of deviant speech – 90%; relevance of speech training – 90%; level of training and knowledge of resource material – 80%; multidisciplinary team – 80%; diversity of speech abilities 80%; requirements of a speech programme – 70%.
- **Two moderate themes:** – breadth of focus - 60%; time constraints – 50%.
- **One minor theme:** group versus individual instruction – 40%.

Themes are discussed in the order presented in the histogram except for theme 9 which is discussed at the end. Each is set down according to the following format: Firstly, direct quotations from the transcript that represent the theme are given. Secondly, excerpts are critically analysed. Thirdly, implications of the theme as relates to the proposed speech programme are described. A number has been allocated to each quotation.

#### 5.4.1 THEME 1 : ORAL/MANUAL ISSUES

This theme examines the way educators view different methodologies.

##### 5.4.1.1 Excerpts supporting this theme

**Signing was seen as:**

- **unavoidable**

*“... You can stand on your head you’re going to get sign language from them ....” (#1)*

- **negative, in terms of adaptation to a hearing world**

*“... there is nobody there who signs, there’s nobody there who can help them in any other way, they’ve got to have themselves understood...”. (#2)*

- **negative, in terms of development of oral speech**

*“... jy moet baie klem lê op die spraak gedeelte want vir my raak die kinders baie afhanklik op doen gebare en party van hulle praat heeltemal sonder stem ...” (English translation : “ you need to lay a lot of great emphasis on the speech aspect because, for me children become very dependent on using signs and some of them speak completely without voice”.*  
(#3)

- **negative, in terms of rate of utterance**

*"... It slows them down". (#4)*

- **positive, in terms of entrée into Deaf society**

*"... they will sign and they will accumulate deaf language because they are deaf. But they will always have speech and they will always be able to speak and they will always be able to use it as a form of communication with hearing persons because it is something they've developed naturally alongside signing has not ever been a: "You are not allowed to sign, you have to speak its never been a frightening thing. It's been a perfectly natural thing."  
(underlining represents speaker's emphasis) (#5)*

**Oral education was seen as:**

- **Negative causing Deaf individuals to be marginalised from both hearing and the Deaf societies.**

*'... and they're actually lonely children" (#6)*

*"his parents understood his speech ... and a family friend .. understood, sort of ... but his parents have died ... and she (the friend) feels awful because she can't understand him. He can't go to the Deaf clubs because he can't sign .. he has nothing". (#7)*

- **A significant number of responses centred on the adult Deaf community:**

**their power to dictate school policy and attitudes to speech and speech instruction.**

*"But then you've got the adult deaf .... who say to us, you are not to teach like that" (#8)*

*".... They're ambivalent I think they would like to be able to speak clearly when they need to but they don't like to be made to feel they're got to do drill and feel, you know, that they are failing". (#9)*

*"... they're going more for sign language and now they're pushing for recognition of sign language and they feel very strongly .. that speech is not for their benefit, it is for the benefit of the hearing - and its time hearing people changed their attitude and accepted deaf people, and sign language as their language". (#10)*

*".... That is coming now very strongly from the adult deaf, that they don't have to be doing speech - you don't have to teach them speech because they don't need speech eventually when they leave us." (#11)*

*"... it becomes a major issue to the point that there are many deaf adults that absolutely freak out at the whole scene of speech because it has been so badly done." (#12)*

*“... and so they have .... a lot of them grown up with a kind of negative feeling ... towards speech...it’s something they feel negative about”. (#13)*

#### **5.4.1.2 Discussion**

This theme was raised in 100% of the interview situations, demonstrating its importance to all categories of educators. Cogent issues of the oral/manual debate were articulated. Several of these concepts were discussed in 1.3. The philosophy of the proposed speech programme is that, notwithstanding whether the pupil attends a school which follows an oral or a manual approach, speech should be developed according to each child’s potential. As discussed in Chapter 1, it is possible that children educated orally, with no recourse to signing, may use speech more frequently and develop better speech, Conversely, because of the stress of not being understood they may develop deviant vocal problems related to vocal tension. Pupils who sign may use speech less frequently – (quotation #3) but may develop better vocal production because they are allowed to sign, and therefore do not manifest vocal tension. On the other hand, vocal apparatus that is not exercised because signing is an option may not develop optimally. Where pupils are educated according to a bilingual approach speech proficiency is not a consideration.

#### **5.4.1.3 Implications related to the proposed programme**

Speech training and signing are not considered to be mutually exclusive. The proposed speech programme does not exclude any philosophy. It is possible that the reliance on the grapheme may even be congruent with the bilingual approach.

A speech training programme must be a positive experience. The experience must not be abusive, and on a more subtle level, it should not be taught in patronising manner engendering a feeling of inferiority. The observations of the adult Deaf need to be taken into account if such improvements are to be made.

#### **5.4.2 THEME 2: LACK OF PROGRESS IN SPEECH PROFICIENCY**

This theme refers to of meaning perceptions of lack of progress of Deaf learners despite instruction. Numerous comments were made expressing this:

#### 5.4.2.1 Excerpts supporting the theme

*"... you don't see anything tangible – it becomes very difficult". (#1)*

*"I've begin with the sound, that sound, I've worked with it for so many – but do they really acquire it, that's another thing". (#2)*

*"Ons bereik op 'n stadium op 'n doodloopstraat waar ons kinders nie verder kan kom nie". (English translation: at a stage we reach a dead end, where our children can't go further). (#3)*

*"There's no tangible results ... " (#4)*

*"... so its really frustrating putting in that much effort and not getting anything out of it". (#5)*

*"and then at times you find that they don't really aquire the sounds and I feel that .... I've wasted the time. I could have done something else in that time." (#6)*

- **Lack of progress was evident in the short term.**

*"Because you're working in the morning, You're working hard with them in the morning. Thinking that o.k. they're going to ... simply because they're deaf they're not going to remember it the way you ... taught it in the morning." (#7)*

- **And in the long term**

*I just didn't think it had much rub off. I mean generally". (#8)*

- **It was specifically noted in relation to profoundly Deaf children**

*"From experience in this school for the profoundly deaf children I just found that we didn't make much progress with the speech." (#9)*

- **Reports from past pupils were in accord**

*"... and they (adult deaf) tell you "we sat for hours doing b/b/b/ and t/t/t/ and it had no relevance in real life. And when we went out there it didn't help us at all". (#10)*

- **Lack of progress in the face of unrealistic expectation was described.**

*"And the previous principal used to say "speech is like anything in life if you want it hard enough you'll get it", and that was most demoralising and I've never forgotten it." (#11)*

- **Teachers experienced feeling of failure as a result of lack of pupil progress.**

*"Jy beleef dit as a mislukking. Het jy regtig vir hierdie kinders hierdie jaar iets beteken?" (#12)*

*(English translation : “You experience it as a failure - have you really meant anything for the children this year?”)*

#### **5.4.2.2 Discussion**

This theme was raised in 90% of interview situations. The only interview situation in which it was not raised was the interview with the inexperienced principal. It is possible that this principal was not yet aware of this phenomenon.

The observation that children with profound losses are unlikely to succeed is supported by Subtelny, Orlando and Webster (1980 :180) who in their evaluation of a speech training scheme state: ‘The sobering fact is that most subjects with less hearing received training and yet failed to achieve improvement’.

The excerpts give poignant resonance to academic research findings set out in Chapter 1.

#### **5.4.2.3 Implications related to the proposed speech programme**

Constructive suggestions which are not unrealistic are:

- An effective programme should be designed to enable progress to occur. This study is directed to designing such a programme.
- Provision should be made for small gains to be noted. Educators may feel more motivated if they become aware of even minimal gains.
- Educators should be warned against harbouring unrealistic expectations, as sow the seeds of disappointment. The difficulty of the task should be explicitly noted, to obviate against the type of situation described in quotation (#1).

#### **5.4.3 THEME 3: QUALITY OF EXPERIENCE OF TEACHER AND LEARNER**

This theme examines how speech instruction is experienced by teacher and learner. The experience of the teachers is gauged from their statements. The views of learners is assessed by teachers themselves.

### 5.4.3.1 Excerpts supporting this theme

- **The majority of educators generally expressed negative feelings.**
  - “... ek beleef dit maar negatief” (#1) (English translation: *I experience it as negative*)
  - “The most frustrating thing..” (#2)
    - “... the frustration I go through...” (#3)
    - “... its very frustrating...” (#4)
    - “...frustrerend...” (#5) (English translation: *frustrating*)
- **Found speech instruction difficult**
  - “I think speech is the most difficult” (#6)
  - “.. so its very, very difficult”. (#7)
  - “... because nothing is worse and it’s the hardest thing they have to do”. (#8)
- **Tiring**
  - “... it’s a strenuous thing...” (#9)
- **Uninteresting**
  - “.. is Ling vir ons verskriklik vervelig. Boring” (#10)
    - (English translation: “Ling is terribly boring for us. Boring”)
- **Teachers lacked confidence in their ability - this was not described by principals or communication pathologists.**
  - “I think at the moment we feel to a certain extent we feel incompetent and we feel that it’s not really our field being a teacher, and that it’s a specialised field. Especially with a deaf child ... I mean there you need specialised knowledge to do that.” (#11)
- **had ambivalent feelings.**
  - “I have mixed feelings actually about speech.” (#12)
- **felt confused as to when maximum potential had been reached.**
  - “I know what has gone into their speech with their previous teachers, there’s no way I can hope to even match that. What’s the point of now hammering this drill work..?” (#13)
  - “... at what point can you say, well a child is now eight, nine, ten and still not able to, you know vocalise a whole set of sounds or able to make - do you continue?” (#14)
  - “... now when I hear about someone like the actress Marie Maitlin, from what I read she couldn’t speak. She was an adult, she couldn’t speak until she went into films and then

through intensive therapy. Now at that age is that actually possible? ... does that happen or ... if you haven't got it yet are you wasting your time?" (#15)

- **The 'positive' teacher's responses as described earlier exhibited ambivalence, for example:**

*"Ja ek geniet dit – dis is partykeer frusterend maar ek geniet dit"* (#16)

*(English translation: "Yes I enjoy it, it is sometimes frustrating, but I enjoy it)*

*"Ja ek geniet dit. Dit is baie tydrowend..."* (#17)

*(English translation: Yes I enjoy it. It's very time consuming.)* (#15)

- **Turning to educators perceptions of pupils attitudes a similar negative pattern is evident. Some excerpts reveal uncertainty regarding pupils feelings:**

*"I'm just saying how I feel. I'm just wondering whether the children feel that way".* (#18)

*".. am I going to make him feel bad ..?"* (#19)

- **Others describe perceptions of negativity from pupils with surety - in terms of frustration**

*"... I think (frustration is) not only for the therapist but for the children ..."* (#20)

*"... and the frustration that the children go through you know, because we're not seeing results".* (#21)

*"... its frustrating for the children because you're trying to get something that seems so difficult to understand and master..."*. (#22)

- **in terms of boredom;**

*"... and then they go 'da da da dee dee dee' for hours and hours".* (#23)

*"I am bored and the children are bored we're all bored".* (#24)

*"... jy hou aan sê "kie, kie, kie kie" daar voor die spieël.* (#25)

*(English translation: "you keep on saying ke ke ke in front of the mirror. Its not pleasant for them.")*

*"... dis nie lekker vir hulle om 'n ding oor en oor te sê nie".* (English translation: its not pleasant for them to say a thing over and over again.". (#26)

*"The child gets desperate".* (#27)

- **in terms of lack of relevance.**

*"... so a lot of them don't understand it. And because they don't understand it, its not meaningful to them..."* (#28)

*"I see that its not making sense to them its meaningless to them ...."* (#29)

“... I feel they don't understand what you're trying to get, especially you know, with the little ones, they don't know ... sometimes I feel to them it is just something they have to do when they come here or when they're in the classroom and they're doing it...”. (#30)

“Ek meen, waarom dit vir hom belangrik is om hier voor die spieël te sit en te sê ‘kie’, ‘kie’, ‘kie’, ‘kie’.. Hoekom wil Mevrouw hê moet ek die heelyd sê ‘kie’, ‘kie’, ‘kie’? Waarheen is ons op pad?” (#31)

(English translation: “I mean why is it important for him to sit in front of the mirror and say kI/kI/kI/kI/, “why does teacher want me to say kI/kI/kI/ all the time? Where are we going?”)

- **Negative feelings of older pupils were emphasised.**

“These that are a bit older, I feel that they are not enjoying it”. (#32)

“.. en dan is dit partykeer vir hulle babagoed wat hulle moet doen.” (#33)

(English translation: “... and then sometimes it seems that they have to do babyish things”.)

- **A further area of concern was that speech correction could cause psychological damage.**

“... but I think there are hammerings which may or may not be rectifiable...” (#34)

“(she) isn't really aware her speech is inferior ... and if I constantly ... pick on her she's going to think, “hang on, I'm obviously not doing something right here” .. I don't want to squash her...” (#35)

- **Concern was voiced that interruption of communication for the purposes of speech correction could disturb the desire of the pupil to share thoughts with the teacher.**

“The other day he asked me something and I corrected his speech because I knew it was a sound that he could make, and he was just being lazy. So I explained to him and he repeated it much more clearly. A little while later he started to say something to me and he said “No never mind” and I said “No tell me”, and he wouldn't. I couldn't get him to and knew what had done that. I'd actually broken down that sort of wanting”. (#36)

- **Pupils became demoralised when unable to correct errors.**

“The other day at home I took him and I said: “Now your voice is very high try” and I could see this little face. He was trying so hard to bring his voice down and there was no change”. (#37)

“... ‘n kind word geweldig moedeloos as hy die heelyd vir hom sê “ww, ww, ww,” en hy kry dit nie reg nie”. (#38)

(English translation “a child gets extremely dishearten if you keep saying “ww, ww, ww” and he doesn't get it right”)

- **A small minority of comments – five in total - describes speech instruction as a positive experience, all are given below.**



The first positive comment was made in relation to Sneddon's (no date provided in the book) speech programme, used for group lessons.

*"It was fun". (Focus Group 2) (#39)*

The second positive comment was made by 'the positive teacher' in a phenomenological interview. In response to the question whether pupils also enjoy speech. The positive response is qualified by negative comment.

*"Ja ek dink die kinders geniet ook spraak. Hulle raak gefrustreerd as hulle nie 'n klank kan sê nie". (Focus Group 1) (#40)*

*(English translation: "Yes I think the children also enjoy speech they become frustrated when they can't say a sound")*

Three positive comments relate to the preliminary programme designed by this researcher.

*"They do love it. The little ones – four and five year olds will take the little black boards and they'll come and sit in front of the mirror - all on their own and they'll do the sounds by themselves and they'll play teacher without me being there. So that is good". (Focus Group 2) (#41)*

*"... your programme excited me because it was informal, it was fun and I think the speech work as we're doing (it) now is fun with the children. They actually love it". (Focus Group 2) (#42)*

*"... and I think those games to get the various sounds like having a piece of paper with a hole in it and you pull your hand back to "th" makes it fun for them rather than an ordeal". (Focus Group 3) (#43)*

#### **5.4.3.2 Discussion**

This theme emerged in 90% of interview situations. It represents a significant proportion of responses. The depth of the discussion that follows reflects the importance and need for clarity of this unexplored phenomenon.

It is appropriate that teacher's own feelings and perceptions of pupil's feelings are combined in one theme, as these are interdependent. Pupils reactions, whether positive or negative will influence the teachers attitude to the subject, and the attitude of the teacher will in turn affect the quality of teaching (White, 1990). Students are more likely to be motivated if the teacher is enthusiastic about the subject (Biehler and Snowman (1993)). The effect of teacher motivation can be seen most clearly where one teacher gives instruction in several subjects. Students prefer learning the subject she enjoys teaching. (Biehler and Snowman ;1993).

Little is known about teacher's attitude in relation to speech instruction, and even less is known of the attitude of the Deaf learner (White, 1990). Scant attention has been paid to the psychology of the hearing impaired pupil as a target of speech teaching.(White, 1990). This also applies to this study. Due to the vastness of the study, no interviews were conducted with Deaf learners. However, it is logical to assume that teachers, in a close relationship with pupils correctly assess their feelings - boredom and lack of motivation easy to judge.

The picture that emerges is that teachers find speech instruction unpleasant on many levels - frustrating, difficult, strenuous, uninteresting and causing feelings of incompetence. Pupils are perceived as frustrated, bored, desperate, experiencing a sense of meaninglessness and, at times, insulted by the inappropriateness of teaching material in relation to age.

Different theoretical models demonstrate that positive motivation is extinguished in such a situation. According to the behaviourists, past experiences shape the learner's reaction to a school subject. (Biehler and Snowman, 1993) Judged on the excerpts past experience of speech teaching has been, and the learned response is negative. Maslow's theory of needs states that high levels of motivation in learning occurs in situations perceived as meaningful, relaxed and secure (Biehler and Snowman, 1993). The excerpts describe situations where the learning situation is perceived as meaningless, unrelaxed and insecure.

Within this negative scenario two small beacons of positivity exist. The first is, White's (1990) observation that teacher attitudes are not fixed since teachers from different schools do not have the same attitudes to speech teaching. The second, is sourced in the few excerpts which describe speech teaching as a positive experience. Responses of the two teachers who used the researcher's preliminary programme is complicated by the fact that they knew that the interviewer had designed it. Therefore these responses may have been to flatter the interviewer. However,

there is a case for accepting them as valid since both teachers used the material of their own volition, without any external direction over a lengthy period.

The second programme described positively was that of Sneddon. (no date given) whom the principal of the school knew personally.

The response by the 'positive teacher' (#40) is suspect due to the ambivalence of her statements (described in Step 1).

#### **5.4.3.3 Implications for the proposed speech programme**

A crucial factor, central to this study, is that a positive attitude is possible. Teachers reactions to the preliminary programme suggest that this may well be true for the preliminary programme.

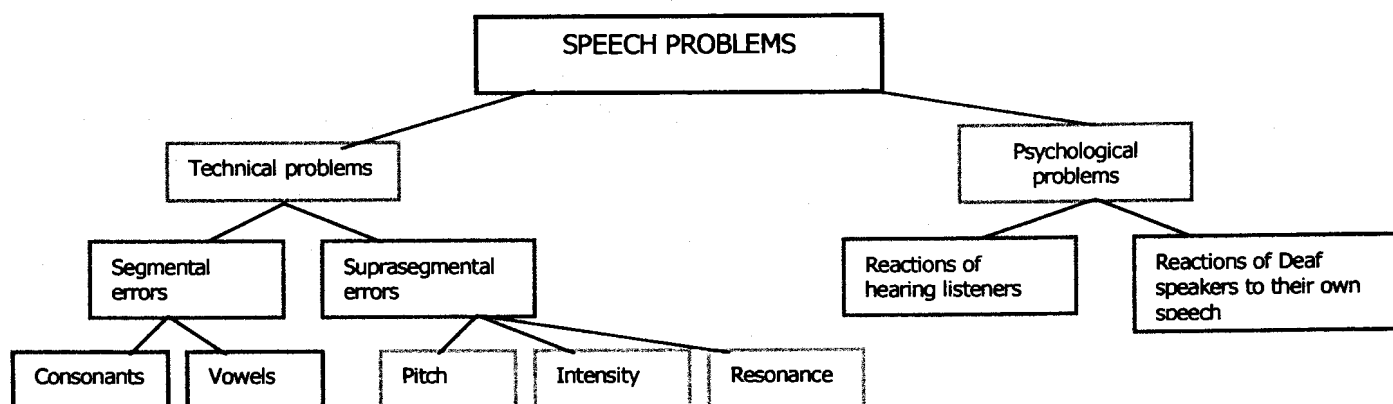
#### **5.4.4 THEME 4 : NEGATIVE COMPONENTS OF DEVIANT SPEECH: TECHNICAL AND PSYCHOLOGICAL**

The speech of the Deaf is deviant technically (Chapter 2) and has psychological consequences.

##### **5.4.4.1 Excerpts supporting this theme**

These are divided into two categories: first technical problems, second psychological problems as a result of the caused by deviant speech. Figure 5.1 Gives an overview of this subdivision.

Figure 5.1 Overview



Source : Developed from interview material

Figure 5.1 shows that quoted excerpts will be divided into two sections: the first, **technical problems** relating to speech production, the second, **psychological problems** relating to the reactions of hearing individuals to the speech of Deaf children and the attitude of the Deaf children towards their own speech.

**Technical aspects** of speech production include, segmental and suprasegmental errors. Segmental errors are discussed first:

- **Development of back consonants are more problematic than front consonants.** This is expressed by a teacher in relation to /b/ and /d/: The /b/ the consonant - produced more frontally is described as easier to produce than /d/.

*"... I found teaching a /d/ quite hard for my children but the /b/ sound is a much easier one".*  
(#1)

This same relationship was also described by a communication pathologist for the two consonants positioned sequentially one step further back.

*".... I find it difficult to teach them /k/ and /g/. The /t/ and /d/ that is O.K because you can still show..."* (#2)

- A large proportion of statements centred on the difficulty associated with development of velars, the consonants produced furthest back.

This was described for the velar fricative which occurs in Afrikaans.

“... die [X] is moeilik. (English translation : the [X] is difficult) (#3)

- The majority of statements describing problem phonemes centre on the /k/. One teacher describes in dramatic terms her desperation teaching /k/ (the pupils’ name and surname contained /k/).

*“I’ve been here for nearly thirty years and I’ve only achieved one /k/ with (names the child) and I remember, I think she was four or five and I actually said a prayer, I said: Please G-d help me...” (#4).*

- In response to the interviewer’s question: *“which sounds do you think are difficult to teach”*

One teacher replies simply:

*“/k/ /k/ /k/!” (#5)*

- Children of approximately ten years old are described as not being able to produce a /k/.

*“... ek werk met graad twees en hulle is so tien jaar oud, baie van hulle kannie die /k/ sê nie”. (#5) (English translation : “I work with grade two’s and they are approximately ten years old, many of them can’t say the /k/”) (#6)*

- In the earlier phenomenological interview the positive teacher describes strategies used to develop /k/. She states in a satisfied tone.

*“Ek het ‘n paar maniere wat ek gebruik, ek werk voor die spieel en ek het prentjekaarte van gesiggies, wys maar na hulle daarop. Hulle kyk waar my tong gaan.” (#7)*

*English translation: “I have a few methods that I use, I work in front of the mirror and I have picture cards of little faces. I just show them. They look at where my tongue goes”.*

The following year, in the Focus Group interview, she describes dissatisfaction with these same strategies. When asked by the interviewer to state how she teaches a /k/, she answers in a dissatisfied tone.

*“Nothing – ons het niks nie. Ek kyk in die spieel”. (English translation: “Nothing, we have nothing. I look in the mirror”). (#8)*

*“Ek het net die spieel en myself as voorbeeld.” (English translation: “I have only the mirror and myself as example”). (#9)*

- **other consonants were mentioned as problematic - but to a lesser extent**

*“Ek voel die Afrikaanse kind sukkel om /s/ te maak”. (English translation: “I feel the Afrikaans child struggles to produce and /s/ (#10)*

- **Phoneme production was described in terms of position in the word.**

*“The initial sound in the word, they need to recognise it”. (#11)*

*“Begin klanke en eind klanke wat hulle geneig is om in te sluk en uit te los”. (#12)*

*(English translation: They tend to swallow and leave out beginning and final sounds)*

- **Voice/voiceless discrimination between surd and sonant pairs, was described by a communication pathologist as too difficult to teach.**

*“I teach one of them but not the discrimination”. (#13)*

- **She would teach this contrast later.**

*“... when they’re old enough to understand the alphabet. (#14)*

- **Further on in the interview she states it is unrealistic to expect a Deaf child to grasp the voice/voiceless distinction.**

*“... I find that with the voice and voiceless, you know we do say physiologically its supposed to be a voiceless sound, but when you’re saying it in a word they can’t make out the difference...” (#15)*

- **Other problems noted by communication pathologists were**

*“difficulty with blends”. (#16)*

*“difficulty with fricatives”. (#17)*

- **Vowels were described by one teacher as more difficult to develop than consonants (the teacher confuses the terms vowels and diphthong’s).**

*“..ek vind baie keer dat die klinker kombinasies – die kinders sukkel nog steeds .... Soos /u:/ en ‘ui’ en /uu/.... ek vind .... dat hulle regkom om die konsonante te gebruik ..”. (#18)*

- **Several suprasegmental deviations were described - including descriptions of abnormal pitch, intensity and resonance:**

*“... the pitch is way off and its too high or its an animal like sound you know a guttural sort of sound”. (#19)*

*“Hulle skreeu of dis so onduidelik”. (English translation: “They scream or its so indistinct”). (#20)*

*“...stemgebruik is byvoorbeeld ... almal die meeste van hulle is of hoog of laag”. (English translation: voice is for example all, most of them, either high or low”) (#21)*

*“... (they need) a little bit of rhythm”) (#22)*

*“... nasal” (#23)*

*“... high and low” (#24)*

*"... that breathing that you know impedes the speech" (#25)*

- The second subdivision relates to **psychological problems**. Supporting statements describe firstly, the reactions of the hearing to speech of the Deaf and secondly the attitude of the Deaf speaker to his own speech. This topic was an important aspect of discussion to Focus Group 2. The excerpts below are taken from that interview.

- **Concern was voiced that Deaf speakers were viewed negatively by hearing individuals.**

*"... I shrink within myself when I hear how some of them sound and I know they've got perfectly good brains and people outside think they sound like animals" (#25).*

*Teacher 1 : He sounds like little animal"*

*Teacher 2: Yes he does, But he's perfectly bright". (#26)*

*"Teacher 2: ... people get wrong impression they think they are deaf and*

*Teacher 4: stupid". (#27)*

*"Yes that squeak it annoys people (teacher imitates deviant high pitch) all the time". (#28)*

- **Teachers described how Deaf children react to the hearing listener.** Only one account (#29) was given of a child whose deviant speech did not cause him embarrassment in the presence of normally hearing individuals.

*"... (he) has this very high, irritating voice and very little speech ... but he likes to use his voice" (#29).*

*"They do get shy...". (#30)*

*"... (are) aware of the people saying they have got a terrible voice (#31)*

*"they don't have the confidence to use their voice..." (#32)*

*"... there are a lot of children who can but don't because they re scared". (#33)*

#### **5.4.4.2 Discussion**

Empirical data corroborate findings recorded in the Theoretical data. (Chapter 2). Educators with no recourse to techniques of scientific measurement make the same judgements as researchers.

In relation to segmental errors, back consonants were viewed as more frequently omitted and difficult to develop than front consonants. (3.9.1). A delineation between the different levels of skills of teacher and communication pathologist is evident. The teacher can cope with most forwardly positioned consonant. (the bilabial plosive /b/, is, easy to develop but the consonant

produced one step further back, the alveolar plosive /d/, difficult). The communication pathologist demonstrates more advanced skills. She does not find alveolar plosives problematic, but consonants produced one step further back, velar plosives /k/, /g/, difficult.

The velar most frequently referred to as problematic is the plosive /k/. The continuant /ŋ/ was not even mentioned. In Chapter 2 it was suggested that continuants were more difficult than plosives, yet paradoxically, in these excerpts the plosive /k/ is noted for difficulty of development, whereas its continuant counterpart receives no mention. Geffen and Freeman (1980) ranked phonemes according to the proportion of times they were correctly produced. /k/ scores poorly in position 29 out of 31 whereas /ŋ/ comes last, in the thirty-first position. Similarly when ranked in terms of omission /ŋ/ is the consonant most frequently omitted, whereas the /k/ the third most frequently omitted. In terms of substitutions, the /k/ scores poorly at 14 out of a possible 15 rankings. However the /ŋ/ ranks as the worst, positioned at 15 out of 15. All these scores show that the /k/ is, albeit slightly, more often produced correctly than the /ŋ/. There appears to be an inconsistency in that the phoneme /ŋ/, the most problematic, is not even mentioned by educators.

One possible explanation is that omission of a /k/ is more noticeable than the omission of a /ŋ/. The short, staccato, burst of the /k/ is perceived with clarity, it is either present or absent. The /ŋ/ on the other hand is not distinctive. An amorphous voiced sound could give an impression that the phoneme has been produced. It is also possible that although /ŋ/ is more frequently produced incorrectly, it is easier to teach than the /k/ and therefore may cause more concern among teachers. For production of /ŋ/ the back of the tongue needs to be raised and vocalisation (which can be felt) directed through the nose. In contrast, precise and synchronised movements are required for /k/, a build up of intra-oral pressure in conjunction with lingual/velar contact and release. Oral emission is not an unambiguous cue, as a substituted glottal stop is felt on the hand in the same way.

The techniques employed by teachers for development of a /k/ are ineffective. The 'positive' teacher, for example, describes the strategies she used – (quotation # 7), illustrations of tongue positions and demonstration of the position of her tongue in the mirror. Neither strategy is adequate for eliciting the complex, quick synchronisation of velar/lingual contact and release and intra-oral pressure. It is not surprising that one year later she answers differently (#8 and #9), that she has nothing, just the mirror. In agreement with this teacher it is difficult to imagine that any amount of observation of the position of the tongue will lead to development of /k/.



The teacher who notes that children of ten years can not yet produce a /k/, makes a pertinent statement. A child of ten who has not yet produced a /k/ is hardly likely to do so fortuitously in the future. The picture painted by teachers in relation to /k/ production is one of negativity and failure.

Other excerpts which corroborate research theoretical are: difficulty of development of **fricatives** (#17), (2 3.9.1), table 2.7; page 48) **blends** (#16) (2, 3.9.1); complexity of **sonant** distinction (#13, #14 and #15), (2 4-3)). Suprasegmental problems (#19 - #25 ). Only one excerpt, supports the researchers' assumption that **vowels** are more difficult to develop.(#18) There are two possible explanations for the seeming lack of support for this view. Teachers may unconsciously, auditorally "fill in" the correct vowels and not consonants. Because vowels have a wider, more amorphous target, they maybe more malleable to auditory closure than consonants which have narrow, precise targets. Consequently consonants are more clearly perceived as incorrect and the teacher would tend to attempt to correct them. Supporting this assumption is the fact that specific consonants were mentioned far more frequently than specific vowels - educators notice when consonants are deviant.

Moving to reactions of the normally hearing audience and the Deaf speakers reaction to his own deviant speech, several important factors come to the fore. Teachers are discomforted by negative perceptions of hearing individuals. (#25 - #28). This is congruent with Sainsbury's (1986) observation that the Deaf are regarded as constituting a group identified by characteristics other than a hearing impairment, such as below average intelligence. A less well documented fact that emerged was the reaction of Deaf individuals to their own speech. (#30 - #33) Negative, non-verbal messages conveyed by the hearing population have psychological repercussions.

#### **5.4.4.3 Implications related to the proposed speech programme**

Previously established research data were empirically substantiated, and should therefore be incorporated into the proposed speech programme. For example, since back consonants are more difficult they should receive more attention. This is particularly relevant to the /k/ which was singled out as a highly problematic phoneme. Effective strategies for development of /k/ should be employed and ineffective strategies that look good on paper but do not work in practice, discarded.

The emphasis of the proposed programme is on consonant, not vowel development. The reasons for this are twofold: firstly, consonants are considered more accessible to development, therefore time spent on them is productive; secondly, problems of consonant production are more noticeable vowel production. Educators perceive a greater need for strategies aimed at consonants rather than vowels.

Psychological factors articulated are not within the scope of the proposed speech programme. It is understandable that abnormal speech patterns cause negative impressions among the hearing population, and that these are non-verbally communicated to the Deaf speaker. It would be simplistic and unrealistic to say that the proposed speech program could remediate speech to such an extent that this situation would be eliminated. Knowledge of the psychological implications places an enormous responsibility on educators to consistently develop a healthy self concept in pupils, stressing that self worth is not dependent on speech proficiency.

#### **5.4.5 THEME 5 : LEVEL OF TRAINING AND KNOWLEDGE OF RESOURCE MATERIAL**

This theme surveys the resources educators have to aid them in their endeavours to improve speech. It is divided into two areas: firstly, available training, secondly, available books. The first area to be examined is the area of training. Insufficient training was noted only by teachers - not principals or communication pathologists. The sentiment was reiterated by teachers in every Focus Group and in two of the three phenomenological interviews. The only interview, targeting teachers, where this theme was not articulated, was the phenomenological interview with the "positive teacher". However, as noted, subsequently, a year later when a participant of a focus group, hers was the most vociferous voice describing lack of training.

##### **5.4.5.1 Excerpts that support this theme**

- **Numerous excerpts from teachers expressed awareness of lack of training.**

*"I feel I'm a trained teacher of the deaf but not a trained speech teacher". (#1)*

*"Ek dink nie `n mens het die opleiding... Ek het nou nie die spesiale diploma vir die dowe... maar ek het ook nie die regte opleiding as `n spraakterapeut om te weet hoe 'moet jy `n klank wat die kinders nie kan sê leer nie. Ek het nie daai opleiding nie." (#2)*

*(English translation. I don't think a person has the education. I don't have the special diploma in the Education of the Deaf... I also don't have the right training as does a speech*

therapist to know how I should teach sound the children can't say. I don't have that training).

"...found it very difficult especially when I first came here was the fact that we have no speech training. And you just get 'There is your class get on with it' And you think - where do where do we go from here?" (#3)

"teachers are not shown how to get sounds from children". (#4)

"...am I doing the correct thing or am I causing more harm". (#5)

"You know I shouldn't be causing more damage..." (#6)

- **Teachers describe how, in the absence of a formal infrastructure, learning takes place on an ad hoc basis.**

"Teacher1 used to come in to my classroom everyday". (#7)

"Teacher6: You go next door and they say 'Ja well I also do that' and try this or whatever it's just.

Teacher5: ..... hit or miss" (focus group 3)." (#8)

"If I was trained in that field, like therapist I would feel OK". (#9)

"I certainly need the help, because you know I've never been trained in anything like that and I just bumble along as best I can". (#10)

".... I would like more help". (#11)

"Ek dink miskien is opleiding ook belangrik" (English translation : I think perhaps training is also important). (#12)

"So if we were shown how to do all that - I think its essential really. We are not trained - we are trained as teachers but were certainly not trained in speech production". (#13)

"We'd be happy to learn these things". (#14)

- **The following excerpts describe the second part of the theme, lack of available resource material – programmes and books** Five resources were noted, set out below in an arbitrary order.

- **The first resource to be discussed is by van Uden: his techniques were described during Focus Group 2, with reference to writing not speech development.**

"Well van Uden says that the Deaf should be exposed to the written form by the age of two or three. I have found that when the word recognition starts you're into reading very well". (#15)

"... I start with that balloon speech straight away". (#16)

"... I've always believed in these speech bubbles - whether it comes from van Uden or Ling or Ping or who-ever...". (#17)

- **The second resource noted was Sneddon's book. This was mentioned only in Focus Group 2.**

“Teacher5: ... you know (the current school principal) gave us a speech production book from ...)

Teacher 3: Professor Sneddon” (#18)

“Teacher 1: You know just exercise control and throat things. And we all did that quite effectively for a while. We were all sort of ‘gung ho’ and did it and then I must say, it’s something that if we had a working programme that covered those sorts of things and that became an accepted part of the school day ... It was great that was more – that was really more a relaxation thing and just getting people to be less tense ... it wasn’t necessarily (a) speech thing ... I was fun! Because the kids were used to

Teacher 4: ... Physical –

Teacher 3: ... Physical! We would breath in and we would do our things.

Interviewer: ... Oh?

Teacher 3: ... and we would do our things and then we would: OK, lets all breathe in and say the “sh” “sh” on the board you know...

Interviewer: Yes?

Teacher 4: ... but if they breathed incorrectly you didn’t know what to do about it...” (#19)

- **The third programme was Ling (1976).** The majority of comments related to Ling were elicited during the Focus Group 1, where teachers followed a modified Ling speech programme designed by communication pathologists employed at the same school. Certain comments overtly directed at Ling’s programme are in fact related to the modifications and not Lings programme per se. A more valid critique of Lings programme is gained from reviewing the comments of communication pathologists, described later in this chapter. For this reason the source of the quotation – teacher or communication pathologist is specified.

The first group of excerpts represent teachers in Focus Group 1.

- Ling is incorrectly criticised for prescribing vocabulary to complement phonetic learning.

...“die meeste van die woorde (prescribed words) is daar wat die kinders nie eers kennis van dra nie.” (#20 – teacher Focus Group 1).

(English translation : The children don’t have any knowledge of most of the (prescribed) words.)

...“Baaie van die woorde val glad nie in ons kinders se ervarings veld nie. Ek meen wat my betref is hopeloos to moeilik.” (#21 – teacher Focus Group 1).

(English translation: Many of the words are not within our children’s field of experience. I mean in my opinion, it’s hopelessly too difficult).

- **One teacher seems to have little perception that Ling’s approach is incrementally graded:**

*“Ling is nou nie in fases ingedeel nie maar jy bly hamer op dieselfde ding, op dieselfde ding. Die kinders kan dit doen, maar hulle bly die moeilike goed nie kan doen nie”. (#22)*

*(English translation: Ling is not divided into phases, you keep hammering on the same thing, the same thing. The children can do it, but they still can't do the difficult things.)*

- **Other criticisms are the lengthy nature of the programme:-**

*“En ek dink ook Ling is op die oomblik so ‘n lang uitgetrekte proses...” (#23)*

*(English translation: And I also think that at the moment Ling is a long, drawn out process).*

- **Unsuitability of suprasegmental subskills:**

*“En dan spesifiek in Ling, die toonhoogte oefenninge wat daar is - ek voel ons kinders kom glad nie daar by nie.” (#24)*

*(English translation: And then specifically in Ling the pitch exercises I feel our children don't get them at all ...”) (Teacher Focus group 1).*

*“Ek wil graag aansluit daarby. Ek het ook al klass gehad, ‘n swakerige klassie wat meesal net met gebare praat, dan is hierdie (pitch subskills) vir my ook niks werd nie.” (#25)*

*(English translation: I want to join in here. I've also had classes, a weak class who, in the main, used sign language then these (pitch subskills) are worthless to me. (Teachers Focus group 1)).*

*“... by die kleuterskool ..... ons begin met die prosodiese eienskappe en ons werk baie lank – en ons kry die lengte van klanke, die kort en die lang klank en dit kry ons onder die knie en ons kry die harde en die sagte klanke tot ‘n mate onder die knie maar met teenhoogte oefeninge het ons bitter min sukses.” (#26)*

*(English translation: In nursery school when we begin with the prosodic features and we work a long time – and we get the duration of sounds – short and long sounds – that we get right and we get the loud and soft sounds – to an extent – right – but we have very little success with the pitch exercises).*

*“...ek meen dit is ‘n stremming op jouself en jy as jy weer laag dan moet praat is dit ‘n stremming op jou stem ook”. (#27)*

*“Dit is ‘n abnormale verwagting op ‘n kind”. (#28)*

*“Dit is seer op die oor”. (#29)*

- **Ling is also mentioned by teachers in Focus Group 2.**

*“Having looked at Ling method again, I don't know all that much about it, but just very briefly I think there is a lot of danger in that sort routine by saying: you cant do that sound until you do this sound. And I think the child gets desperate, you get frustrated and in the end not much is achieved.” (#30)*

- **The two communication pathologists were asked directly to comment on Ling. Both were familiar with his programme.**

*"I use it - but not extensively". (#31)*

*"I do use it for the children that I feel will benefit from this programme but then I don't use Ling that exclusively". (#32)*

*"I just prefer working that way. Just doing a whole lot of things at the same time....." (#33)*

- **Communication pathologists were asked to indicate which aspects of Ling's programme they regarded as positive.**

*"I think its systematic.. " (#34)*

*"It gives direction as to where you're going". (#35)*

*"...you have specific targets" (#36)*

*"Its very thorough". (#37)*

- **They were also asked to indicate which aspects of Ling's programme they regarded as negative. There were significantly more negative than positive comments:**

*"... it is too lengthy" (#38)*

*"... very repetitive" (#39)*

*".... boring" (#40)*

*".... drill work is very boring". (#41)*

*"... its very tiring". (#42)*

*".... frustrating" (#43)*

*".... it is time consuming". (#44)*

*"I think in terms of time and the sort of thing you need to cover.... your manpower and that sort of thing its..... difficult to just stick to one programme". (#45)*

*".... Sometimes some of the sounds you know with maturity it comes depending on the type of hearing loss they have". (#46)*

*"... I just find that going through all the stages where the children cannot hear a lot of the sounds.... "*

*"Frustrating and boring". (#47)*

- **Ling's evaluation procedure elicited the following criticisms from communication pathologists:**

*"With the Deaf children I don't use that because they don't use it (the corrected phoneme) like with normal hearing children... (who) will use it afterwards and that's how they will acquire it so then you know maybe when the child comes back you say: "ok he's using the sound*

*spontaneously” now whereas with the Deaf child, you know, once they leave here, they don’t use the speech.... Its very hard for me to say: Ok they’ve obtained the skills. (#48)*

*“I might say .... This week we’ve started, I’ll only hear the sound next year”. (#49)*

- **A fourth resource – noted in two of the three focus interviews - was the preliminary programme designed by this researcher.**

*“....your programme excited me because it was informal, it was fun and I think the speech work as we’re doing it now is fun with the children. They actually love it”. (Focus Group 2 (previously quoted)). (#50)*

*“and these games... how to get the various sounds like having a piece of paper with a hole in it and you pull your hand back for a / / makes it fun for them rather than an ordeal’. (Focus group 3 (previously quoted)). (#51)*

*“They love it when we went to that conference in Cape Town I just loved your books, but naturally I don’t work with a child with a page out of your book I take out what I want”. (Focus group 2 (previously quoted)). (#52)*

*“It’s not a rigid - in actual fact I do your programme” (Focus Group 2). (#53)*

*“They do love it the little ones. Four and five years old will take the little blackboards and they’ll come and sit in front of the mirror all on their own and they’ll do the sounds by themselves and they’ll play teacher without me being there”. (Focus Group 2 (previously quoted)). (#54)*

- **One teacher (in Focus Group 3) mentioned a fifth resource - a book called the “Big book of Sounds” (Flowers, 1980)**

*“.... You first start with /b/ and /l/ and then it becomes /bl/” (#55)*

*“... for practical application and actual relevance to your daily life situation there is nothing there.... just basic sounds”. (#56)*

#### **5.4.5.2 Discussion**

The lack of training and suitable resource material described in the theoretical research (chapter 1) were clearly illustrated in quoted excerpts. Teachers demonstrated the validity of Hogan et.al’s., cogent message (Subtelny 1980) that there is a great need for in service training for regular classroom teachers, as they are usually the personnel who provide speech instruction to the hearing impaired. Paradoxically teachers from the only school that provided training (in the form of a modified Ling programme) evinced the highest levels of dissatisfaction. This

demonstrates that providing a speech program is not sufficient - the speech programme must be suitable.

It was pertinent that a need for training or resources was not articulated by principals or communication pathologists. This is understandable in view of the different roles played by principals and the different training undergone by communication pathologists. Principals do not experience a need for training or resources, as they are not engaged in teaching. Communication therapists have had training and can compensate for a lack of resource material because they have an armoury of alternate techniques at their disposal which can be applied to Deaf pupils.

In the face of lack of training and resources an ad hoc nature to learning exists - for example teachers try to gain information from each other. It is noteworthy that untrained teachers who are not provided with resources, continue to expend effort in this direction. It would be understandable if they simply stopped trying. This seems to point to a situation where teachers regard speech as important, therefore worth the effort. It is possible, that if teachers were supplied with a suitable programme they would be motivated to use it.

An in depth analysis of the available programmes reveals the following.

**van Uden** was mentioned in Focus Group 2 (#15 - #17). The excerpts, however, do not refer to speech - this supports the view expressed in Chapter 3 that only educators who have studied at van Uden's institution will have access to the speech training methods he developed.

**Sneddon's** programme was mentioned in Focus group 2 (#18 and #19). The method was described as enjoyable for teacher and pupil. It is unlikely that significant speech improvement can occur where the programme employed is designed for normally hearing children and is taught by educators who are not trained in remediating the speech of Deaf children. However, it is possible that vocalising in a relaxed situation may strengthen vocal cord function and improve breath control.

The third programme noted was **Ling's** discussed briefly in Focus Group 2, but pivotal to the discussion of Focus Group, 1 where teachers followed a modified version. Comments taken from this discussion are carefully weighed to clarify which relate to Ling's programme per se and which relate to superimposed modifications. Two criticisms made by teachers are considered invalid: firstly, that Ling prescribes an artificial vocabulary to complement phonetic learning and secondly, that the programme lacks a hierarchy of incremental learning phases. Two other



criticisms are considered valid and were corroborated by communication pathologists- that Ling's programme is uninteresting, and at times unrealistic. The writer agrees with both criticisms. The writer also agrees with teachers that Ling's pitch suprasegmental skills are unrealistic expectations and unpleasant to teach because of the vocal strain on pupils and teachers alike. It is possible that singing which produces natural pitch changes (described in Chapter Three) exercises this function more effectively and in a more appealing manner.

Neither of the communication pathologists used the Ling programme extensively or exclusively. Unlike teachers they had an available armoury of techniques to draw. They saw speech training as a pointless task, since pupils did not improve. In contrast to teachers, communication pathologists viewed improvement as an unrealistic aim – lack of progress was seen as the fault of the intransigence of speech problems, whereas teachers who saw lack of progress as related to their lack of expertise, expressed the view that if pupils were instructed by a communication pathologist, speech performance would improve. (This is discussed further in the theme that describing the relevance of speech teaching (5.4.6)).

A comparison of the critiques in Chapter 3, and in this chapter, reveal similarities and differences. In Chapter 3 it was hypothesised that Ling's style of writing was too technical for teachers. While this was not directly articulated in the interviews, no teachers in Focus Group 1, who used the modified programme, made mention of reading Ling in the original. Complicating the validity of this argument is the fact that Focus Group 1 spoke Afrikaans and Ling's book is written in English. Language difficulty may have precluded easy reading. However, only one teacher out of all the participants interviewed mentions that she has read the book. Although Ling's style of writing was not criticised by educators directly, it is possible that it was by default, since only one teacher had read his book. This substantiates the claim that his style of writing is not suited to an audience of classroom teachers.

The criticism that the programme is uninteresting for teacher and pupil alike (chapter 1, section 2.2.3.1, page 13) is supported by the numerous excerpts from communication pathologists and teachers.

The criticism that too little attention is given at a phonological level was not directly mentioned by teachers or communication pathologists. However, this defect is implicit in theme 5.4.10 which articulates a need for speech training to have a wider focus.

The criticism that the programme was unrealistically optimistic is supported by statements that speech was not corrected despite following his programme. Teachers, were left with a sense of failure.

The fourth resource described by only one teacher, is the single volume entitled “**The Big Book of Sounds**” (Flower, 1980). The book offers a scheme of prepared lessons. There are some positive factors. The teacher is provided with a programme that is easy to understand and has a planned format for lessons. However, closer examination reveals that the material is not designed according to the common faults of Deaf speakers . This is well demonstrated in the example that the teacher gives: She states a/b/ plus an /l/ will produce the conformed blend, /bl/. This simplistic description does not take into account the complex synchronisation of lip and tongue movements needed for correct production of the blend, nor does it attend to the potential problem of intrusive voicing. It is more probable that /b/ plus /l/ will be produced incorrectly as /bəl/ than correctly as /bl/. Additionally, as the teacher comments the system is not well integrated into real communication. A further disadvantage is the stiff, old fashioned design the illustrations and the stilted language used.

The fifth resource discussed in two of the three focus group interviews was **the researcher’s preliminary programme**.

Important implications are suggested:

Firstly, an ad hoc nature of procurement of resource material is demonstrated. The programme was designed in the Cape, and emerged at schools in two distant provinces. i.e. Kwazulu Natal and Gauteng. The teacher in Focus Group 2 (#52) refers to a conference held in the Cape in 1987 at which the researcher lectured. The teacher in Focus Group 3 received the material from a mutual colleague who had, more than a decade previously, been employed at the same school as this researcher. Secondly, both teachers use the word ‘fun’ to describe the programme. One teacher notes that children spontaneously incorporate the speech lessons into creative play. In view of the recorded negativity surrounding speech training this observation is of major significance. Thirdly, the programme appears to be effective. Teacher 1, who uses the programme was described by colleagues as achieving “tremendous” results.

#### **5.4.5.3 Implications related to the proposed programme**

Training is scarce as is resource material. One shining light, is that within this unsatisfactory situation, some teachers continue to find ways to improve speech. Implications emerge with such clarity as to appear simplistic - teachers need training and resource material.

#### 5.4.6 THEME 6 : RELEVANCE OF SPEECH TEACHING

This theme explores of whether speech teaching is a relevant goal.

##### 5.4.6.1 Excerpts supporting the theme

Comments relating to this theme fall into three categories

- Comments expressing the view point that speech teaching is important.
- Comments expressing ambivalence.
- Comments expressing the viewpoint that speech teaching is unimportant.

Each of these will be dealt with separately:

Firstly comments expressing the viewpoint that **speech teaching is important** are provided.

This sentiment was expressed almost exclusively by teachers - all of the excerpts below were made by teachers.

*"Its something that is extremely essential". (#1)*

*"I think (speech training) certainly makes a difference in the child's life". (#2)*

*"I feel its important". (#3)*

*"Ja Ja ek dink dis baie nodig. Absoluut nodig". (# 4)*

*(English translation: Yes, Yes I think its very necessary. Absolutely necessary)".*

*"I think first of all that every child must be given the opportunity to learn to speak". (#5)*

*"...its so crucial that from the minute they come to school we've got to start them on speech work, because by the time they reach Class One its almost too late". (#6)*

- Secondly comments that display a sense of **ambivalence** – the majority were expressed by teachers.

*"mixed feelings". (#7)*

*"I'm not comfortable with it but I feel its important". (#8)*

*“You feel perhaps ‘I’m wasting my time now’ – you shouldn’t even say that if you’re doing speech”. (#9)*

*“... en die spraak is belangrik, maar jy gaan nie hulle op hulle spraak toets...” (#10) (English translation: ..... and the speech is important but you’re not going to test them on their speech...”*

The excerpts of the teacher who changed from positive to negative will not be repeated. However, it is clear that they represent ambivalence.

- A third group of comments, drawn almost exclusively from communication pathologists said that that speech teaching is **not important**. All the excerpts below were articulated by communication pathologists.

*“My heart says that I don’t - I am not really for teaching speech to the Deaf”. (#11)*

*“I’m not for teaching speech and articulation”. (#12)*

*“They don’t use it (speech) so it’s not a skill that they use when they communicate with each other. It’s a skill probably that they try to use when they talk to teachers and yet if one child from one class goes to another class and if he is using that particular skill they still wont understand what the other pupil is saying unless they’re signing”. (#13)*

#### 5.4.6.2 Discussion

Assessments on the relevance of speech teaching will influence educator attitudes and determine motivation to speech instruction.

The excerpts above reveal a wide range of commitment to speech development. Despite the fact that teachers find speech training difficult, frustrating (discussed in 5.4.3) with progress virtually non existent (discussed in 5.4.2) and training and resource material scarce (5.4.5), they continue to see the relevance of teaching speech.

The second set of excerpts, also expressed mainly by teachers, display ambivalence. These epitomise the hidden agenda glossed over in Stoker and Lings (1992:1) statement that :“Many fine educators and therapists have confided to us that expressive speech is the thing they find most difficult and threatening in their work with hearing impaired children”. This grey area of ambivalence provides a wealth of complex information. Analysis of each excerpt yields important information:

- The first excerpt (“mixed feelings”) (#7)) directly states ambivalence.
- The second provides some insight into why continued efforts are made despite the negativity associated with speech teaching. “Not comfortable ... but it’s important”. (#8)
- The third shows the guilt a teacher feels when she entertains the thought that speech teaching is a waste of time, “you shouldn’t even say that if you’re doing speech” (#9). Despite the negativity associated with speech teaching, the teacher feels guilty that she has conceived this unacceptable thought. The excerpt crystallises the conflict that teachers experience – they believe speech to be important, but at the same time, experience has shown that their efforts are in vain.
- The fourth excerpt, “speech is important but you’re not going to test them on their speech” (#10), demonstrates that academic progress and speech development compete. Speech is not formally tested. Teachers have been trained in an educational framework that rests on an infrastructure bounded by syllabi and mark schemes. This is in contrast to the approach of speech pathology which utilises different systems of planning and evaluation. Teachers have problems gauging progress that is not demonstrated by tangible educational symbols of ticks and crosses on a written page .

The third group of comments **that speech and consequently speech instruction is not important**, were articulated exclusively by communication pathologists. They saw little relevance in the development of speech. Communication pathologist 1 stated at the outset of the interview. “I’m not for teaching speech and articulation”. She saw speech instruction as a meaningless task and regarded speech usage as artificially engineered – intelligible solely to the class teacher of that pupil and not even to other teachers at the same school.

Because of the small number of subjects, firm conclusions cannot be drawn. Several explanations can be put forward. Firstly, the shortage of communication pathologists may mean that expending time on speech development in the face of other pressures is simply not cost effective. Language therapy, for example, may yield quicker and more noticeable gains. Secondly, unlike teachers, communication therapists have received training - they may therefore not perceive a lack of progress as a reflection of their inadequate skills, but as a result of an intransigent problem that is irremediable. Thirdly communication pathologists may be giving voice to the principle that the traditional ‘pull out’ model in which they have been trained, is not effective with Deaf learners. It may be that success cannot be achieved unless speech development is approached in a holistic

way, whereby it is an integral part of the Deaf child's day and as such, speech receives continuous reinforcement. A combination of these suppositions is probably at work. The shortage of speech and communication pathologists and the variety of roles they play in additional areas such as audiology and language therapy may leave little time for speech. Additionally, gains in speech require lengthy involvement for smaller gains. Seen in this light the attitude of the communication therapists can well be understood.

#### **5.4.6.3 Implications related to the proposed speech programme**

The importance of a whole language approach described in Chapter 3 is underscored.

As concerns teachers, a whole language approach that includes reading and writing – traditional and relevant areas of regular school practice – may be extended to speech. This is especially true where training in speech can be used to improve other academic areas such as reading and spelling.

#### **5.4.7 THEME 7 : TIME CONSTRAINTS**

This theme examines how the factor of time influences attitudes to speech instruction.

##### **5.4.7.1 Excerpts supporting this theme:**

- **There was little time for speech instruction.**

*".... maar ek kry min tyd" (English translation: but I get little time)". (#1)*

*"... I haven't got an hour". (#2)*

*".... There's a tremendous lack of time" (#3)*

*"There isn't time". (#4)*

*"... and I think we should be realistic you know its very easy in theory to say 'oh we should all practice sound so and so - but when it comes to the nitty gritty.... You have not got the time". (#5)*

*".... When I do speech which is rare now because of constraints of time ..." (#6) "Teacher 2 : I think that time thing is a huge problem.*

*Teacher 1: It is:. (#7) (Dialogue from focus group 2).*

*"We worked with them ... I took at least an hour everyday on speech, I mean that is just not on". (#8)*

- **The regular school curriculum was demanding.**

*“En daar is baie goed wat jy moet doen, wiskunde en lees en taal en so” (#9)*

*(English translation: And there’s a lot of stuff that you have to do, maths and reading and language and so on.)*

- **Speech took time away from academic subjects that were formally tested and formed the basis of promotion to the next standard at the end of the year. Pupils pass or fail a standard on academic, not speech, progress.**

*“Spraak is belangrik maar jy gaan nie hulle op hulle spraak toets...” (#10)*

*(English translation: Speech is important but you’re not going to test them on their speech...)” .*

*“Hulle moet die einde van die jaar ‘n seker standaard bereik het” (#11)*

*(English translation: They must have achieved a certain standard by the end of the year).*

- **Individual and group speech training were both seen as time consuming.**

*“Dit is (speech training) baie tydrowend want jy moet individueel werk met die kinders.” (#12)*

*(English translation: Its (speech training) very time consuming because you have to work individually with children.*

*“As jy formele werk onderrig dan moet jy nou tyd inruil om hier to kom sit en praat”. (#13)*

*(English translation: When you’re doing formal work you have to give up time to go and sit and talk).*

*“... en ook in die klas, dit neem tyd om vir ‘n kind oor en oor te sê as hy verkeerd gepraat het”. (#14)*

*(English translation: ... and also in the class, it takes time to have a child say something over and over again if he has said something incorrectly).*

- **Time constraints because of academic pressure were more relevant to senior classes.**

*“...I’m sure if I was there (in the high school), I wouldn’t correct speech either”. (#15).*

*“I have no right to talk for the high school teacher because I’m not teaching under their pressure. I’m teaching babies...”. (#16)*

*“And obviously by the time they get to me they are ten, eleven, I’ve got syllabus things to get on with. You know I’ve got academic work to get on with... I can’t spend time on individual sounds”. (#17)*

#### 5.4.7.2 Discussion

It is clear from the quotations that teachers perceive they have little spare time to teach speech. However, the way in which time is apportioned represents more than a physical, temporal

measure, it also demonstrates the level of importance a chosen activity is accorded. While it is a valid assertion that schedules are demanding and communication problems associated with a hearing impairment mean that teaching is more arduous (McNeil and Jordan 1990) it is also clear from the excerpts that teachers judge pupils' achievements – and by implication of their own success - in terms of traditional evaluations that are quantifiable. The question arises, how can speech training fit into this pedagogic framework? There is no quick answer. Simply transplanting speech teaching into a traditional framework is inconceivable. If pupils were to pass or fail a standard according to speech skills, then congenitally, profoundly deaf children would continuously remain on the first rung of the educational ladder. Changing the philosophy of a school is not only unrealistically idealistic, but also a gargantuan task that will require challenging the psyche of educationalists programmed over centuries. This is beyond the scope of the speech programme.

Probably the most effective way to deal with the situation is to accept at the outset that schools are serviced by individuals with mindsets that are congruent with traditional organisation, and to incorporate this philosophy into the blueprint of a speech programme.

#### **5.4.7.3 Implications related to the proposed programme**

- Speech teaching should be packaged in a manner that is congruent with a school like approach. The proposed programme has speech workbooks designed to this end.
- The structured nature of the educational philosophy should be exploited. Teachers should be assigned a regular period for speech.
- Speech development should be seen as enhancing academic subjects. In this way the perception that speech teaching takes time away from 'real' learning is addressed. The proposed programme uses speech instruction to foster learning of reading, writing and spelling. This means the teacher saves time by using academic material for speech, and additionally views speech instruction as complementing and reinforcing academic learning. The Listening Reading Speaking method (LRS) which has a traditional educational approach is an example of this.

#### **5.4.8 THEME 8: DIVERSITY OF SPEECH SKILLS AMONG PUPILS**



There is a natural diversity of speech skills across a school for the Deaf. This theme was raised by each category of educator – teachers, principals and communication pathologists.

#### 5.4.8.1 Excerpts that support the theme

- **Diversity of skills was noted**

*“Some children.... Find some sounds easier to produce than other sounds... there is a great variety”. (#1)*

*“I think that each child will need his own programme”. (#2)*

*“It there was a programme that would be helping the children who really could benefit, but not making the other feel, you know, if it was a fun thing and I could get out of them what they could do, but really, I don't know if that's possible. But that is often I find, a problem in class”. (Underlining reflects speaker's vocal emphasis) (#3)*

- **Potential for speech was described as being affected by hearing levels, quality and timeousness of intervention. (Both excerpts were articulated by communication pathologists.)**

*I wouldn't go for speech for the profoundly deaf children. For the hearing impaired (correct term: hard of hearing) depending on how much the degree of hearing loss and whether its prelingual or post lingual depending on that we do encourage speech for those who can hear”. (#3)*

*“... they didn't have early diagnosis and management that adds to the frustration of teaching speech”. (#4)*

- **One problem, specific to the South African context , was Black children from rural areas who had not received timeous diagnosis and intervention. Diversity of languages was an additional problem..**

*“And from the rural areas ... there are a lot more problems we face there and I don't really know how to get speech sounds out of them.”. (#6)*

*“.... In the same class we have these rural children who are coming in aged six, seven with no voice and this is where do you start and is it really worthwhile ...?” (#7)*

*“At the moment I've got a new child who's just come in. She's got a fair amount of hearing. She speaks Zulu to her mother very well, but she knows no English, she knows no signs. She's actually just started with us and I have to teach her signs and English, so, she's learning two languages together now, and what do you do with that”? (#8)*

*“And they can't talk English”. (#9)*

*"I think another thing to consider is the language, because here I find it's a battle, you know that's the other battle. ... The one has concepts in Sotho and the other one has concepts in Zulu."* (#10)

- **Diversity of needs was described for different age groups:**

*"But these girls you're talking about – they're older children, ... So I just realise – We're at different levels here."* (#10)

*"accepting what Teacher 1 has said and I think, well I do. By the time I'm taking the children, eight, nine years old there are some children that I feel, rightly or wrongly, I shouldn't be spending a great deal of time with specific sounds."* (#12)

- **Children who had potential for speech development should be provided with training.**

*"... it also depends on the child's ability if they show the ability to learn speech, I would encourage it..."* (#13)

*".... Absolutely! If a child, a deaf child, or a hearing impaired child any way, can speak, is able to speak, it is our duty I feel, and our responsibility to give that child that avenue of communication. To give them that oral and make them able to speak." (underlining reflects the speaker's emphasis).* (#14)

- **Certain children were perceived as not having potential for speech.**

*"Teacher 3: Shame poor "Child 19. (#15)*

*Teacher 1: She won't speak" (#15) (Dialogue from focus group 2)*

*"I think by the age of seven, eight years old, you know if that child is going to be a speaker or a silent child. But until that time, we've got to give them as much input as we can."* (#16)

- **Comments were made regarding the value of persisting with speech development where learners were perceived as lacking potential.**

*".... If that speech production is simply making sounds, putting your tongue there, doing things and manoeuvring your face around and has no relevance to communication for that child, I see little point. I see little value for a speech programme for a child like that".* (#17)

*"... is it really worthwhile when they have a backlog of recognition of the written form when there's nothing at age seven plus".* (#18)

- **The dishonest practice of selecting pupils with superior speech skills for public demonstrations was described perjoratively**

*"...but that's the trouble you know people do tend to take the children who can ... on demonstrations ... and what happens to the children who can't do these things"? (#19)*

*"but at the same token kids who couldn't produce those sounds were like ag well work with you later..".* (#20)

- **An evaluation procedure to identify pupils who could not succeed at speech was needed.**

*“I think as teachers we have to have some kind of way perhaps, and this is only from experts, who can show us.... At what point can you say look this child is really .... going to cotton onto speech and deserves to have a speech programme. Another child, like a child in “Teacher 4’s” class perhaps might never, ever cotton on to speech. And perhaps we should be able to...” (#21)*

*“Ek wil weet wat moet ek van my kinders verwag, want op die oomblik verwag ek omtrent eweveel van al die kinders in my klas wat spraak aanbetref. ... jy het jou swak sprekers en jou goeie sprekers, maar ek wil graag weet net wat kan ek van hom verwag. Is hy al op daai vlak. Op die oomblik weet ons nie”. (#22)*

*(English translation: I want to know what I can expect from my children, because at the moment in regard to speech I expect this same from all the children in my class... you have your weak speakers and your good speakers, but I badly want to know what can I expect from him. Is he on that level? At the moment we don't know.*

#### **5.4.8.2 Discussion**

The diversity found among hearing pupils is exacerbated by the range of hearing losses and quality of aural rehabilitation of Deaf learners. Children with a wide disparity of speech skills according to similarity of chronological age levels are grouped together.

Unlike hearing learners, chronological age and speech ability do not correlate. Children in higher classes may have low speech skills – children of ten years of age were described (5.4.4 “Negative components of deviant speech”) as not being able to produce /k/.

Measures to remediate speech maybe perceived as age inappropriate by students. This was described in theme 5.4.3 (Quality and experience of teachers and learners), where older children saw speech training as “baba goed” (5.4.3 - #33) (English translation : baby stuff). Older children will not be motivated to engage in activities they perceive demeaningly inappropriate for their age. **A speech programme needs to take into account the emotional as well as the speech needs of pupils.**

#### **5.4.8.3 Implications related to the proposed speech programme**

Appreciation of the excerpts describing the diversity of speech skills in a school for the Deaf has important implications for the design of a speech programme.

- Teacher education should form part of the speech programme so that she has a reservoir of knowledge for diverse abilities.
- Regarding unrealistic expectations from pupils who demonstrate little potential, some teacher guidance should be provided so that frustration and negativity are obviated. This may take the form of emotional support for educators.
- Speech material should be age appropriate in terms of psychological suitability and yet correctly target the level of speech skills.

#### 5.4.9 THEME 9: GROUP VERSUS INDIVIDUAL LESSONS

This theme examined the strengths and weaknesses of group versus individual teaching of speech in the classroom.

##### 5.4.9.1 Excerpts Supporting this Theme

- **Individual lessons were perceived by some educators as the best strategy for improving speech performance.**

*“Ja want met my werk dit die beter as jy individueel werk, daarvoor doen ek nie groepspraak nie”. (#1)*

*(English translation : Yes, because for me individual work is best therefore I don't do group speech).*

- **Impracticality of individual instruction because of class organisation and time constraints.**

*“... dan sit jy met die ander kinders wat moet stil sit en werk, maar jy moet hier aandag gee, en dit is nogal vir my moeilik”. (#2)*

*(English translation: then you've got other children who have to sit still and work, but you've got to give attention here, and its hard for me ....”*

*“... to sit with one child – the others are ... are you just keeping them (the rest of the class) busy?” (#3)*

*“well they're calling you from the other end of the room, because you're all in the same room ... and you're waiting to really focus on it, but B, C and D need you, there's very little they can do on their own and the thing collapses and you give up.” (#4)*



*"... there's no time for it (individual speech training) any more. But in a group you can attend to each one in a very individual way and still make him feel what he's done was ok". (#5)*

*"...these children had no input from home, and where do you find the time (laughs helplessly) to actually spend time with each?" (#6)*

- **Disadvantages of group speech**

*"she just feels she's failing.... In her case she needs to be ... taken on her own where she can't feel a fool". (#7)*

*"... one child could say a whole bunch of words .... And the other child can't then it is upsetting the other half". (#8)*

#### **5.4.9.2 Discussion**

Advantages and disadvantages of individual and group speech training were clearly brought out in the excerpts.

Although individual training was described as superior in terms of results it was seen as problematic in terms of time and classroom organisation. Group lessons were considered as ineffective and problematic in terms of speech skills. Concern was voiced that group situations could be psychologically detrimental, if pupils with inferior skills compared themselves unfavourably to students with better skills.

#### **5.4.9.3 Implications related to the proposed speech programme**

The proposed programme makes provision for individual speech and group instruction. Individual teaching is structured to facilitate class organisation. The whole language approach means that a teacher can attend to the speech needs of individual pupils, while the rest of the class is creatively engaged in thematically complementary activities. For example a poem, used as a basis for speech instruction, may be illustrated, written or learned by the class while the teacher provides individual help. (appendix A) Speech booklets designed for individual work, form part of the proposed programme. Problems of class organisation are partially solved through this avenue in that books are designed to be decorated and coloured by pupils. Additionally, cutting, pasting and cognitively based activities are included. The teacher can use these activities as opportunities to give individual speech help while the rest of the class is constructively occupied. This, however, does not provide the teacher with significant blocks of time. She will need to find additional ways to organise the class. A limitation of speech booklets in relation to class organisation is that, unlike learning in other school subjects, pupils need feedback when directly involved with phoneme development.

#### **5.4.10 THEME 10: A WIDER FOCUS FOR SPEECH TEACHING**

Excerpts below express the idea that the focus of speech training should not be limited to correction of articulation.

#### 5.4.10.1 Excerpts supporting the theme

*“What is our ultimate goal at them making those .... sounds?” (#1)*

*“The crux of the whole thing is the fact that this person is a human being and communication is the name of the game for human beings”. (#2)*

*“it must eventually all become one thing and I think by my stage - by standard three - that must start happening. And it must come from what they are talking about. It must come from their own experience.” (#3)*

*“But all I’m concerned about is, we should be looking at it as a whole thing, you can’t really just take it out like that and look at it. .... It can’t just ever be a little separate thing”. (#4)*

*“think basically what I’m trying to do here, a holistic programme.” (#5)*

- **The need for intelligibility - familiarity with deviant speech means teachers understand speech unintelligible to the wider hearing audience.**

*“in the beginning of year I mean I couldn’t understand the voice.” (#6)*

*“You know I always think that some of the kids speak so well until I ask somebody else what they said and they go - (teacher mimes a person who does not understand) meantime I can hear exactly what he is saying”. (#7)*

*“by the end of two terms they can voice without sign and you understand everything they say, but they go to the shop and ask for a loaf of bread (the unfamiliar listener) won’t understand it in a month of Sundays”. (#8)*

*“we get so used to their voices they’ll say something and we know what it is but a person who comes into your class for the first time - you’re so proud of that child because you understand exactly what they are saying with your back to them and the other person’s like - ‘what did he say, did you understand him, did you know what he said?’” (#9)*

- **The need for broader focus in terms of transference skills learned during speech instruction to other areas.**

*“...in speech time they could produce the sounds beautifully. They could even produce them in the word beautiful - but when they had to say the word when they were talking, just talking generally - it wasn’t there. When it was isolated they could produce a blend or whatever it was but when they were ask to produce it or when they were just talking casually - they didn’t seem to have any correlation between the two of them. It was like this was speech and then this was talking and the two weren’t somehow the same.” (#10)*

- **Real situations should be set up to effect a greater carryover**

*“I think what we need to do is we need to set up real, real live speech situations and encourage our parents to do the same.” (#11)*

- **Speech proficiency was described as improving in a real-world environment.**

*“... well if I think how Deaf people’s speech improves when they leave school and I think that happens because there are situations where they have to talk...” (#12)*

- **Correction of speech should occur during academic lessons.**

*“... I taught R.E (religious education) right throughout the school and I had the senior kids. And in that – well all right, R.E. is not an exam subject and it’s more relaxed – but I often would just remember little words somewhere and I’d say to them. “you can actually say it”, and I remember “Child 7” saying. “How? Too difficult. It’s difficult”, and I said “It’s not” and because he had been taught speech sounds and he remembered he said “Oh yes, I remember that” and we’d break it up into syllables and then we get the rhythm of the word and they’d leave that class feeling actually quite good”. (#13)*

*“ I’m certainly not going to embark on a programme to make sure my children can all say “l” but, when it comes up .... When we do news, when we do anything, when we do history, geography, maths, whatever we’re doing and this child constantly says – can’t say that “k” sound, I want to be able to do at some stage, “Ok, kids, we’ve got ten minutes now let’s have some fun”. What do I do to get that “k” sound? Ok. “Let’s all do it”. That’s what I want to do. I don’t want to have to say “say k” whatever, take you out, come on “do it”, “do it”, “do it”.” (#14)*

*“I know in the high school if they’re doing a geography lesson they’re not going to worry about the speech, but there could be a word that the child is actually perhaps saying and the teacher could just - in a split second or afterwards - or just make a mental note to say, this is how you actually say it. Break it up for them and just, ‘remember when you were small this is how you learnt it?’ That’s my ideal, but you see if someone I not so strong about speech, then they won’t do that”. (#15)*

- **Only teachers – not communication pathologists or school principals – suggested using writing.**

*“I think the other day I read, don’t show the written form too soon with the speech. I want to know why not because they can all sign the letter of the alphabet. So if they know that’s – ‘p’ (teacher signs the letter) why can’t you make – why are they not allowed to know that this is*



(teacher draws the letter 'p' in the air) also 'p'. Surely this is crucial for (inaudible) the reading". (#16)

"what stage does one show the 't' in the written form? How early do you start showing him that he's saying 'Daddy' and not 'Ally' or whatever and that he's saying 'two' with a 't' and not 'oo' when do you shown him that 't' for the 'too' or 'oo' or do you just say 't', 'toe' 'too' or do you show him the 't'? (#17)

And we all do 'm'. Then I write 'pram' on the board I say 'come on now you know', 'pram'. (teacher prolongs the 'm' sound) I want to hear the 'm', and they are so excited." (#18)

"... three years old, they come into pre-school at three years old and they see the written form of the speech sound, whatever it is at that age and four and five year olds can recognise some of the sounds without me having to prompt them. And I believe that written form is so important." (#19)

".... From home then I use that as news for them and they are so excited they want to read every word that's written down there you know. They understand so quickly." (#20)

"I do believe in the written form. It creates an interest in the children too. All the children. They are so keen". (#11)

- **Vocabulary should not be artificially prescribed for speech, it should arise out of naturally acquired language.**

"... en ek voel ook woordeskat wat hulle nie ken nie, jy moet kyk na die woordeskat wat in hulle gebruikstaal is, moet jy na toe gaan. Want daar's byvoorbeeld goed soos, sê nou maar "bank" byvoorbeeld, of "beursie" ... hulle weet dis iets wat jy jou geld insit, maar die benaming "beursie" pas nie vir hulle daarby nie. Hulle ken nie die woord nie." (#22)

(English translation: ... and I feel also vocabulary that they don't know, you must go to the vocabulary they use. Because, for example things like, say, "bank" for example or "purse".... They know its something you put your money in but the label 'purse' doesn't fit. They don't know the word.)

Teacher 1: Maar op hierdie stadium by my is my Ling program en my taalprogram twee afsonderlike.

Teacher 5: ...entiteite

Teacher 1: so met ander woorde ek doen spraak en ek probeer my bes daarin; ek doen my taal en dit is waar ek werk. Dit is nie saam nie." (Excerpt from Focus Group 1). (#23)

(English translation: "Teacher 1 – but at this stage my Ling programmes are

two separate ... Teacher 5 – entities. Teacher 1: so in other words, I do speech, and I do my best. And I do language and that where I work, they are not connected.

“So jy kan eintlik jou spraakprogram moet aanpas by jou taalprogram. Ek meen, anders maak dit nie sin nie.” (#24)

(English translation “so you can actually fit your speech program to your language program, I mean otherwise it doesn’t make sense”).

“... dis ook asof ‘n mens met jou taal bereik jy meer met praat as wat jy met jou spraak as sulks bereik... my taal situasie gee my ‘n wyer geleentheid om spraak (te doen). (#25)

(English translation “.... Its also as if a person achieves more speech during language as during speech lessons as such ... my language situation gives me a wider opportunity to do speech”).

“so we have the Darbysheire language programme here and it is very good, they play games it is all totally natural and within that a certain standard of speech. .... Language is actually a philosophy more than a programme but it incorporates as good speech as you can get and people are given models the whole time in a very natural way of how to say without specifying specifics.” (#26 )

- **A broader focus included the concept of speech development linked to music, singing, drama and auditory training.**

“... on a tape recorder, we sing and like teaching concepts and that sort of thing. Or teaching body parts of teaching fruit and vegetables and that sort of thing. We put that in a song and we make actions, the shapes of the things and that sort of thing and we try and sign about it.” (#27)

“In the form of music. I use music a lot” (#28)

“And we have a wonderful music teacher who could do, and is doing lovely work that really links up with our classes. But ... she could really link up with a so-called speech programme in a most wonderful and creative way. Especially for those children who aren’t going to achieve on this whole articulation score...” (#29)

”Teacher 1: I agree. As a matter of fact that’s more natural too.

Teacher 3: And it’s a natural spontaneous sort of thing and fun.” (#30)

(Excerpt from focus group 2 describing using music)

*“But these children (with poor speech skills) could have great fun with possibly ‘babas’ and whatnots in a music scene”. (#31)*

*“... jy gebruik nou meer goeters om hulle gehoor stimuleer. Jy weet jy klap dit op die trolletie want ek voel ook daar’s ‘n leemte daar. Jy bereik eintlik baie met Dazzle (an auditory training schedule) as jy Dazzle ook inbring. (#32).*

*(English translation: ... you use more things to stimulate their hearing. You know you beast it on the ? Because I feel there’s potential there.)*

*“It’s (auditory training) crucial. I would include that in a speech programme.” (#33)*

*“... for instance this “fee, fie foe I smell the blood of an Englishman” – that sort of little rhymes but when you telling those stories – I am now right down to grade level when you are telling those stories and then they are responding with that sort of thing. It isn’t a set lesson where all was saying “fie fy” like the old Ling taught us, but is in little rhyme and it comes back that sort of thing they do enjoy ...” (#34 )*

*“I mean you can see Child 4 sign stories, but it is sign language – but when he gets to bits like what’s ‘fee, fie, foe, fam’ or ‘I huff and I puff and I blow your house down’. (Several teachers in unison) And I mean he was doing it all – he went from sign language to English. It is something that deaf kids whether, they can appreciate what it sounds like or not you know actually having fun with sounds.” (#35)*

*“Drama in where they could perhaps sort of reinact a real life situation. Like where I had an incident with sportsmanship where the child became angry and you know she displayed some unpleasant attitudes on the course (Laughter)... to enact a situation like that and to enact a situation as what the child should have done – you know he should have behaved. Acceptable behaviour.” (#36)*

#### **5.4.10.2 Discussion**

Despite quantification of this theme as moderate, it should be regarded as having major implications, as it was raised by each category of educator, and also mentioned in each of the three group interviews. Additionally, in contrast to the negative feelings the teachers report when teaching speech (Theme 5.4.3), they express more positive feelings when describing the teaching of other subjects – such as language, reading, writing or drama.

The value of developing speech as an isolated entity is questioned. This includes development of speech and language as separate entities, transference of speech skills, judgement of intelligibility

within the narrow frame of the school environment. Drama, singing and auditory training were all described as creative opportunities to widen the focus.

#### **5.4.10.3 Implications related to the proposed speech programme**

The proposed speech programme does not address the suggestion of including hearing individuals into the programme, nor does it address the problem of listener familiarity - although both are seen as pertinent issues. The type of organisation required is beyond its scope.

Other suggestions, however, are included.

- A method for using drama and singing as creative vehicles for achieving speech improvement forms an integral part of the proposed speech programme.
- The LRS method provides a structure for auditory training to occur in complementary tandem with speech training.
- Employment of the grapheme, is pivotal. It is understandable that teachers have a positive attitude to inclusion of graphic avenues – unlike the phoneme that grapheme is a familiar educational component. The belief that employment of the grapheme supports speech development means that the grapheme/phoneme connection is central to the philosophy of the proposed programme. To this end reading, spelling and writing are considered as valuable systems that can be exploited to enhance speech development. The discussion that follows centres on reading. The principles apply equally to spelling and writing.

The kernel concept is that when traditional skills are initiated, a young Deaf learner is in a different position to the hearing child who has already learned to speak and can thus apply knowledge of phonology to graphic forms (Winnitz, 1980). An example illustrates this. The hearing child, who is presented with the grapheme 'C', has two advantages over the child with a hearing loss. He has heard the sound in infancy, and later produced the sound in speech. The child with a hearing loss has been sensorally deprived on two counts – auditorally and kinaesthetically. The 'C' grapheme is not a graphic symbol of an auditory perception or an orosensory gestalt to be Deaf child, it is simply a curved shape. Because of this crucial difference in circumstance, it is strongly suggested that children with hearing losses need to learn to read using an approach that takes this difference into account.

Winnitz (1980), proposes that children with hearing losses be taught the International Phonetic Alphabet (IPA). While in agreement with the principle of incorporating a phonetic approach, the task of learning phonetic symbols in addition to graphemes is considered onerous and confusing for the young learner. The system employed by the proposed programme provides the Deaf learner with information on speech production without interfering with normal grapheme representation. Table 5 compares the use of normal graphemes, the IPA system and diacritical symbols of the preliminary programme for the word 'sunshine'.

**Table 5.1 : A comparison between IPA and diacritical symbols used to represent the word 'sunshine'.**

Normal Grapheme	s	u	n	s	h	i	n	e
IPA Symbols	s	ʌ	n	ʃ		aɪ	n	
Proposed speech programme Diacritical Symbols Superimposed on graphemes.	s <sup>~</sup>	u	Ⓝ	sh		i <sup>□</sup>	Ⓝ	e <sup>⚡</sup>

Source : Original

**Graphemes:**

's' The grapheme and IPA symbols are the same. However, in terms of speech production the pupil has no information. In the proposed speech programme the diacritical symbol depicts a continuous stream of air. Cognition is heightened by drawing attention to the snakelike form of the letter corresponding with the traditional hiss, /ssss/, ascribed to a snake.

'u' The IPA symbol for the 'u' is different to the grapheme however it does not provide any extra information on speech production. In the proposed speech programme there is no diacritical symbol used to indicate this vowel. Therefore the only information to be gained is from observing the mouth shape – which is not distinctive. Complex information on tongue height is omitted – no symbol is

regarded as suitable for conveying production adequately, only symbols considered valuable are included.

- 'n' The IPA symbols and grapheme are the same for the 'n'. However, neither provides information on nasality or continuance – vulnerable elements of production. The diacritical symbol of the proposed speech programme does this. The circular portion - taught initially as a clown's nose - represents nasality, the extended line represents continuance.
- 'sh' Graphemes and IPA symbols differ. Neither provides information on speech production. The diacritical symbol used in the proposed speech programme depicts a 'windy cloud' which represents aspirated frication.
- 'i' The grapheme and IPA symbols for 'i' are different. The IPA symbol provides some information on the production showing the presence of two elements. The diacritical symbol used in the proposed speech programme provides more information showing open and closed positions without interfering with the normal spelling of the word.
- 'e' The non-vocalisation of the final 'e' is well represented by the IPA system, however, the spelling of the word is corrupted. The diacritical symbol used in the proposed speech programme cancels the letter with a dotted line - pronunciation is clarified without spelling being affected.

These examples support the claim that the diacritical symbols superimposed on graphemes are valuable for transforming graphemes into a tool for reading speech improvement – thereby providing a wider focus for speech teaching. This has been stated elsewhere in the study with reference to the LRS and van Uden's argument that grapheme support for oral language is a natural strategy. Taking a different direction, a new claim is made, that attention to speech will improve reading. The speech/reading relationship is viewed as symbiotic. The learner is given an additional dimension of knowledge, namely speech production to help him in the learning of graphemes. A reading programme designed according to these principles forms part of the proposed speech programme.

Speech instruction as part of diverse educational areas is congruent with the holistic approach of the proposed programme. Indeed, in agreement with Mulholland (1980) speech instruction

unrelated to academic content is considered to violate recognised principles of learning. However, there is potential danger that this principle can be incorrectly applied and pupils may for example, recite poetry or sing, without speech improvement being addressed. The note of caution, therefore, with regard to a wider focus is that without clear goals, lessons may be enjoyable but may not target speech improvement.

#### **5.4.11 THEME ELEVEN: THE MULTI DISCIPLINARY TEAM**

The roles played by class teacher, speech and communication pathologist and school principal and parents were described.

##### **5.4.11.1 Excerpts supporting this theme**

- **Superior levels of training and skills were ascribed by teachers to communication pathologists.**

*"I must say last year with "Speech Therapist 1" being here it was wonderful because she could actually get out sounds which I could never, ever do, because she knew how to do it. (#1)*

*"... ons het nie die agtergrondkennis van die spraakterapeute". (#2)*

*(English translation : We don't have the background knowledge that speech and communication pathologists do). (#2)*

*"A speech therapist would be that person is most qualified to give you a sort of course in how to teach speech". (#3)*

- **One teacher uses the word 'real' in terms of the training given by speech and communication therapists.**

*"...real speech therapy" (#4)*

- **Speech training is a team effort – consisting of teacher, communication pathologist and parents**

*"I think the point I was trying to make is that speech teaching to the Deaf is probably the most difficult thing in the world to do as we all know and I'm just saying that the onus cannot be on the teacher alone". (#5)*

*"On the parent's part, and certainly a class teacher cannot do that, which will then mean outside work done with a speech therapist". (#6)*

*"I feel that the speech therapists do wonderful work, but it's not enough. The class teacher must be shown what is expected. She can work with the speech therapist". (#7)*

*"I am very lucky. I have a class – wonderful children, but they have all had lots and lots of hard work from home, from outside speech therapists. I'm thinking of a little girl in my class, she speaks beautifully and that's because she's had a lot – she's really – you know, she's had a lot of input right from when she was down here with "Teacher 1". Right the way through and from at home and outside therapy – and that's great". (#8)*

*"But on the other hand, a programme that I could perhaps do with the group, as a whole, if one child goes out with the speech therapists once or twice a week and if I was spending just a certain amount of time with my group, as a whole". (#9)*

- **Some excerpts express the view that all speech instruction should be given by communication pathologists.**

*"Ja because they've got the knowledge, they've got the background, they know how everything fits in together." (#10)*

*"Teacher 5: ... ek wil eintlik vir jou daar in die rede val en sê ek dink eintlik moet 'n spraakprogram deur spraakterapeute gedoen word.*

*Teacher 3 Dis reg ja" (#11)*

*(English translation: "Teacher 1 ... I want to actually confront you on this and say I think a speech programme must actually be done by speech therapists.*

*Teacher 3: That's right yes". (#11)*

*"It's something that must be done by the trained professions." (#12)*

- **The inadequate number of communication pathologists was mentioned.**

*"Die spraak terapeute is te min."*

*(English Translation: There are too few speech therapists). (#13)*

*"... ek voel altyd as daar een kind I wat sukkel met spraak, dan moet hy amper elke dag by 'n spraakterapeut uitkom, dan glo ek sal dit resultate lewer, maar soos ons wat 'n spraakterapeut een of twee keer per week in jou klas het, dis vir my te min tyd." (#14)*

*(English translation: I always feel if there is one child that struggles with speech, then he should go to a speech therapists nearly every day, then I believe results will be forthcoming, but like us where a speech therapist comes into the class once or twice a week I think its too little time".*

- **Those teachers who followed an existent programme designed and supervised by communication pathologists voiced dissatisfaction with communication pathologists.**



“Teacher 2        Hulle gee vir ons opleiding. Maar soos byvoorbeeld /k/ ons moet voel hoe daai maak (Teacher touches her throat).

Teacher 5 :        En dis dit.

Teacher 2 :        Ja en dis te min”. (#15)

(English translation: Teacher 2: They give us training. But for example /k/ - we must feel how to make that:

Teacher 5: And that’s that.        Teacher 2: yes that’s too little).

“... wat ek kan doen as hierdie ding nie werk nie? Want ons spraakterapeute, as ons byvoorbeeld sê: “Hoor hier, ek sukkel met die /i/, dan kom hulle met een voorbeeld. En dan gaan probeer jy daai voorbeeld met jou leerling en dan werk dit nie, en dan sit jy hier en wonder wat is die volgende ding”.

(English translation: “What can I do if this thing doesn’t work? Because our speech therapist – for example if we say “listen, I’m struggling with the /j/ then they come with one example. And then you go and try that example with your pupil and then it doesn’t work, and then you sit here and wonder what the next thing is.”) (#16)

- **One teacher appeared to be jealous of the admiration awarded to communication pathologists. (This was described in 5.2). The following two excerpts demonstrate the undercurrent of conflict:**

Teacher 1, previously acknowledged by the other teachers as demonstrating superior speech training skills, describes how she failed to lower a high pitched voice.

“Teacher 1 : The other day at home I took him and I said, ‘Now your voice is very high, try’ and I could see this little face. He was trying so hard to bring his voice down and there was no change”. He actually will not change that voice”.

Teacher 2 : (adds quietly) “Now the therapist did”. (#14)

This theme is not picked up as another teacher begins talking about a different subject.

A second example of an undercurrent of competitive conflict seen with the same teacher is demonstrated in the following excerpt.

Teacher 3: (describing a pupil who speaks well) “she had outside therapy. she’s fortunate she’s had this input from her mum and as I say outside therapy.”

Teacher 1 : (interrupting) “That’s terrible, what about inside therapy”.

Teacher 3 : (in a pacifying tone) “and inside therapy, ja inside and outside. I’ve said repeatedly. (The tension is diffused by laughter).” (#15)

- The role of the **parents** was described.

*“Heaven help those who have got children, little ones at home all the time.*

*Who still have tantrums too”. (#16)*

*“Oh yes, I mean very hard, I take my hat off to parents with Deaf children.” (#17)*

*“I mean I took a Deaf child home once, old (names a pupil) when her parents were away, just to be this model mother. I thought, I’ll be this model mother I expect from the mothers. I was finished when I’d finished being the model mother”. (#18)*

*“And look, none of us have got deaf children so it is a terrible terrible thing”. (#19)*

*“... en ek verstaan ook van die ouer se kant. Ek het eenkeer gehoor ‘n ouer sê: ek kan nie vir my kind honderd keer sê, ‘praat nou reg’ of so nie, hulle is daar op vakansie”. (#20)*

*(English translation: “... and I understand the parent’s situation also. I once heard a parent say “I can’t say to my child a hundred times ‘speak correctly’ or something, they are on holiday).*

*“But coming back to the parent story. With these rural children, you almost have no contact with the parents at all”. (#21)*

*“I mean they are in families that actually hardly ever communicate with them. I have a letter on my desk, which says, from one child, “Don’t communicate at home. Can’t communicate with my family”. Now I mean you know those are very important issues”. (#22)*

*“They’ve all got very hard working parents most of them, and they’re just a special group and they’ve had a lot of input”. (#23)*

*“Now where do the parents come in on this? Because the children go to computer, they go to P.E., they go to music, they go to whatever, they have maths, they have language teaching where the language teacher says: I’m not doing speech now. In the end we’re not left with all the time with that child. So how are we going to bring the parents into some knowledge of whats happening”. (#24)*

*“My (name of pupil), she speaks beautifully and she’s had outside therapy always and she’s – at home – at home it’s been something that’s been really encouraged to speak ...”. (#25)*

*“Nou daar is baie ouers wat saamwerk, wat my hulle samewerking gee”. (#26)*

*(English translation: “Now there are many parents that co-operate, that give me their co-operation.”)*

*“It is very seldom that you get a parent who will really try”. (27)*

*“You know (names a teacher) just mentioned about the parents. I just want to say I’ve tried. I’ve stood on my head. I’ve flapped my flippers and you can forget help from parents. It’s not*

*only in the Deaf world, it's in the hearing world. You'll hear teachers in the hearing world saying: The parents are just - they don't answer their letters - you know - and I've tried very hard. I've got the parents. I thought they were enthusiastic in the meantime it's me, and I would make little booklets for them and say: Now just do this with them at home. Nothing was ever done."* (#28)

*"That I wanted to add now. The parents should actually also be in this particular programme where kids can take things home and where the parents are also involved in getting them to use speech".*

- **The school principal's role was noted.**

*"Teacher 1 : ... (names the principal) gave us a speech production book.*

*Teacher 5: Professor Sneddon". (#29)*

*"and the previous principal used to say . "Speech is like anything in life if you want it hard enough you'll get it" and that was most demoralising and I've never forgotten it". (#30)*

#### **5.4.11.2 Discussion**

The value of a multidisciplinary team approach to the speech development was discussed in Chapter 1. Class teacher, communication pathologist, the parent and the school principal were mentioned in the excerpts.

For the most part teachers perceived a wide gap between their ability and that of communication pathologists. Some wished to relinquish speech teaching to speech and communication pathologists.

The shortage of communication pathologists was noted by both teachers and communication pathologists – confirming what was described in 1.2.2.1. In contrast to teachers, communication pathologists did not perceive short comings in training.

Despite the acknowledged value of co-operation between communication pathologist and teacher (Chapter 1) these excerpts demonstrate that no formal structures exist to facilitate such co-operation. Communication pathologist did not comment on teachers behaviour, such as level of skills. In contrast, teachers demonstrated a range of attitudes towards communication pathologists. Teachers in Focus Group 1 - the school that had an infrastructure for formalised help from communication pathologists, expressed generally negative comments regarding communication pathologists. Skills - perse were not criticised, but there was dissatisfaction at the perceived paltry help received. Teachers seemed resentful at the onerous and unfair burden communication

pathologists had placed upon them by requiring that they teach speech. They appeared eager to relinquish all responsibility for speech development to communication pathologists.

In contrast, Focus Group 3 made little mention of any contact with communication pathologists. It was though the two types of educators inhabited different worlds.

Two sets of attitudes emerged from Focus Group 2, one of admiration of skills and a second, exhibited by one teacher only, of perceived threat. Throughout the interview the skills of communication pathologists were praised by other teachers. Therapy was described as 'real' - the adjective is telling - as though teachers do not give 'real' help but 'pretend' - they go through the motions of speech instruction without expectation of success. The term 'outside therapy' is used in the same way to designate superior instruction by a communication pathologist. A different attitude emerged from the teacher, described by colleagues in the group, as an accomplished speech teacher. She appeared to have gained the reputation of being able to develop speech successfully. The incidents have been noted, (#14 and #15), but are repeated to provide a basis for the discussion that follows. At one point she defensively challenges a colleague who describes a pupil who received "outside therapy" - i.e. speech instruction from a communication pathologist. With a façade of humour she interjects strongly:

"That's terrible, what about inside therapy". The colleague then pacifies her by saying in a humorous tone, "And inside therapy, ja inside and outside. I've said that repeatedly". The tension is diffused by laughter. Other teachers seemed aware of this teachers defensive attitude as is evident from excerpt (#14)

It would seem that this kind of jealousy is not uncommon world wide, judging from Bishop's remarks : "We must be willing to mend broken fences ... in the spirit of co-operation. We must stop expending energy bickering among ourselves and channel that energy into meeting the needs of Deaf students" (1980 p. 420). Parochial, egocentric defence of territories will prevent co-operation and collaboration within a multidisciplinary team. The defensive teacher may well have extended her knowledge base and improved her skills, if she viewed the communication pathologists as a helpmate instead of a threat.

#### **5.4.11.3 Implications related to the proposed speech programme**

Focus group discussions reveal a lack of a constructive relationship between teacher and communication pathologist. Focus Group 1 displayed negativity at being authoritatively coerced into an unpleasant teaching experience and not receiving sufficient guidance. Focus Group 2

hardly mentioned the presence of a communication pathologist. Focus Group 3 generally admired and wished for a greater contribution, although one teacher demonstrated an attitude of defensiveness. The proposed programme may bridge the gap since it has both a speech pathology and educational focus. This may mean that teachers and communication pathologist could be engaged in genuine collaboration and exchange of knowledge - each contributing different skills. It is probable that greater co-operation would exist if communication pathologists were also trained in the proposed approach - they would share a common knowledge base. Alternatively a communication pathologist could act as a co-ordinator - employed in this way able to make a far greater impact on the speech development of a school than attempting to teach an unrealistic number of pupils.

The influence of **parents** is recognised as an important component in the development of oral communication - where no value is placed on this, the child's desire to talk and improve speech will be adversely affected (Campbell, 1980). However, a healthy bond between parent and child is considered to be a far more important goal than development of intelligible speech. The wisdom of transforming the parent into a speech teacher is questioned. Coping with a Deaf child is regarded as demanding enough, without imposing the role of speech teacher. The role of parent is to impart skills of a different type - to teach love, values and develop self image. It is simplistic to expect all parents to provide ongoing support for speech development. For example, some children may be boarders, other children in South Africa are schooled in a language different to that spoken by parents. Over and above these considerations, attention to speech performance may interfere with the Deaf child's desire to communication with parents.

Within these constraints the proposed speech programme makes provision for pupils to demonstrate new skills to parents, with the aim of setting in motion a dynamic whereby parents, because they are aware of new skills, have higher expectations and provide reinforcement.

Little was said regarding the role of the school principal. One past principal was described as causing distress because of unrealistic expectations. The current principal at the one school that used Sneddon's programme demonstrated the influence a principal she can wield in the selection of a speech programme. To this end the needs of school principals were taken into account in the design of the proposed speech programme.

#### **5.4.12 THEME TWELVE : EDUCATOR REQUIREMENTS FOR A NEW SPEECH PROGRAMME**

The theme of requirements was artificially engineered - it did not emerge naturally from discussion. During focus group discussions and single semi-structured interviews, educators were asked to comment on what they required from a speech programme. The question was not posed during the phenomenological interviews. Phenomenological interviews explored the emotional component and asking teachers to conjecture requirements for a future programme would have been a more rational focus. It may have been, that unless directly asked to imagine what they wanted in a speech programme, educators would not put their mental energies into describing solutions. This may be because a situation of learned helplessness has arisen, where educators have been inured to the fact that no help is available, and consequently do not project energies into what they perceive as a futile endeavour. The quotations by a teacher and a communication pathologist respectively, support the supposition that educators had not even conceived the possibility of a new programme. "I don't know" (#1) "I never thought about it". (#2) For this reason the question needed to be directly posed during suitable interview situations.

The theme is placed finally because it is essentially a summary of preceding themes - requirements transform problems into potential solutions. For example the negative experience of speech training (5.4.3) is answered by the necessity for games as part of speech instruction.

Excerpts fell into five categories : Firstly, modes of transmitting information; secondly psychological needs; thirdly the requirement of technical information for the correction of speech production; fourthly, adaptation of speech instruction to the educational paradigm, and fifthly, the need for the inclusion of the hearing world.

#### **5.4.12.1 Excerpts Supporting this Theme:**

- **Modes of transmitting information.**

This requirement emerged strongly only from teachers - it was not articulated by communication pathologists or school principals. "Wel ek dink net een ding wat sal help, is 'n intensiewe opleidingsprogram. As jy - soos Teacher 3 - gesê het as jy 'n riglyn het en jy word regtig intensief opgelei sodat jy daai 'competent feeling' het, maar hoe en waar in die praktyk weet ek nie". (#1).

(English translation: "Well I think that just one thing will help that is an intensive training programme. If you - as teacher 3 - said - if you have guidelines and are trained intensively

so that you can get that ‘competent feeling’, but how and where this can happen in practice, I don’t know”).

- **Five potential training avenues were described - workshops, a person, a written programme, a video, visual aids showing anatomical information relevant to speech production and computers.**

“Teacher 3: I mean we all had to go to new math things because there is a new math thing. We have to go and it’s to the benefit of the kids. I mean, you have to go and there’s a speech workshop.

Teacher 2 : It would be wonderful”. (#2)

“We need workshops desperately”. (#3)

“I suppose the **therapists** could teach a speech programme”. (#4)

“We need something to sort of guide us. When you first come here from varsity or wherever or maybe from a hearing school. You don’t have a clue – I mean you have never done speech before. So it’s like a huge mountain that you got to try and climb to teach the children but with no idea. We just need **somebody** whose experienced whose used different ideas and has found they worked. Just to give a few pointers”. (#5)

“Teacher 5 : I want **somebody** to come in and show us how to get those sounds because I have no knowledge of them. I just look at other people and try the same thing”. (#12)

“I think you have to have a **written programme**. Yes and also in your programme have some course for teachers of hard of hearing like a training programme”. (#7)

“Like a **handbook** type of thing”. (#8)

“Ek praat nou van die **handleiding** wat hy vir ons sal gee met die voorbeelde daarin. Dat die mooi uiteengesit is. Dit is vir my die belangrikste”.

(English translation: “I’m talking about the **handbook** that you will give use with the examples in it. It should be set out well. That’s the most important for me”). (#9)

“The possibilities are enormous on a **video** aren’t they?” (#10)

“A **video** is nice because you can come back to it as many times as you want”. (#11)

“Well the **video** would be a therapist like yourself, somebody with knowledge, working with different children, different ages with different problems and – and say just how you would attack the problem and discuss that kind of thing, and then perhaps a little bit of physical showing us what you would do , so that we could in fact have that and as you said, use it at a meeting. It’s not always practical form one to travel all along the countryside. So much easier to have something like that”. (#12)

“Teacher 5 : A **video** is nice because you can come back to it as many times as you want to.

*Teacher 1 : Ja, and if we know we've got a view of all the speech sounds you know we can – and a bit of natural speech”. (#13)*

*“And don't just show on video and say 'this is this child's audiogram'. Rather say: 'This is how he sounded a few months ago and this is what's been achieved and this is how it was done'. That kind of thing. Don't just say 'here he is and here's his audiogram and this is what he's doing now...' What went before that, what happened before that”. (#14)*

*“Teacher 2 : I think a very realistic sort of situation (on video) is needed, because sometimes we do see people, you know with these children and they can do this marvellous thing and we always say 'I wonder how Deaf that child is and where did this really start?’”*

*“Teacher 1 : Ja, because you know we've seen, sometimes we've seen on videos where children are reading, and it sounds so wonderful, but you don't actually know –*

*Teacher 3 : They're playing a game and you don't know if they've practised that game for three hours before they actually video it.” (#15)*

*Teacher 4: And the voice intonation. 'See the bird – look at the bird' and you don't know how they've got it with that audiogram, which is now all you've got.*

*Teacher 1 : We want to see the beginnings of – one want a truthful picture I think.”*

*“Teacher 4: And we could remove the despair if someone said (on video) to me 'I'm going to leave this because this is going to be impossible, possibly in a final position or medial or initial', you could lose much of your desperation and frustration. Even if you said this particular target is unattainable I am going to leave this alone. (#16)*

*“I want some knowledge as to how to get there. Physical knowledge of what one should do with one's body and face and tongue and everything”. (#16)*

*“Ek sal voorstel dat 'n mens meer visueel aspekte saam kan hê. Soos byvoorbeeld om aan 'n kind te verduidelik hoe lyk sy mond aan die binnekant hoe lyk sy keel aan die binnekant. Wat presies gebeur waneer jy 'n /k/ sê, wat gebeur waneer jy a /j/ sê...” (#17)*

*(English translation: “I would suggest that a person has more visual aspects with it. Like for example, to explain to the child what his mouth looks like inside, what his throat looks like inside. What precisely happens when you say /k/, what happened when you say /j/...”*



*“Waar word die klank - waar word die /l/, waar moet die tong kom daarbo” Waar raak hy aan die vehemelte. As ons miskien ‘n model kan hê”.*

*(English translation: “Where is the sound – where is the /l/ - where must the tongue be at the top – where does it touch the palate – if we could possibly have a model”. (#16)*

*“But I think some kind of computer” (#17)*

- **Psychological issues included protection of self image, enjoyment – particularly a game like approach - and strategies for motivation.**

*“You see it’s so important that the children are not threatened or feel threatened –“ (#18)*

*Or made a fool of”. (#19)*

*“Well the group thing – if it’s possible to create a programme that children who are just finding this a nightmare, don’t have to feel that way, that they are failing, because they cannot get those sounds out, and now this child is producing that sound”. (#20)*

*“So iewerste moet daar eintlik ‘n motivering vir die kind ingebou word, want op die oombloik is daar nie regtig die kind self ‘n motivering – iets wat hy sien hy bereik – of hy – want ek dink omdat die dowes nie hoor wat hulle sê nie, is die vir hulle ‘n ‘achievement’ as hy nou skielik kan ‘eu’ sê nie, want hy hoor dit in elke geval nie. Dis vir hom so hald nie deel van homself nie. So ek dink miskien is ‘n motiveringstelsel, iets wat gekoppel is aan ‘n gesonde motiveringstelsel wat sin maake vir die kind, ‘n belangrike ding”. (#21)*

*(English translation: “So somewhere a motivation will have to be built in for the child, because at the moment there is no real personal motivation for the child – something that he sees he has reached – or he – because I think while the deaf cannot hear what they are saying, it isn’t really an achievement when he can say ‘eu’ because he doesn’t hear it in any case. It is as if it is not part of himself. So I think maybe a motivational system, something that is coupled to a healthy motivational system which makes sense to the child, an important thing”.)*

*“It must be fun. I think that is the biggest thing you have got to enjoy it”. (#22)*

*“I’ll go back to this fun thing again. I really think one of the things you want are dynamic easy enjoyable ways set out in the correct order of the development of the child’s speech sounds. You (referring to the interviewer’s programme) had a 101 ideas”. (#22)*

“Ek dink die belangrikste din is om diet vie die kind **interessant** to maak sodat die nie vir hom vervelig is nie. Want ‘n kind kan hom maklik afskakel en hy wil nie regtig probeer nie, want dis nie vir hom lekker nie. ‘n Mens moet iets kry om dit vir hom lekker to maak”. (#23)

(English translation: “I think the most important thing is to make it interesting for the child so that he doesn’t find it boring. Because a child can easily switch off and he doesn’t really want to try if it’s not pleasurable for him. A person must find something to make it pleasurable for him”.)

“Eksra oefenige wat meer **interessant** is. Dat ek nie net gaan sit by ‘n spieel en die heelyd sê ‘kie’, kie’ kie’ end die kind agterna nie want ons het omtrent twaalf kinders en elkeen kom ‘kie’, ‘kie’, ‘kie’. Minder vervelig”. (#24)

(English translation: “Extra exercises that are more **interesting** that I don’t just sit by the mirror and say all the time ‘kie’, ‘kie’, kie’ and ‘kie’, ‘kie’, ‘kie’ for the next child – because we each have about twelve children and each one comes ‘kie, ‘kie’, kie. Less boring”.

“You get all enthusiastic and you do a bit – I don’t know how other people do but I get absolutely bogged down – I am bored the children are bored, we’re all bored so we don’t do speech for ages – because I find it heavy going. But if there was something just round the corner that will get you a bit excited again – you need to be stimulated a lot in speech. That is what I need.” (#25) (underlining reflects vocal emphasis).

“Dit moet iets wees wat gaan maak hulle wil **graaag kom** om dit to kom doen daar”. (#82)

“So to me as many games as possible...”. (#26)

“And also little games or little things – activities that you can do, you know that is a fun sort of thing”. (#27)

- **A need for technical information relating to speech production**

“To use (teach) sounds that a lot of ..... profoundly Deaf children can hear ... vowels, ... sounds that are more visible to them, concentrate on that... So I would just group some of the sounds that I feel are easy for children to learn, sounds that are not easily discriminated visually, I wouldn’t choose them”. (Communication pathologist) (# 28)

“... this programme (Ling’s) is in detail it deals with every sound, on every level, I think ... I would want to *simplify* it ...” (#29) (Speech and communication pathologist).

“You know personally I feel I wouldn’t even think about having a speech programme for the *sounds that are difficult for the children to hear*”. (#30) (Communication pathologist).

“Daar moet baie *voorebeelde* in (the handbook) wees date ‘n mens presies kan weet hoe moet jy dit navolg”. (#31)

(English Translation : “There must be many examples (in the handbook) so that a person knows exactly how to proceed”.)

“Ways to get the actual sounds - ways to put it into life”. (#32)

“The /k/ sound for instance. You work with a child and you’d say : ‘This is ideally how I would do it but now it is not working with this child, I will give you – and then even if you don’t have the child – but you show us (in the video) and say here is another way of trying to elicit the sound, here, and then if that doesn’t work, try the following’. Give us three, four *different ways* because this is the whole thing”. (#33)

“Ja, and you know a child getting a /k/ sound or whatever not just from one child, from a *range of children* because one child might be able to do it quite easily and another child might have another problem where it makes it more difficult. So that you can see, well if that approach does not work with this child perhaps I can use an approach that you use with another child”. (#34)

“Want een voorbeeld werk nie altyd in ‘n situadie nie. Jy moet ‘n *klomp* ander ook hê om jou te kan help om dit aan te pas”. (#36)

(English translation: “Because one example doesn’t always work in a situation. You also have to have a *lot of others* to help you to adapt it correctly”.)

“Jy sien wat ek – ek soek *stappe*. Soor byvoorbeeld due /k/, /k/. Ek wil hê iemand moet vir my sê ‘jou kind kan die /k/ sê nie. Hierso nommer een sê vir hom hy moet sy tong ver uitsteek. Dit is net ‘n voorbeeld. Nou steek hy sy tong uit. Sê hy moet sy tong krul. Drie, nou moet hy sy tong teen sy verhemelte bo druk. Vier, ‘so as hy dit nog nie kan doen, dat ek kan terruggaan –“. (#37)

(English translation: “You see I’m looking for *steps*. For example the k/k, /k/. I want someone to tell me: ‘Your child can say a /k/. here number one, tell him to stick his tongue out far. It’s just an example. Now he sticks his tongue out. Tell him to curl his tongue. Three, now he has to press his tongue on the top of his palate. Four,’ so if he still can’t do it I can go back”.)

“Even if the voice just sounded normal”. (#38)

“Lots of voice help”. (#39)

“A little bit of help in just **controlling** (suprasegmental features) that because some Deaf don’t sound Deaf”. (#40)

“Something I’d also like included in a programme possibly for the older children, where we feel: ‘Ok maybe those sounds we’re certainly not ever going to get out of them’, but I would love to know how to get more rhythm and **regulate that voice**”. (#41)

“Interviewer : What particular voices. You’ve said, you did this. (Interviewer gestures a wave-like movement of the hand). Waving voices – the pitch going up and down”.

Teacher: The pitch.

Interviewer: The pitch going up and down Teacher: **High and low**”. (Dialogue from Focus group 2). (#42)

“Teacher : (imitates a high pitch). You know I don’t know how to say to him, ‘Your voice is up there now bring it down a little bit’. If we can get them to **moderate their voice**, perhaps a little bit of rhythm that of course helps being intelligible, maybe one can’t expect that from some of the children. But to moderate that voice and you know sop those animal-like sounds”. (#43)

“Jy weet miskien is dit dan belangriker dat in plaas van dat one me Ling se klanke begin, dat ons nog meer aandag aan byvoorbeekd lip – en tongwerk gee. Want die ding is as die kind se lip en tong nie reg funksioneer nie, dan help dit nie, dan kan hy nie die klanke vorm nie”. (#44)

(English translation: “You know maybe it’s them more important that instead of beginning with Ling’s sounds that we give more attention to, for example lip and tongue work. Because the thing is if the child’s lips and tongue don’t function correctly, then it doesn’t help, he can’t make sounds”.)

“Omdat ek nou kinders het wat swak praat, sal ek dalk wil oefinge by so ‘n program hê om hulle tongetjies se spiertjies reg te kry

(English translation: “While I now have children who speak poorly, I would maybe want to have exercises with such a programme to strengthen the muscles in their tongues.

“En ek wil ook weet watter klanke leer hulle aan na watter klanke. Want as jy byvoorbeeld ‘n dowe kind vergelyk met ‘n horende kind. Ek weet nie, ek is nou dom, ek weet nou nie hoe die navorsing al gedoen is nie, ek dink nou maar. Gaan ek verwag day my kind ‘n /r/ moet sê waar hy nog nie eers ‘n /a/ kan sê nie”. (#46).

(English translation: “And I also want to know what sounds they learn after what sounds. Because – if you compare for example a deaf child with a hearing child – I don’t know I’m being stupid now – I don’t know about the research done – I’m just thinking – do I expect that my child says an /r/ when he can’t yet say an /a/ sound?”)

“I don’t know what sound you teach first and what should come next, I don’t know, because I am not in that field, I have never done that”. (#47)

“And also explain why I am teaching /l/ or why I am teaching /g/ - do I teach /g/ before I teach /r/?” (#48)

“So eintlik way jy soek is miskien dat klanke ook tot ‘n mate gestandaardiseer moet word dat ‘n mens weet”. (#50)

(English translation: “So actually what you’re looking for is perhaps that sounds are to an extent standardised to that a person knows?”)

- **Requirements relating adaption of speech production to the educational paradigm were : group speech form a component, that the programme progresses continuously throughout the school no no additional preparation required by teachers ;**

“... and my request would also be for group work”.

“A programme aimed at a group, at older children that one could do together every day at the beginning of the day, just to initiate good speech ability sort of thing”. (#57)

“Specific easy group activities and fun group activities that one can realistically do with a wide range of children”. (#58)

Teacher 1: “Well, it you didn’t know how to correct sounds your group work wouldn’t be use any use anyway.

Teacher 3: No it wouldn’t. I mean it wouldn’t be of any –

Teacher 1: It will fall flat on your group work”. (Dialogue from Focus Group 2). (#59)

“...A logical progression that there was some course for the child, the standard one teacher passing the children on to standard two could say, ‘This child has reached this far in course

*and therefore you would have to work on the following and has had problems with these sounds – has done well with these ones’ and so on”. (#60)*

*“A structured book so ‘Teacher 7’ started it with the little ones and it **was carried on** through”. (#61)*

*“Ek sou wou hê as ons so ‘n handboek kan kry en hulle begin kleuterfase en hulle werk hom op tot by standerd een, waar ek nou is, dat elkeen nie so ‘n vrag werk kry om in sy jaar to doen nie, maar die werk way hy doen, moet hy kan goed doen en afghanded kry sodat die volgende een daarop kan bou, sodat dit ‘n vloeiende riglyn kan wees vir ‘n afsluiting op die einde. Nie net los stukke wat nit saamgevat is nie”. (#62)*

*(English translation: “I would like a handbook that they start the nursery school phase and they work it up to standard one – where I am now – so that everyone doesn’t have such a load of work in her year but the work she does she had to do well and complete it so that the next one can build on it – so that it moves in a flowing direction with a conclusion at the end. Not just loose pieces that are not unified”.)*

*“So I would like something that is really **ready to use**”. (#63)*

*“**Practical** and even if you can’t tear it out, something that you can copy, something that is sort of instant – ‘Oh good I do this next week’”. (#64)*

*“I would like to open a speech book for the teacher and find a set of big pictures, with corresponding words or sound letters and I can then go and photostat or something that is really **ready for me to use**. And you don’t have time to now go and make pictures and make words because you already doing that for reading and maths and everything”. (#65)*

*“And I keep going on about a **real situation** where they want to produce this sound”. (#66)*

*“What would sway me? If I could be assured this programme would **help me communicate** with the child – so I could understand the child better, that is number one for me”. (#67)*

- **Principal’s requirements**

**Both principals desired a creative programme as against one that employed drilling of phonemes.**

*“... do it in a kind of play way”. (#68)*

*“I think it must be creative ...”. (#69)*

- **The experienced principal emphasised speech as part of other learning.**

*“Well, I think it would be, you see I don’t know to what degree you are emphasising speech. I’m saying that it could be role playing that it could use games, it could act, it could take natural communication conversation situations, in a way that the child is hardly realising that it is the speech that is being addressed, so it is that kind of programme”. (#70)*

*“... without it being an individual kind of therapy, flogging specifics in speech. But I would like to all to be incorporated into a kind of natural learning programme”. (#71)*

*“You know as incidental as it could be”. (#72)*

*“... as natural language as possible, using natural language, using everyday situations”. (#73)*

- **The inexperienced principal required inclusion of technology and that signing be taken into account**

*“I think you need to do that and obviously bringing in technology. Children love to play with machines. Voice stimulator and things like that I think would be vital”. (#74)*

*“I am looking for an education programme where both aspects – sign language and the voice gets equal share”. (#75)*

*“But that speech will be like a separate subject if you want it. So there would be sign language would be one thing which would be taught a certain number of lessons per week. You have your voice and speech language development... language enrichment as well as vocabulary”. (#76)*

#### **5.4.12.2 Discussion**

The answers given to the direct question - “what would you want to see in a speech programme?” were a predictable summary of the factors that emerged from previous themes.

Vehicles for transmitting information and the need for training, were voiced by teachers - not communication pathologists or school principals. This is again, a clear comment on the different roles played by principals and the higher level of training of communication pathologists. A clear mandate is given that the proposed programme is most needed by teachers.

Five avenues for transmitting information were suggested. A person, workshops, a video, a written programme, and computers.

An individual, skilled in speech development for the hearing-impaired demonstrating techniques is desirable. As Mulholland (1980) comments, teaching speech is not only a science, it is an art. It is probable that written instructions may be suitable for imparting scientific knowledge, but not for the nature of an art form – the learner needs experience the process. This extra dimension is also noted by Rowe (1980) who recommends the introduction of master speech teachers, not only skilled at developing speech, but who also can instil enthusiasm for learning. This is an idealistic

solution. In practice, the calibre of master speech teacher required is rare, and even if available the amount of work to be done may mean her presence would make little difference to speech improvement across the school.

The second suggestion, that a training video be available is more attainable. Although the interactive element is absent, a video demonstration has an added dimension to that of pure book learning. The requirements that teachers gave regarding a video were specific – most importantly that the video be ‘a warts and all’ production, that showed struggle and failure, not a falsely utopian depiction of teaching ease and perfect of results.

The third training avenue was a written component, for example a training manual. In essence this is the purpose of Ling’s (1976) book, ‘Speech and the Hearing Impaired Child’ as theory and strategies for speech development are contained therein. However, the book is regarded as unsuitable for this task. The written component of the proposed programme is different. Unlike Ling’s which addresses the teacher and the researcher, the only audience envisaged is the class teacher. This dictates what information is included and the style of writing adopted. Communication pathologists and researchers are not target audiences. A further departure from Ling (1976) is that teacher training forms part of lesson material targeted at pupils, whereas Ling’s book contains mainly theoretical data for teachers.

A second intra theme category describes technical aspects of to speech science. These were a need for technical information - strategies for development of speech, guidance on correction of deviant suprasegmental features, a set developmental order for phoneme development, limitation of phonemes included for development, non-speech exercises aimed at promoting control of speech organs and an approach to dealing – pupils who had not been exposed to timeous intervention.

The need for strategies to develop speech is self explanatory. Information of a technical, complex nature must be appropriately communicated to the teacher. Teachers were emphatic that information be conveyed in an easily comprehensible manner. The proposed speech programme avoids a medico-pathological approach. Diagrams have a cartoon like design and explanations are relatively free from complex, technical terms.

Correction of deviant suprasegmental features is a complex task. Certain requests demonstrated that teachers did not understand this. For example, one teacher states she wishes to improve



rhythm. Deviant rhythm is not an isolated factor – it is an intertwining of a multiplicity of factors, of example, poor residual hearing, delayed aural intervention and exaggeration of mouth and tongue movements in an effort to promote intelligibility by making phonemes visible. The programme only addresses development of attainable components of suprasegmental development as for example attention to stress patterns.

While acknowledging the importance of suprasegmental development and correction, the programme does not give this significant focus because they are considered to be difficult to develop. Unrealistic goals are not included as they cause frustration and disappointment.

Teachers requested a scheme for the order of phoneme development. To some extent this was unrealistic as they expressed the belief that phonemes could be completely corrected if done in a preplanned order. For example a standard one teacher could correct the /m/ a standard two teacher the /s/, and so on until all phonemes had been sequentially corrected. This reflects the syllabus-type of thought process typical of an educational paradigm. Progression of phonemes according to a laid down developmental scheme is a theoretical construct of the proposed programme. However this exists within a framework of repeated cycles of intervention throughout the pupils career.

In disagreement with the philosophy of the proposed programme, one communication pathologist describes vowels as being accessible to correction because they are potentially more available to audition. This attitude is also exemplified by other educators, including – Ling (1976) - who develops vowels before consonants for this reason. It is not, however, the approach of the proposed programme. Vowel development is de-emphasised because of the perceived difficulty of production due to amorphous articulatory targets which provide little orosensory feedback.

The requirements for non-speech exercises aimed at improving control of speech organs was only strongly articulated one focus group. The connection between non-speech activities and speech improvement is regarded as tenuous. Some provision is made for non-speech activities in the proposed programme - these are directly related to the speech problems of the Deaf.

The needs of exceptional pupils with poor speech skills, due to, delayed aural rehabilitation was noted. This is, however, a complicated issue. Critical developmental periods have past. The programme makes some provision for this in terms of the infrastructure of repeated cycles of intervention.

Important requirements related to the educational paradigm were expressed. The concept of group versus individual instruction was raised. Both have advantages and disadvantages. Positive aspects of group instruction are that class organisation is not problematic, the teacher is working in a familiar educational framework and the class dynamic provides stimulation. Disadvantages are the possibility that incorrect production will not be audible and will therefore be reinforced and that there is the potential for psychological damage where pupils with different abilities are taught together. In contrast, individual tuition, more congruent with a speech pathological framework, provides an opportunity to concentrate on the specific faults of each pupil. The proposed programme makes provision for both systems, thereby capitalising on advantages of each. Group speech is conducted through poetry, song, drama and development of incidental speech using the blackboard. Individual speech is conducted as a separate component of poetry, song and drama as well as in written speech booklets.

Teachers were precise in their requirements that the programme be ready to use, simply written and devoid of complex and confusing jargon. These aspects have been taken into account in the proposed programme.

A need for continuity was strongly reiterated. The proposed speech programme is continuous - beginning with the pupil at school entrance, terminating with the pupil at school leaving.

One focus group articulated a need for visual aids to demonstrate anatomical aspects of speech production to pupils. These are included in the proposed programme.

A few requests were made for computer programmes for pupils. Although the value of this approach is recognised, computers are beyond the scope of this programme.

Two requirements were articulated that are worthy of attention because of the unrealistic expectations they represent. One teacher describes a need for a programme that will improve general communication, by addressing receptive aspects as well. Another teacher - albeit humorously - requests that the programme perfect the speech of pupils so that they sound like their hearing peers. Both expectations will cause of disappointment. The proposed programme is limited in that it deals with the expressive component of communication, and makes no claim to improve receptive communication. As regards the latter comment, the proposed programme aims

at improving speech - this is a relative measure which varies according to each pupils potential - perfect speech is not a realistic goal.

A minority of requests were for speech instruction to be linked to the wider world of hearing peers and parents. The first suggestion is not within the scope of the programme, and the situation has not been tested. It may be that hearing peers learn to sign, not that Deaf pupils learn to speak more intelligibly.

The needs of principals were unexpectedly similar. It was anticipated that financial feasibility, continuity or record keeping would feature strongly, whereas psychological issues - particularly child centredness - was the strongest requirement. The proposed programme is sourced in a creative framework. This will need to be clearly visible if the programme is to appeal to principals.

#### **5.4.12.3 Implications related to the proposed speech programme**

In summary, a majority of requirements are met in the proposed programme. Because of the scope of the programme and limitations of the handicap, others are not.

### **5.5 STEP FOUR : RESULTS WRITTEN AS A COHESIVE WHOLE**

The disparate strands unite into a cohesive whole, metaphorically plaited together to provide a clear mandate for the design of the proposed programme. Two paradoxes are solved. The first is the overwhelming negativity towards speech instruction, coupled with the motivation of many teachers to continue their efforts. The catechism of negativity is long - teachers described lack of training, see no evidence of progress, speech instruction as an unpleasant task causing problems of class organisation, impinging on already limited time resources and a negative experience for pupils - yet paradoxically many teachers are willing to continue to give speech instruction, since they view development of speech as important. This surprising result is regarded as the crucial spark that can be ignited to gain support for a new speech programme.

Another paradox was that greater negativity emerged from the group that were provided with a speech programme which was supervised by trained professionals. This shows that a speech programme, even one accompanied by the guidance of a trained professional, is not an automatic solution. It is possible that the crux of the problem devolves on the disparity between medical

speech pathology and educational approaches. Ling (1976) – the programme they followed – is more congruent with a traditional speech pathology ‘pull out’ model than a holistic educational approach. Further, the professionals supervising the programme – communication pathologists – had received training in that model.

Within the tapestry each of the aims delineated for empirical research, set out in 1.5.3 were addressed. The broad aim was to execute empirical research which would be used as a basis for the development of the proposed speech programme – the wealth of ideas gives credence to the fulfilment of this aim.

Sub aim one was to investigate attitudes of educators to speech instruction. Attitudes of different educators were shown to be disparate.

Sub aim two was to tap into the problem solving abilities of teachers with regard to a speech programme. A wealth of suggestions sourced from the focus group discussions.

Sub aim three viewed the requirements of principals, who wield fiscal and decision making power. Predictably they did not become involved with minutia of voice or phoneme production – but with the overall philosophy – creative holism versus behaviourist drill.

Sub aim four tapped into the knowledge of communication pathologists especially with regard to an evaluation of Ling’s (1976) programme. Their analysis proved invaluable.

Empirical research according to a qualitative design succeeded in addressing each subaim with clarity.

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## **5.6 CONCLUSION**

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The next chapter shows how the information gained by the empirical research described in this chapter is used as the basis for a new speech programme.

## **CHAPTER 6 : DEVELOPMENTAL RESEARCH: DESCRIPTION OF THE PROPOSED PROGRAMME**

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### **6.1 INTRODUCTION, AIMS AND CHAPTER OVERVIEW**

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Two decades ago Bishop (1980:420) petitioned thus:

“This is a time for boldness in our approach to the complex challenge of facilitating speech in profoundly deaf children. Traditional approaches have at best been marginally successful with a few notable exceptions. Unfortunately, the exceptions are more the result of personalities than they are the result of effective processes. If we are to gain significant improvements we must be willing to break with tradition and take significant risks”.

This chapter responds by describing an approach which is bold, differs from traditional approaches and is considered to rely on effective processes, not the personality of the designer – indeed one that breaks with tradition and takes risks. However, since novelty for its own sake is not a recommendation, traditional approaches considered valuable are not discarded, but are included in a modified form congruent with the new design. Such hybridisation is considered an enhancement.

The overarching goal of the chapter is to describe a proposed speech programme developed from clinical experience and enriched by the empirical research described in Chapter 5. Subsumed in this are aims to firstly, note the potential impact of the proposed programme to transform the current negative situation, secondly, to describe the proposed programme that it is seen to be a departure from traditional approaches and also rests on established theoretical assumptions; thirdly to delineate the vocal skills targeted, and finally, to demonstrate congruence of the programme with the educational paradigm.

In fulfilment of the first aim, the chapter opens with an argument describing the potential of the proposed programme to effect change. This is followed by a delineation of theoretical constructs which demonstrate concurrent features of originality and established theory. Skills targeted for development are then set out with levels of difficulty and emphasis accorded to each. The final topic examines the fit of the programme to the educational paradigm from the vantage point of learner, teacher and established school systems. The chapter concludes with acknowledgements.

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## **6.2 POTENTIAL OF THE PROPOSED PROGRAMME TO AMELIORATE SIGNIFICANT PROBLEMS AFFECTING SPEECH INSTRUCTION FOR THE DEAF**

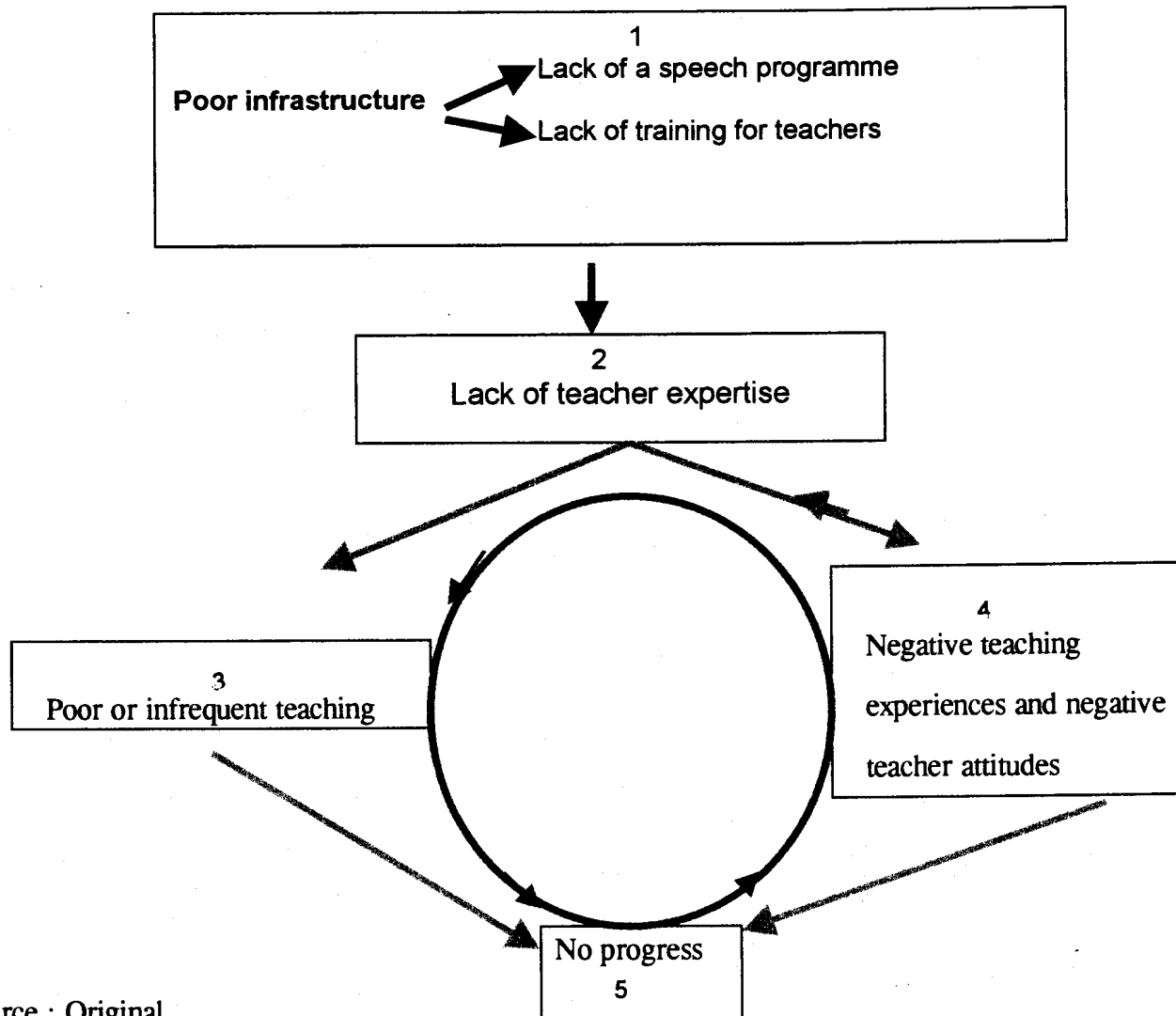
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A suitable speech programme could have the potential to change the current pessimistic situation regarding development of speech proficiency of Deaf pupils, by transforming a negative to a positive cycle.

### **6.2.1 SELF-PERPETUATING NEGATIVE AND POSITIVE CYCLES**

The theoretical research (chapter 1-3), quoted from the literature shows that speech proficiency of pupils does not improve, attitude of teachers towards speech instruction is negative, and suitable resource material is lacking. These same issues were substantiated in the Empirical Research (chapter 5). Both research methods support the belief that a self-perpetuating, negative cycle operates in the field of speech instruction for Deaf pupils. This is graphically represented in figure 6.2 below.

**Figure 6.1 : Diagram demonstrating how inadequate infrastructure initiates and perpetuates a negative cycle**



Source : Original

1. Poor infrastructure for speech teaching exists in schools. This comprises a lack of a suitable speech programme and training for teachers. The blue arrows show the initiating cycle, the red arrows show the perpetuating, secondary cycle.
2. This leads to lack of expertise in speech teaching – teachers do not have direction, knowledge or skill.
3. The simple consequence of this is poor or infrequent teaching.



4. A more subtle consequence is that speech teaching, without adequate tools, becomes a negative experience for teachers. This causes teachers to hold negative attitudes towards speech teaching which leads to infrequent and poor teaching.

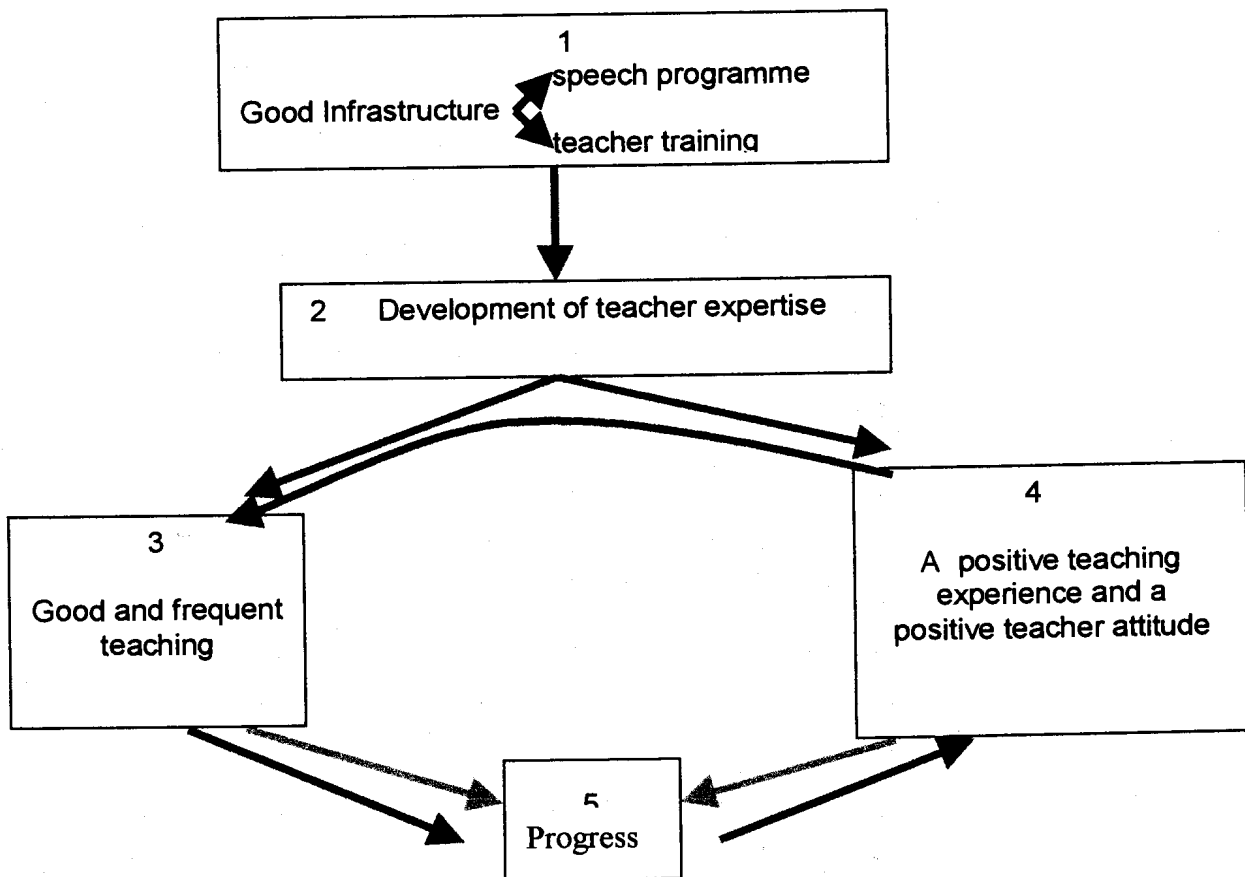
5. This results in a lack of progress

The cycle is perpetuated (coded in red) when teachers become aware that no progress is attained. This leads them to experience speech teaching even more negatively leading to a poorer and less frequent teaching and consequently even less progress.

This negative cycle can be transformed if the initiating component, the infrastructure is changed.

(Figure 6.2)

**Figure 6.2 : Diagram demonstrating how a change of infrastructure can interrupt the negative cycle**



Source : Original graphic

Figure 6.2 demonstrates the change of dynamic if the infrastructure is altered.

1. Teachers are provided with a speech programme that incorporates a teacher-training scheme.
2. Teachers gain expertise.
3. Teaching improves and becomes more frequent.
4. Because teachers receive training and resource material, they gain confidence. Improved teacher attitude leads pupils to respond more positively and speech training is transformed into a positive experience.
5. Pupils improve and this reinforces a positive attitude in teachers.

A positive cycle is now set in motion.

The diagram shows that for the cycle to change only the initiator of the process – the infrastructure – needs to be modified. Changing components lower down the process would not have the same effect. Negative teacher attitude cannot change if causes are not addressed. Motivation for development of an effective programme rests on the belief that the current negative cycle can be interrupted and a positive cycle initiated. The question arises, why should the proposed programme achieve what others, notably Ling (1976), have not? The answer is that it differs significantly from other speech programme. A major difference is that the proposed programme is based on the needs of educators (chapter 5). It is possible that this innovative approach may succeed where others have failed.

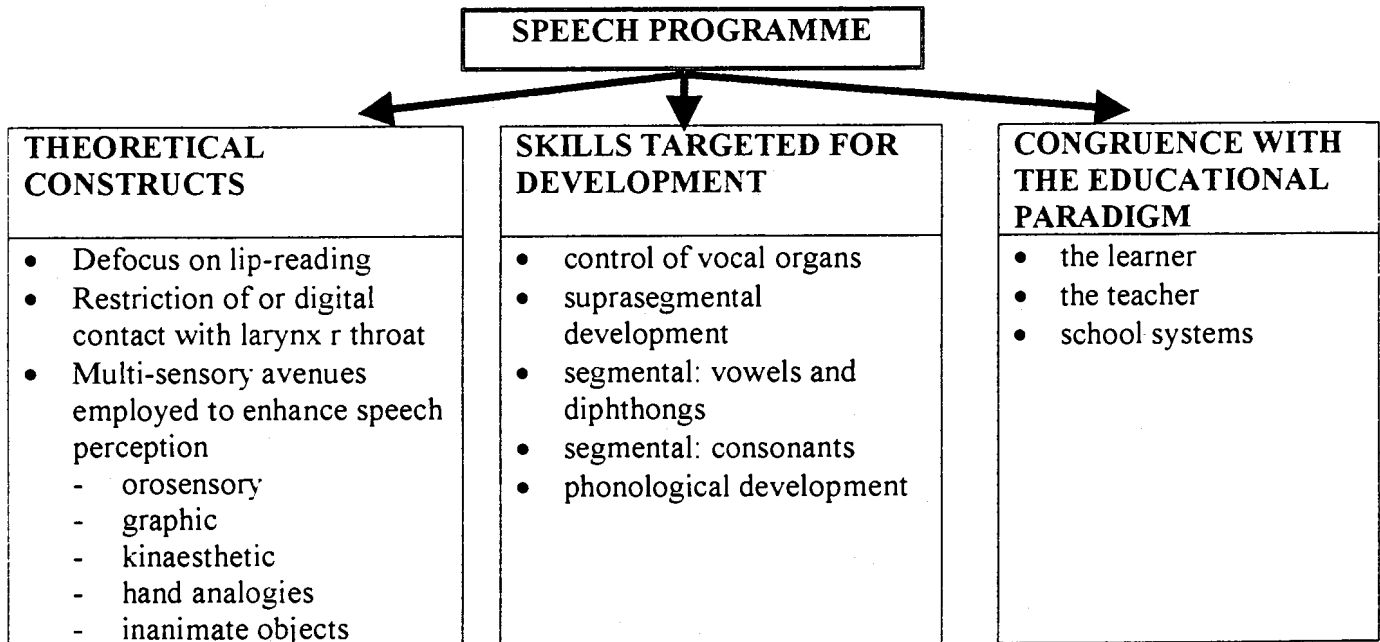
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### 6.3 PROGRAMME OVERVIEW

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Figure 6.3 provides an overview of the proposed programme.

**Figure 6.3 : The proposed speech programme**



Source : Original

Figure 6.3 depicts the major areas of the proposed programme.

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## 6.4 THEORETICAL CONSTRUCTS

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The programme is underpinned by clear hermeneutic considerations:

### 6.4.1 DEFOCUS ON LIP-READING CUES TO PROVIDE INFORMATION ON SPEECH PRODUCTION

Direct attention to lip-reading is considered to be not only unhelpful, but directly harmful. The teacher who exaggerates articulatory movements in an attempt to promote lip-reading clarity will cause

additional speech problems, by providing a deviant speech model, leading to abnormal lip and tongue behaviours (Ling, 1976).

Use of the mirror is similarly restricted. There are occasions where the use of the mirror is invaluable, for example to demonstrate tongue positions. However, for the most part, the mirror simply offers a reversed image of lip-reading patterns, and as such is subject to the same caveats as described for lipread perception of speech.

#### **6.4.2 RESTRICTION OF DIGITAL CONTACT WITH THE PHARYNX OR THROAT**

The rationale for this was described in the Theoretical Research (2.3.1.4). There are exceptions to this rule, such as during remediation of deviant pitch, or, as a once only occasion in the execution of Ling's (1976) pitch subskills. This is however, done cautiously and fleetingly, because of the belief that touching the larynx is potentially harmful for voice production. The impression received by the Deaf learner is that voice comes out of the throat at the level of the larynx. This mental attitude is considered to compromise resonance and forward placement of voice, analogous to the voice getting "stuck" at the level of the larynx, and not being projected further into the oral cavity, where more effective resonance takes place

#### **6.4.3 REPEATED CYCLES OF INTERVENTION REQUIRED AT PHONETIC AND PHONOLOGICAL LEVELS**

A basic theoretical tenet is that repeated cycles of intervention are needed in order to effect improvement. Ling (1976) also advocates repetition of correct phonemes to achieve what he terms, automaticity. His approach is linear. It differs from the proposed programme in that he regards correction as being achieved completely in concentrated, sequential training session.

The proposed programme regards repeated cycles of intervention as essential, and provides a framework for continuous revision throughout the pupil's school career. The approach is ongoing and can therefore be termed circular. A key factor motivating this is the belief that enhanced perception of speech improves production of speech, but this occurs over time.

#### **6.4.4 MULTI-SENSORY AVENUES ARE EMPLOYED TO ENHANCE PERCEPTION OF SPEECH**

This is a major philosophy which underpins the theoretical basis. Where audition is not available, lip-reading becomes the primary source of information for speech production (Dodd, 1976). Speech errors will reflect both lack of auditory perception, caused by the hearing loss, and misperception caused by the confusion and limitations inherent in lip-reading received from the model in connected speech. Whereas auditory acuity is a fixed measure, perception of speech via other avenues is regarded as having potential for enhancement. Multi-sensory avenues can be employed to provide information on speech production that circumvents lip-reading and compensates for loss of acuity. Five multi-sensory avenues are considered to promote auditory perception namely orosensory, graphic, kinaesthetic, hand analogies and the use of animate objects. They are viewed in the same light as van Uden with regard to writing as a support for auditory perception. The hearing-impaired speaker may perceive a vestigial auditory signal that becomes enhanced by a complementary avenue which utilises a different sensory route.

Attention is focused on hitherto unperceived sound traces. Auditory training that relies on graded exercises either by voice, as does Erber (1982) or music, as does Bang (1996) are not included. They are regarded as developing splinter skills which will not be integrated into audition for either meaningful communication or development of speech proficiency.

In agreement with Pollack (1970) the earliest communication should, as far as possible be unisensory, purely auditory. Multi-sensory avenues may disturb this focus. The rationale for adding multi-sensory channels when the child enters school at approximately four or five year of age when he is eligible for participation in this programme is that the potential for auditory improvement through pure audition is considered to have been reached. Multi-sensory avenues can provide a new springboard for enhanced auditory input.

There are five avenues, namely orosensory, graphic, kinaesthetic, hand analogies and use of inanimate objects.

#### 6.4.4.1 Orosensory Avenue

Phonemes that share visemes and are closely related in terms of production should be developed in juxtaposition – this will help the Deaf speaker clarify ambiguity of lip-reading by heightening orosensory feedback. This avenue applies mainly to consonant development. A severe limitation of lip-reading is that certain phonemes, which are auditorally different, have the same visual appearance. These are termed visemes, (Owens 1972). A consequence is that such phonemes are likely to be substituted for each other. As stated in the theoretical research, a fundamental rule governing substitutions is that they **often** occur within viseme groups, but **seldom** across them (Osberger and McGarr, 1982). Certain phonemes are considered to be even more at risk for substitution. These share not only the same viseme, but also the same voicing distinction and place of production. Teaching such phonemes in juxtaposition provides clear, comparative orosensory gestalts, which will strengthen orostereognosis and consequently aid correct development. Four pairs of consonants and the surd/sonant distinction are developed with this dynamic in mind:

- /b/ and /m/
- /t/ and /s/
- /n/ and /l/
- all surd/sonant cognates

Before discussing this further, a complicating factor needs to be addressed, namely disagreement of researchers with regard to constitution of viseme groups. This is described in Table 6.1 in relation to the paired phonemes listed above. The phonemes paired are not a complete representation of all that could be included in a single viseme - they are selected from the viseme group to be taught in juxtaposition.

**Table 6.1 : Comparison between viseme groupings followed in the proposed programme and viseme groups suggested by other researchers**

Viseme/phoneme groupings in this research	Agreement/disagreement with viseme/phoneme groupings suggested by other researchers
/b/ and /m/	This is in agreement with most researchers – e.g. Bruhn, 1942; Burchett, 1950; Clegg, 1953 (studies cited by Markides, 1983) – who regard /b/p/m/ as one viseme
/t/ and /s/	This is not in agreement with Bruhn, 1942, Burchett, 1950, Clegg 1953 or Ewing, 1967. They group /t/d/n/ as one viseme and /s/z/ as another. The rationale for disagreement is firstly that /t/ and /s/ are identical in terms of jaw closure, tongue position and non-distinctive lip shape (Van Uden lectures 1986) which changes according to phonetic environment – it seems therefore illogical that they are not paired. /n/ and /t/ which these researchers group together can present as different visemes in open, final contexts whereas /s/ and /t/ remain visually identical in all contexts. This can be seen by mirror observation of production. This would seem to be in agreement with Lowell (1964 – cited by Markides, 1983) who includes /s/ and /t/ in a viseme group. However, he also includes /θ, ð, d, n, l, z, tʃ, dʒ, j, k, g, ʃ, h/ in the same viseme group. This seems hard to understand especially since /θ/, /ð/ have a unique and distinctive viseme. Choosing to regard Lowell (1964) as being in agreement with the viewpoint taken in the proposed programme would constitute invalid ad hoc selectivity.
/n/ and /l/	Bruhn, 1942; Burchett, 1950; Clegg, 1953; Ewing, 1967 (studies cited by Markides, 1983), allocate /n/ and /l/ as separate visemes. Fisher (1968) places /n/ and /l/ in the same viseme group only in word final positions.
All surd/sonant cognates	This is in agreement with all researchers quoted above.

Source, original with extracts from Markides, 1983 and van Uden – content of lecture, 1986.

Table 6.1 Demonstrates the agreement/disagreement with phonemes paired.

Now that the rationale for selection of viseme groups has been established an analysis of similarities of phonemes within viseme groups is given. Table 6.2 delineates the high potential for substitution of phonemes due to similarity of viseme, voicing distinction, place of articulation, manner of production and auditory discrimination.

This is not discussed in terms of precise acoustic/motor parameters but in terms of speaker knowledge – as will be the case of the teacher in the classroom.



**Table 6.2: Analysis of similarities of viseme presentation, speech production and potential for auditory discrimination between juxtaposed consonant pairs**

Paired Phonemes	Viseme	Voicing	Place of articulation	Difference in production	Potential for auditory discrimination
/b/ and /m/	The same viseme lips are placed together	Both voiced	Both bilabials	A slight deviation of labial and corresponding intra-oral pressure causes production of either an oral stop, /b/, or a nasal continuant, /m/.	Some potential exists - /m/ has a longer duration than another /b/. However, in connected speech this minimal difference is probably of little use.
/n/ and /l/	The same viseme. The position of the tongue raised towards the hard palate can only be seen in certain environments	Both voiced	Both alveolar	A deviation of continuity of lingual seal causes either an orally directed continuant, /l/, or a nasally directed continuant, /n/ to be produced,	Virtually no potential both phonemes are voiced continuants
/t/ and /s/	According to the approach of this study no distinctive viseme is apparent for either /t/ or /s/. Lips assume the position of surrounding phonemes. The only visual cue available is the relatively closed position of the oral cavity for both phonemes.	Both unvoiced	Both alveolar	The narrow lingual groove necessary for production of /s/ is easily occluded by the tongue thereby causing production of /t/. Conversely contact between tongue and alveolar ridge required for production of /t/ may not be firm enough and an /s/ be produced in error.	Virtually no - potential. Both are low intensity, high frequency phonemes. It is probable that the difference in temporal interval that occurs in vocalisation between the relatively longer continuant /s/ and shorter plosive /t/ may provide some distinction. However, this fractional interval will probably not be of use in connected speech.

Source : Original

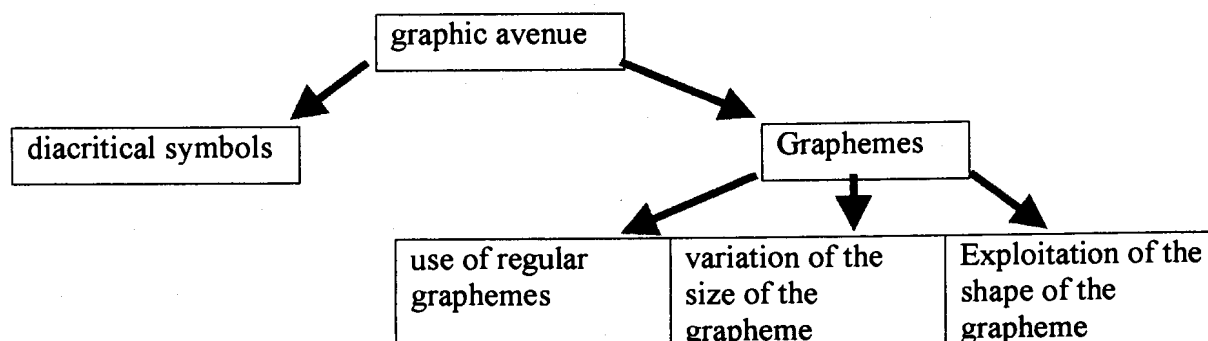
Table 6.2 demonstrates how confusion is caused by the similarities of paired phonemes in terms of lip reading, speech production and audition. Only a small margin of error in production needs to be crossed before one phoneme is substituted for the other, and minimal potential exists for auditory discrimination. Juxtaposing these phonemes, provides the speaker with the opportunity to develop heightened comparative orosensory sensitivity, which in the absence of audition may aid the speaker in differentiating one partner from the other. Surd/sonant cognates are not described, as their production is identical with the exception of voicing.

#### **6.4.4.2 Graphic avenue : Diacritical symbols and graphemes**

Various systems have been developed to address the problem of communicating phoneme production to hearing impaired individuals. Calvert and Silverman (1978) describe and evaluate four of these – The International Phonetic Alphabet (IPA), Visible Speech Systems; developed by Melville and Alexander Graham Bell, in America in 1894; Visual Tactile System developed in Israel by Zaliouk (1954), and the Northhampton System, developed at the Clarke School for the Deaf in America, first in 1885 and revised in 1925. They evaluate the systems according to four criteria: the extent to which symbols can convey information on how to articulate sounds, are free of ambiguity, are based on written symbols of the culture, and are perceptually feasible. They state that none are regarded as satisfying all needs simultaneously. They regard the Northhamptom System as superior being the most pragmatic. The orthographic system employed in the proposed programme is described below, and then evaluated comparatively with the systems delineated by Calvert and Silverman (1978), according to their criteria for an ideal orthographic system. The term ‘graphic’ is used in preference to orthographic as it denotes a broader system. The Collins Dictionary of the English Language (1979) defines the term orthographic, as an aspect of / or relating to spelling, and the term ‘graphic’ as relating to writing / or other inscribed presentation. The latter term is deemed more suitable because it denotes a broader focus. Where aspects of spelling are specifically referred to, the term ‘orthographic’ will be used.

The graphic avenue is two-fold. It includes diacritical symbols superimposed on graphemes and the use of graphemes. These are described in figure 6.4.

**Figure 6.4 : The graphic avenue utilised in the proposed speech programme**



Source : Original

Figure 6.4 describes two major sub-divisions – diacritical symbols and use of the traditional graphemes which are exploited in terms of shape and size.

- **Diacritical symbols**

A diacritical symbol is a distinguishing mark indicating that a written letter has a particular sound (The Little Oxford Dictionary, 1983). The function of diacritical symbols in the proposed speech programme is to illustrate aspects of production that are inaudible, invisible or visually confusing. Diacritical symbols are generally super-imposed on graphemes.

The ordinary grapheme indicates a distinctiveness between phonemes that is unavailable to the hearing impaired child during speech. For example, visemes for /b/ and /m/ are identical and, complicating matters further, change according to phonetic environments. An example will illustrate this: the lip shapes for /b/ in the syllables /bu/ and /bi/ are different in preparation for the vowels that follow. The graphemes ‘b’ and ‘m’, however, are clearly distinctive and do not change according to different grapheme environments. This clarity of the grapheme is incorporated and extended by using super-imposed diacritical symbols, which target invisible aspects of production that are vulnerable to error. In some measure this is regarded as compensation for loss of auditory acuity and limitations of lip reading.





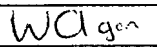
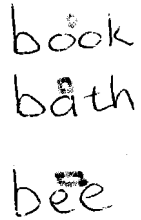

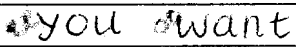
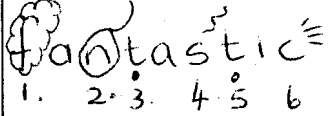
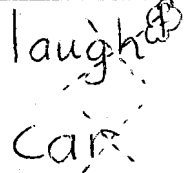
There are numerous advantages to using this system. These include:

- Ease of execution – the only equipment needed is a writing implement.
- Complicated phonetic knowledge is conveyed without recourse to technical or medico-pathological terminology.

- No expense is incurred.
- Unlike the phoneme the message is constant.
- Unlike the phoneme the message is unambiguous.
- Kinaesthetic awareness is heightened because the nature of symbols is sensorally suggestive.
- Spelling is not changed – this means the pupil’s learning of the spelling of words is not compromised. Spelling ability may well be enhanced by providing the pupil with an awareness of the production of the grapheme available to the hearing pupil via audition, but not the pupil with hearing loss. This is regarded as an advantage over employing the International Phonetic Alphabet (IPA) to provide clarity. Learning another alphabetical system is considered cumbersome and confusing.
- The system is suited to the school situation as it is based on the grapheme.

Table 6.2 describes how diacritical symbols and graphemes are employed to provide information on a variety of speech functions, suprasegmental and segmental. A separate table, Table 6.3 demonstrates how the configuration of the grapheme is exploited to convey aspects of speech production.

**Table 6.3 : How employment of diacritical symbols and graphemes indicate supra-segmental vowel, diphthong and consonant production, intrusive voicing and correspondence**

	Aspect of production targeted	Diacritical symbol			Explanation of choice of symbol
Suprasegmental	Suprasegmental vocal contours – as a adjunct to Ling (1976)	1  soft utterance	2  loud utterance	3  whispered utterance	<ol style="list-style-type: none"> <li>1. An undulating, cloud shape represents a soft voice.</li> <li>2. A sharply contoured dark rectangle represents a loud voice.</li> <li>3. A dotted circle represent a whisper.</li> </ol>
	Stress patterns (van Uden, 1986 lecture notes).				The melody bow develops in two stages: Firstly the vertical lines are drawn, representing major, minor accents and number of syllables. Second, the undulating line is drawn. This reinforces appreciation of the number of syllables, stress pattern and provides a concept of continuity.
	Stress patterns				Variation of the size of the graphemes denotes variation of stress
Vowels	Vowels (van Uden, 1986 lecture notes)				<p>The mouth shape for vowels is depicted via diacritical symbols that portray mouth shape for peak vowels.</p> <ol style="list-style-type: none"> <li>1. Rounding of the lips for /u/.</li> <li>2. The lips in an open position for /a/.</li> <li>3. The lips spread for /i/</li> </ol> <p>This is not considered generally helpful for vowel production. Mouth shape is visible during production, therefore a diacritical symbol portraying, it is superfluous. However, it is considered to be a useful strategy for conveying the presence of both elements of diphthongs.</p>
	Diphthongs (van Uden: 1986 lecture notes)				Both elements of the diphthong are scored using the same diacritical symbols as used for vowels. The first element is drawn relatively larger than the second. This is congruent with diphthong production where the second element is briefer.
	Semi-vowels				The root vowel is written using small graphemes.
	Consonants				<ol style="list-style-type: none"> <li>1. The cloud symbolises aspirated friction for 'f'.</li> <li>2. The loop circle for n represents sonority, nasality, (developed initially by analogy to a clown's round nose) and continuity.</li> <li>3. The dot under the 't' represents tongue contact on a narrow target.</li> <li>4. The thin line extending out of the 's' grapheme represents a snake's wriggling movement. (This extends exploitation of the configuration of the grapheme to an onomatopoeic dramatisation of the traditional hiss of a snake.</li> <li>5. The diacritical symbol for 't' has been explained above.</li> <li>6. Radiating lines on the 'c' represent plosion.</li> </ol>
	Clarification of grapheme/phoneme confusion				Spelling and pronunciation are not always congruent. The spelled version that does not correspond with phoneme is crossed out with a dotted line and the phonetic and/or diacritical symbol written above. It is noteworthy that the line that cancels out the spelled version is dotted – this means correct spelling remains available to the pupil and spelling prowess is not disturbed.







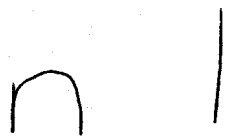
Aspect of production targeted	Diacritical symbol	Explanation of choice of symbol
Substitutions 1. A different phoneme is substituted.	<del>man</del>	The incorrect substitution is written on top of the grapheme and subsequently crossed out with a solid line. The phonetic version that is not congruent with spelling is crossed out with a solid, not dotted, line so that it is occluded and therefore does not interfere with spelling prowess.
2. A voiced consonant is substituted.	hop hop	A dotted version of the grapheme is scored above the grapheme as in (1) or instead of it as in (2). The grapheme written above is probably easier for the teacher to employ, as she does not need to delete the original. The dotted version does not cause spelling confusion because the form of the grapheme remains constant. The dotted letter harkens back to the symbol for whispering, recalling that skill for correction of aspirated plosion. Voicing distinction between surd and sonant pairs is not extensively addressed in the proposed programme – as discussed in Chapter 2. An exception is made where a voiceless consonant is required word finally and a voiced consonant is substituted. Intelligibility is regarded as severely compromised in this case. Diacritical symbols representing aspiration are used. (This is one of the exceptional occasions where digital contact with the larynx is regarded as acceptable.)
Omissions	mouse	The grapheme's' is circled and the diacritical symbol added. In this case the pupil produced the word correctly but omitted the /s/.
Additions 1. Addition of the neutral schwa causing intrusive voicing.	<del>stop</del>	The pupil has added an intrusive sound between elements of the /st/ blend. This is indicated by adding an 'a' grapheme above and then emphatically deleting it with solid lines.
2. Additions causing features of continuance to be stopped.	1. <del>mother</del> 2. <del>see</del>	1. The pupil has partially stopped an /m/ and produces the word as [mbʌʔə]. This is not a substitution as the /m/ is present. A 'b' grapheme is written and then emphatically crossed out with solid lines. 2. the pupil has partially stopped an /s/. this is not a substitution the /s/ is present. A 't' grapheme is written and then emphatically crossed out with solid lines.

Source: Original data and reference to Ling (1976) and Van Uden (1983 – lecture notes).

Table 6.3 Summarises, the manner in which diacritical symbols and graphemes support speech production in a variety of suprasegmental and segmental areas, provides a system for clarifying in pronunciation where graphemes do not phonetically represent phonemes and, finally provides information for each category of speech error, omissions, substitutions and additions.

The third graphic avenue, not illustrated in the table, is the exploitation of the shape of the grapheme to convey features of speech production. Following a Whole Language Approach, as the young pupil learns to read and write he is made aware of the way certain grapheme shapes can represent phonemes. Consonants are the focus of this strategy. Table 6.3 Provides examples of how this is applied. The table delineates firstly the grapheme, secondly the manner in which the configuration of grapheme has been exploited to communicate inaccessible features of speech production, thirdly a child-centered explanation, and fourthly the rationale for choice of symbol.

**Table 6.4 : Exploitation of the configuration of the grapheme to represent aspects of speech production and child-centered explanation and rationale for choice of symbol**

Grapheme	Exploitation of configuration of grapheme to represent aspects of speech production	Child-centered explanation	Rationale
F		“The wind is blowing so hard it nearly blows the tree over. When you make an/f/ you can feel the wind on your hand.”	Aspirated frication is invisible.
S		“S” is a snakey sound – you make a long sound, like a snake talking.”	The thin grooved aspiration is invisible. This grapheme adaptation links up with the diacritical symbol, which represents the “wiggling” of a snake as it moves. Dramatisation of the traditional expressive ‘ss ss s’ to representing a snake hissing, takes this to a phonological level.
B		“The ‘b’ is for ball, it looks like a ball and bounces like a ball: feel your lips bounce on your hand.”	Lip plosion is a feature of /b/ - making it distinctive from production of /m/ or lips that are closed in silence. Tactile information is combined so that the pupil can differentiate between /b/ and an /m/.
N		“‘n’ looks like a nose and the sound comes out of your nose.”	Nasality is an invisible feature.
‘n’ and ‘l’		“‘n’ looks like a wide tongue and ‘l’ looks like a narrow tongue. Your tongue needs to be wide when you make an ‘n’ you ‘glue’ your whole tongue up so that the voice can come out of your nose. When you make your tongue narrow so that the voice can come out of your mouth.”	/n/ and /l/ present as one viseme. The complexities of a lateral /l/ or a ‘dark’ /ɫ/ are not addressed. The pupil’s attention is focused on tongue width as either blocking off the oral cavity completely; thereby directing vocalisation nasally – or partially – thereby allowing oral escape of vocalisation.

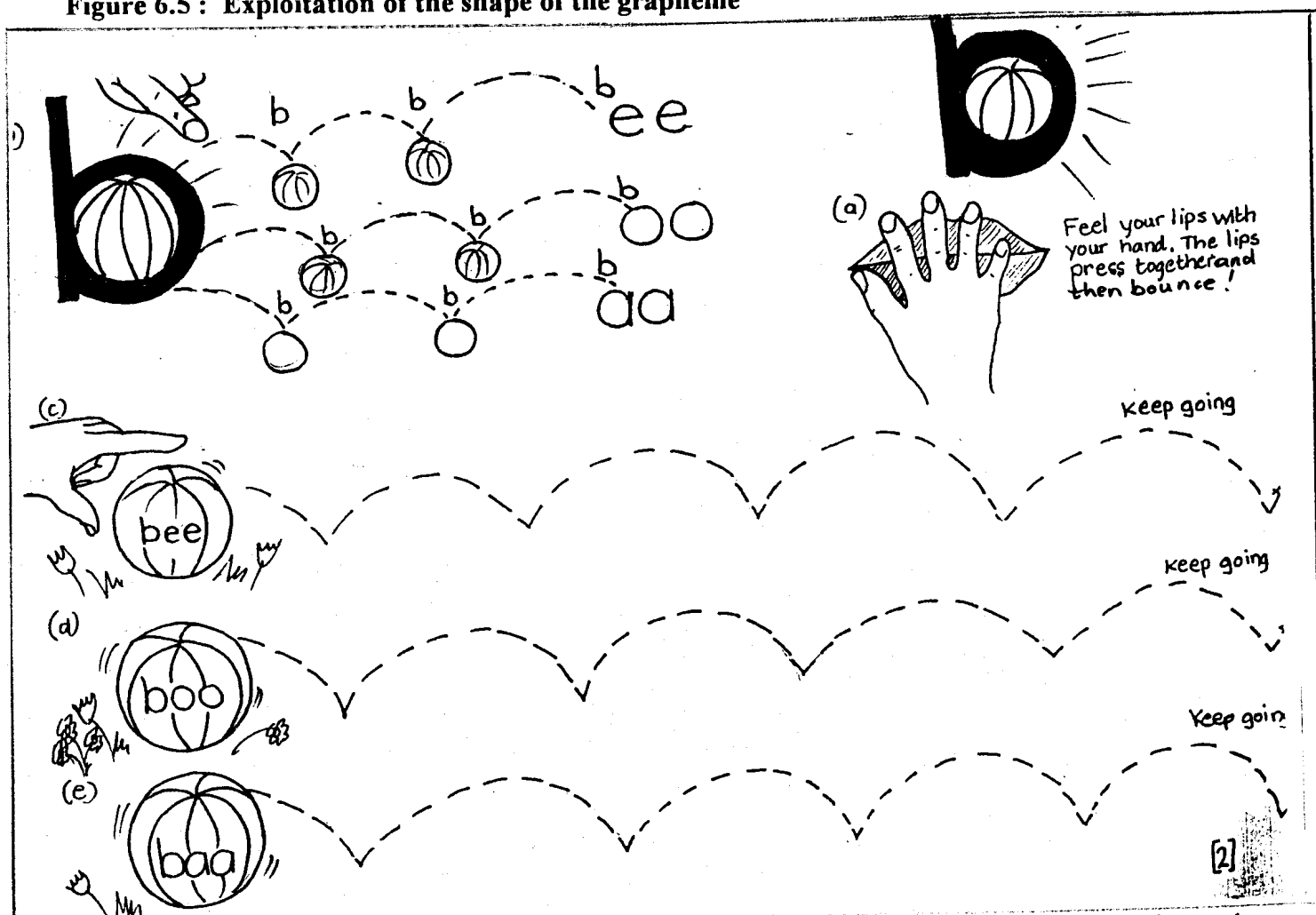
Source : Original



Table 6.3 demonstrates how the configuration graphemes 'f', 's', 'b', 'n', 'n' and 'l' (which represent paired phonemes /n/ and /l/) can be exploited to convey knowledge of speech production. Other graphemes can also serve this purpose.

Exploiting the shape of the grapheme offers four clear advantages. Firstly, working with graphemes is within the teacher's frame of reference. 'Hanging' speech production on to this metaphorical 'hook' means that she is working in a familiar a secure area. Secondly, learning graphemes is an established school procedure. There is a greater likelihood that speech will be taught if it forms part of regular school procedures. Thirdly, the cartoon-like approach is appealing to young pupils. Finally, a multi-sensory holistic approach is considered to aid, not only speech, but reading as well. Figure 6.5 illustrates these principles.

Figure 6.5 : Exploitation of the shape of the grapheme



Source: Extract from a booklet entitled "Fun with Sounds" which forms part of the proposed speech programme.

Figure 6.5 Shows how the grapheme has been exploited to convey aspects of speech production – a bouncing ball is linked to ‘bouncing’ lips producing the /b/. Ling’s (1976) syllable drill is used. The consonant is produced with peak vowels /i/, /u/, and /a/ and then repeated.

As stated in 6.4.4.1, the graphic component of the proposed speech programme is evaluated according to the four criteria set out by Calvert and Silverman, (1978). This is only done in relation to effectiveness of consonant depiction.

**Table 6.5 : Comparative evaluation between orthographic systems described and evaluated by Calvert and Silverman, (1978) and that employed by the proposed speech programme in relation to consonants**

Calvert and Silverman’s (1978) stated requirements for an ideal orthographic system	Calvert and Silverman’s (1978) identification of systems that satisfy the requirement.	By extrapolation systems that do <u>not</u> satisfy their requirements	The extent to which the requirement is satisfied by the proposed speech programme.
1. Symbol conveys information on how to articulate sounds	Bell and Zaliouk	IPA and Northhampton	Diacritical symbols provide information on how to articulate sounds
2. Symbol is free from ambiguity.	IPA	Bell, Zaliouk and Northhampton	Complementary use of graphemes and diacritical symbols ensures symbols are free from ambiguity.
3. The system uses the written symbols of the culture	Northhampton	Bell, Zaliouk, IPA	The written system of the culture is used. Diacritical symbols and alternate use of graphemes is superimposed on normal orthography.
4. Symbols are perceptually feasible.	All four systems are feasible	No systems are unfeasible	This it seems a somewhat meaningless category, it appears to refer to the ability of the symbols to be available to vision –an orthographic system, with the exception of braille, is not normally available to any other sense. The proposed speech programme is perceptually feasible in terms of vision.

Source: Original data and references to Calvert and Silverman (1978)

Table 6.4 illustrates Calvert and Silverman's (1978: 15) statement that "none of the systems we have described satisfies all our needs for speech training" This is in contrast to the orthographic system of the proposed speech programme, which satisfies all requirements specified for consonants simultaneously.

The situation for vowels is regarded as less satisfactory. The amorphous, finely tuned targets for vowels are considered minimally accessible to graphic depiction. This can be illustrated by taking the example of the vowel /ʌ/. The Northampton symbol – U – provides no information on tongue height. Since mouth shape is not distinctive, there is no reason why the neutral shwa /ə/, commonly substituted for vowels, should not be substituted for this vowel. The proposed speech programme does not offer a solution to this problem. Graphic coding that does not provide useful information is not included as it would cause confusion. Therefore graphic coding for vowels is limited to those that represent visible mouth shapes of peak vowels, despite the fact that these are superfluous because they represent mouth shapes that are visible. The rationale for this is that a basis is given for diphthong coding. Demonstration of the two diverse elements is regarded as more accessible. Additionally, diacritical symbols are unambiguous and distinctive may provide some stimulation for differentiation of vowels that works as an antidote to neutralisation.

#### 6.4.4.3 Kinaesthetic avenue

Three kinaesthetic paths are employed:

- **Firstly, tactile experience of vocalisation.** This refers to the manner in which the pupil gains awareness of speech patterns through touch. Examples of this are feeling vibrations caused by vocalisation on the chin, larynx or nose and directing aspiration onto the learners hand.
- **Secondly, analogous tactile stimulation.** A tactile sensation is created by the teacher moving her fingers or hand on the arm or hand of the pupil to represent a corresponding speech process. An example of this is clarifying /s/ and /t/ production. The vulnerable and invisible distinguishing feature of this pair is stopping versus continuance. To represent an /s/, the teacher, while producing /s/ orally draws a 'wiggly' line along the child's inner forearm with one finger – this gives the feeling of continuity. The use of a single finger is a cue to the thin air stream required. (The complementary nature of alternate multi-sensory pathways is clearly demonstrated in this example – the 'wiggly' line reinforces the snake analogy used with diacritical symbols and exploitation of grapheme shape). To represent the 't' the teacher 'walks' the index and third finger up the child's

forearm. The concept of stopping is reinforced with a staccato ‘footstep’; - (this reconnects with the diacritical symbol for /t/, the dot is likened to footprints made by the fingers). If the teacher simply produced /s/ and /t/ orally the pupil would be unable to distinguish between them, as both have identical visemes that change according to phonetic environments. The two bodily sensations are, however, distinctive. The pupil can gain a physical gestalt to replicate the orosensory gestalt he needs to produce these phonemes. This is considered to be a more powerful stimulus than a cognitively based explanation such as: “You need to groove your tongue so that air escapes in a thin stream. Do not allow the tongue to touch your teeth or dental ridge because that will prevent the air stream from escaping, thereby producing a continuant and not a stop”.

- **Thirdly, bodily movements.** This has similarities with Guberina’s (1981) system. The bodily movements chosen are analogous to features of speech production. For example, the young pupil may ‘bounce’ in his chair, dramatising a car going over stones while vocalising repetitions of /b/ - in this way he experiences stopping in a physical manner – he moves in a way that replicates the ‘bouncing’ lip plosion required for /b/. Contrastively, he will sit still while steering the imaginary car over a smooth road, continuously miming turning a steering wheel, while vocalising /m/, to convey the idea of smooth continuity. Such bodily movements are considered to promote cognitive knowledge of speech production via a physical avenue. Additionally, the movement provides physical relaxation. This is regarded as important for promotion of laryngeal relaxation.

There are several advantages of using the kinaesthetic avenue.

- Clinical experience has shown that pupils enjoy physical contact and movement. All kinaesthetic strategies are gentle and playful.
- The strategies can be used in situations where writing implements are unavailable.
- Clinical experience has shown these strategies are effective in conveying knowledge of vulnerable aspects of speech production. Pupils transform kinaesthetic cues into information on speech production with ease.

#### 6.4.4.4 Hand analogies

The term hand analogies is used to refer to movements or postures of the hand that represent aspects of speech production. An example of a hand analogy is the mimed movement of pulling a piece of thread through the front teeth to indicate production of /s/ (observed at the Instituut Voor Doven, Holland,

1986). The length of the imaginary string represents continuity, the thinness represents the narrow air stream needed for production.

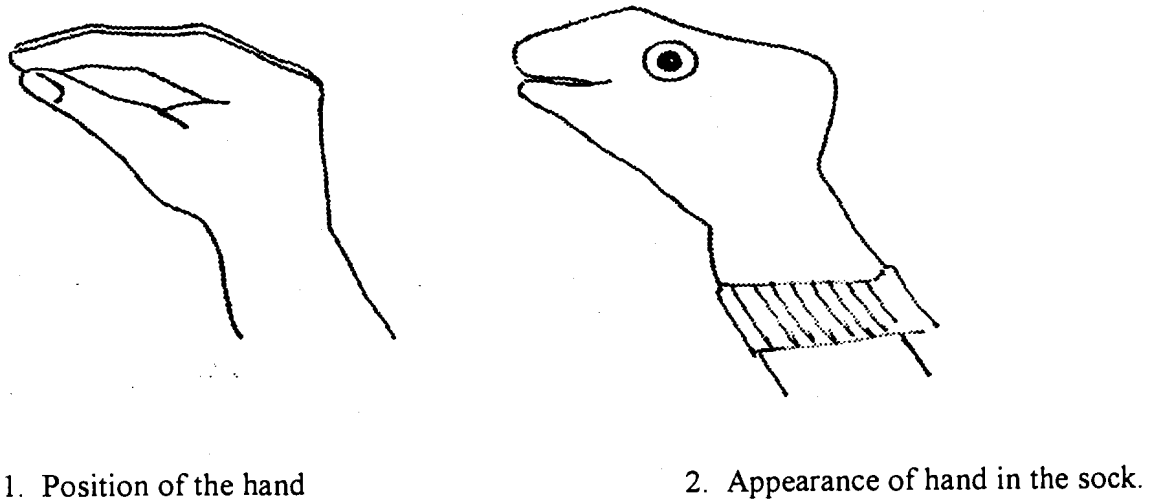
Cued Speech, designed by Cornette (1975) utilising a complicated system of hand analogies, received initial acclaim but seems to have lost popularity. This may be because the system is too complex for easy learning (Northern and Downs, 1979), or because the hand analogies are intellectual conceptualisations that are not kinaesthetically suggestive. Hand analogies as used in the speech programme are highly suggestive of aspects of production. They do not need to be memorised as intellectual concepts.

The advantages of using hand analogies is that correction does not need to be written or verbalised. It appears, as it were, by sleight of hand. This means that speech can be developed in a variety of environments and is not dependent on writing and does not disrupt communication.

#### **6.4.4.5 Use of inanimate objects**

This avenue is considered highly effective for a limited range of phonemes. It refers to the use of tangible objects to directly convey an orosensory gestalt to the pupil. An example of this is given for discrimination of /b/ and /m/, which share a viseme. This is illustrated in figure 6.6.

**Figure 6.6 The use of a sock puppet to represent difference of labial pressure and timing between /b/ and /m/.**

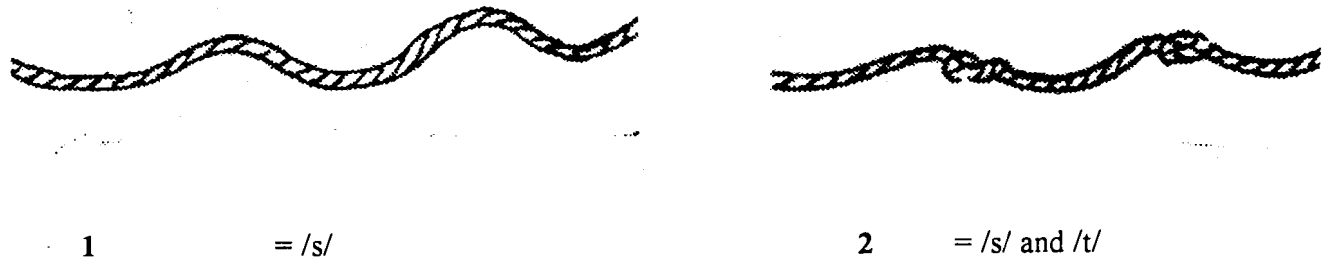


Source: Original

Figure 6.1 shows the position of the hand (block 1) and the appearance of the puppet once the hand is inserted into the sock (block 2) – the sock is personalised by eyes and nostrils to resemble an animal's face. For /b/ the teacher flicks the four fingers and thumb quickly and forcefully, for the /m/ she opens the four fingers and thumb slowly and gently. The pupil gains knowledge of an orosensory pattern that is unavailable during production since /m/ and /b/ are visually identical. This is achieved without visual exaggeration of speech patterns.

Another example is the use of a length of string to distinguish between the /s/ and /t/. This is shown in figure 6.7 below.

**Figure 6.7** The use of a length of string and a knotted string to teach distinction between /s/ and /t/.



Source : Original

Figure 6.7 shows an unknotted length of string – the pupil runs the string through the thumb and forefinger while producing an extended /s/. The sensation replicates production of the thin continuous air stream required. When the length of string is knotted at intervals, the sensation is different – there is an interruption, or stop, analogous to the stoppage of the air required for production of /t/. The contrast of stopping required for /t/ and continuity required for /s/ is clearly conveyed with this technique. (The blend /st/ can also be taught with this apparatus).

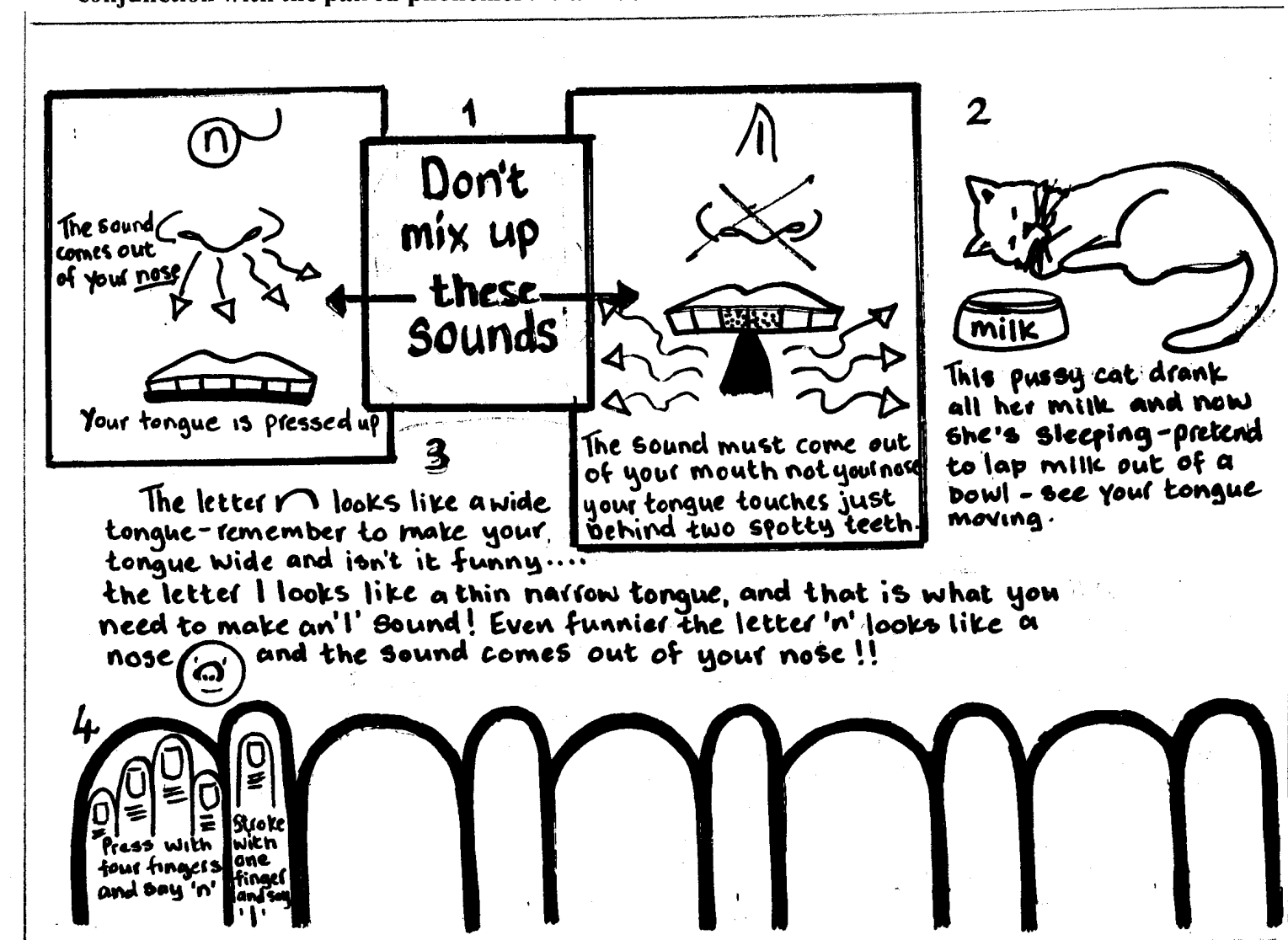
Advantages of this avenue are:

- Knowledge is conveyed without oral exaggeration.
- Simple, tangible analogies are used to describe subtle, complex aspects of production.
- Employment of toy-like apparatus is appealing to young pupils.

#### 6.4.5 COMPLEMENTARY NATURE OF MULTI SENSORY AVENUES

For purposes of convenience and clarity, orosensory avenues are described as though each is a separate entity. In practice however, they combine to provide a complex tapestry of simultaneous information. Figure 6.8 demonstrates this.

Figure 6.8 Orosensory, graphic and kinesthetic avenues used in complementary conjunction with the paired phonemes /n/ and /l/



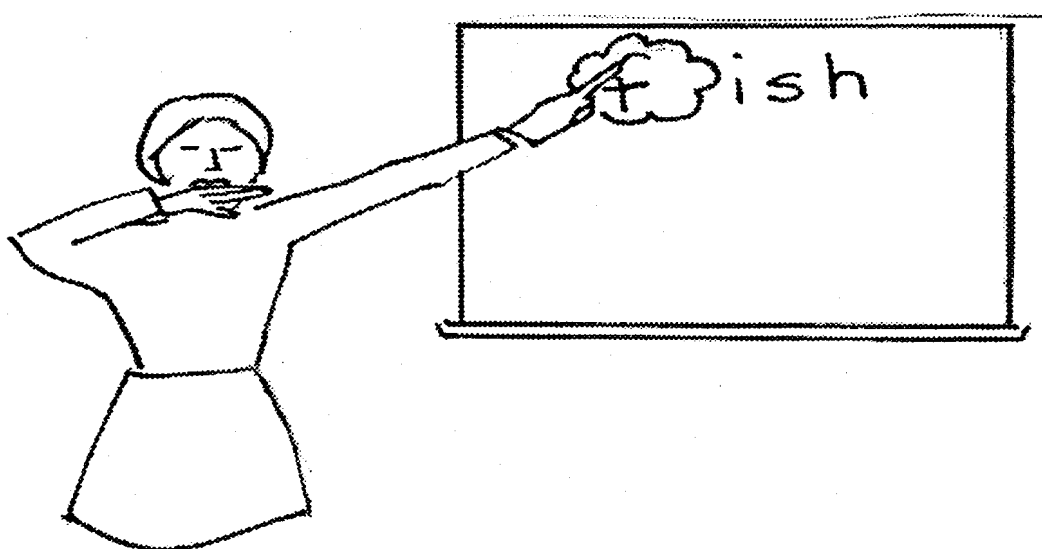
Source: Extract (size reduced) from a booklet entitled 'Lets Speak Beautifully!' which forms part of the proposed speech programme.

Figure 6.8 shows the intricate connection between complementary avenues. The numbers used in the description that follows correspond with the numbers inscribed in the extract. #1 Using the orosensory avenue, viseme pairs are juxtaposed to promote heightened comparative orosensory gestalts. The diacritical symbol superimposed on the grapheme 'n' is common to all nasals - it denotes sonority, symbolised by the full circle, and continuity symbolised by the extended looped line. Written execution of the diacritical symbol will be relatively lengthy, emphasising the temporal length needed



for production of a continuant, a vulnerable feature in the speech of the hearing impaired. The 'l' grapheme is coded with a diacritical symbol resembling a narrowed raised tongue – representing production of /l/. #2 The pupil is directed to watching the movement of the tongue, thereby strengthening orostereognosis. #3 The shape of the graphemes is exploited to convey information on speech production. #4 The graphic avenue is fostered by exploiting the configuration of the graphemes. Kinaesthetic and graphic avenues combine – four fingers are pressed down on the 'n' shape to reinforce the concept of lingual tongue pressure on the hard palate needed to create a continuous seal for /n/. One finger strokes the 'l' shape to reinforce the concept of less pressure, (the lingual seal does not have to be complete), and narrowness of tongue to allow for oral emission of vocalisation.

**Figure 6.9 : A variety of multisensory avenues employed for informatin of /f/**



Source: Original

The teacher produces the word 'fish', providing an auditory signal. As she produces /f/ she flutters her fingers at the level of her mouth – a hand analogy that describes continuous aspirated energy. The viseme for /f/ - top teeth over bottom lip – is distinctive, but does not provide this information. Although vocalisation provides an auditory signal the low intensity of /f/ makes auditory perception

unlikely. Therefore teacher simultaneously points to the diacritical symbol for /f/ - a cloud of wind, symbolising aspiration. This example shows how auditory signal, hand analogy and diacritical symbol are used in complementary conjunction to provide information on features of speech production that are invisible and probably inaudible.

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## 6.4 SKILLS TARGETTED FOR DEVELOPMENT

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This section examines how the programme deals with different aspects of speech function. The following areas are targeted:

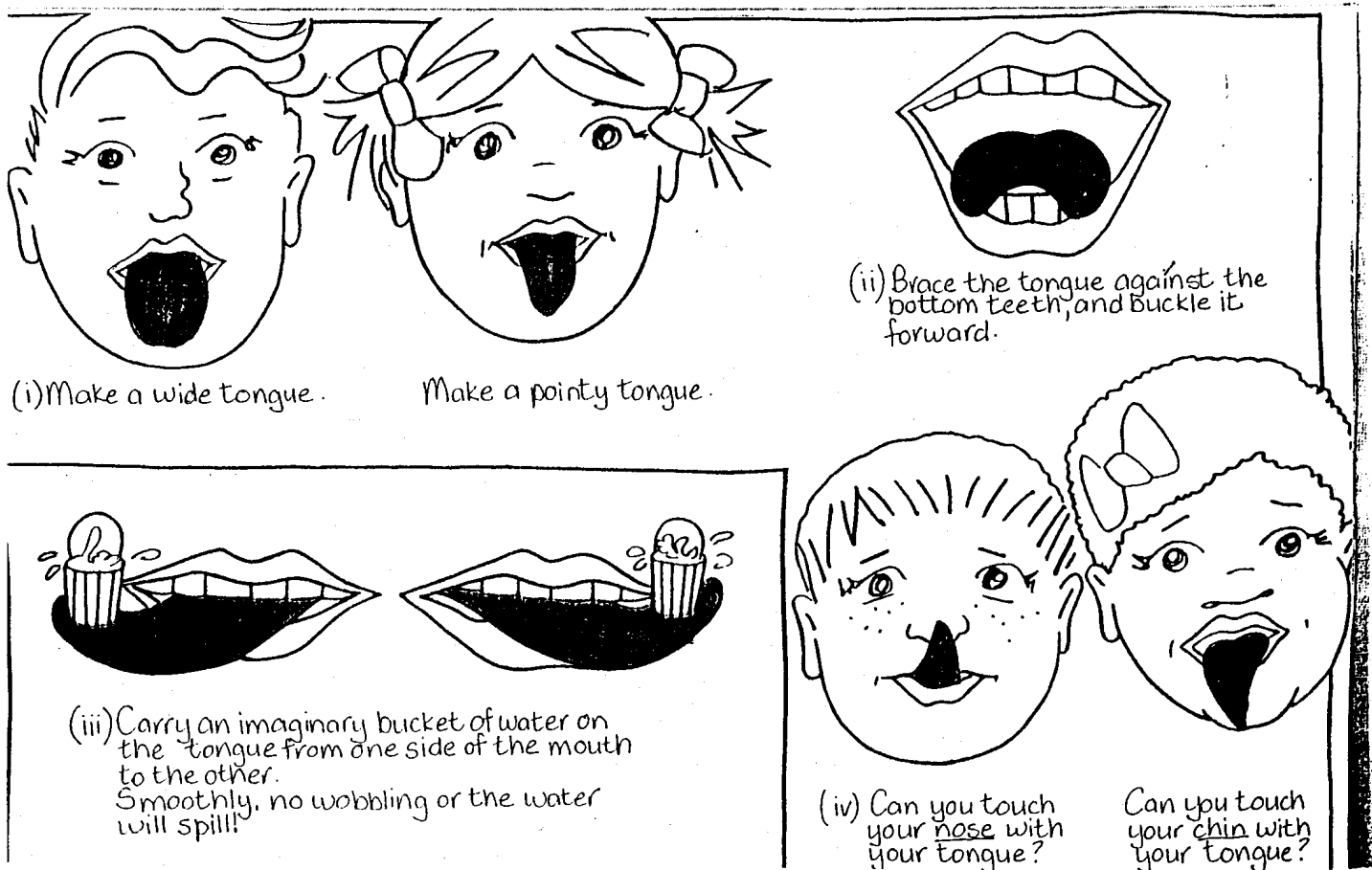
- gaining control of vocal organs
- supra-segmental development
- segmental development of vowels and consonants
- phonological development.

### 6.5.1 GAINING CONTROL OF THE VOCAL ORGANS

No clear evidence exists to support the view that non-speech activities directly improve speech. Arguments are conflicting and confusing, as the examples that follow illustrate. Siebert (1980) states that clinical experience indicates such training improves the child's potential to use speech effectively, but does not provide corroborating evidence. Sheldon and Knox (1970 – cited by Ling, 1976) note a lack of effectiveness of carry-over to speech from velar exercises undertaken in non-speech contexts. As against this, Ling (1976) cites research describing successful treatment of velar pharyngeal incompetence through sucking exercises. (Massengill and Quin, 1974 - cited by Ling, 1976) an 18-year old subject is described as having learned to effect velar pharyngeal closure by holding a piece of paper at the end of a drinking straw and subsequently being able to make stop consonants. The result they describe is for a hearing subject. It is possible that the hearing person was at an advantage, being fully cognisant of the speech goal to be attained. This is not the case for the hearing impaired learner who does not have a model of the desired vocalisation. The approach of the proposed speech programme is that such exercises **may** have an influence on speech performance. However, even if this is not the case, the other advantages are considered operative:

- It is possible that **teachers** involved in these activities will gain knowledge of the structure and functioning of the speech organs, and that this will aid them in speech instruction. Involvement in non-speech activities allows teachers to become familiar with the structure and function of speech organs. She literally looks into her own and the pupil's mouth to observe movements of the organs and learns how to instruct pupils to place speech organs in different positions. A teacher who, for example, helps a pupil develop the ability to widen and narrow the tongue is gaining skills that can be extended to teaching the difference between /n/ and /l/ production. Secondly, it is possible that **pupils** engaged in deliberate control of the speech organs may strengthen oral stereognosis and that this will aid speech development. Non-speech activities do not constitute a major part of the programme. The illustrations show minimal reliance on a medico-pathological model. A humorous cartoon-like format is used demonstrated in figure 6.10 below.

**Figure 6.10 : Non-speech activities to help learners gain control of organs of speech**



Source: Extract from a booklet entitled 'Can You Make Funny Faces', which forms part of the proposed speech programme.

Figure 6.10 shows a selection of exercises designed to gain control of tongue movements.

### 6.5.2 SUPRA-SEGMENTAL DEVELOPMENT: DURATION, INTENSITY, PITCH AND STRESS PATTERNS

The underlying philosophy of the proposed programme is that the largest proportion of supra-segmental variation which occurs in spontaneous speech, particularly pitch, occurs as a function of hearing or as a consequence of early aural rehabilitation, and cannot be formally taught. Exercises for example, to train production of varied pitch levels on demand, are regarded as simply that – the pupil will be able to produce different pitch levels on demand. This is regarded as a splinter skill, which will not be generalised into vocal inflections for speech. There are, however, two reasons why some attention is given to formal development of supra-segmental skills. Firstly, the possibility that some carry over into speech **may** occur means that this should not be completely neglected. Secondly, of greater importance, training in suprasegmental production, while it may not enrich suprasegmental vocal contours in spontaneous speech, may provide valuable exercise for vocal folds. Poor vocal fold development of hearing-impaired children was described in the theoretical research (Chapter 2). Suprasegmental training provides an opportunity for exercising vocal folds that occur naturally in the spontaneous speech of hearing children, but may not occur in the speech of children with hearing losses. A Deaf person, for example, may not learn to whisper unless taught. Although whispering is not a crucial prerequisite for communication, vocal folds are exercised in an important manner. During a whispered utterance the lower part of the vocal fold is held open in an uncharacteristic posture (Ling, 1976), which may enhance vocal fold tone.

Two suprasegmental avenues are followed, informal and formal.

The informal avenue relies on animated communication, which is part of interesting life experiences, and singing. The value of singing was described in the Theoretical research, Chapter 3. The approach to singing as a component of supra-segmental control differs significantly from Ling (1976) who views formal suprasegmental development of pitch as needing to be developed in order for the pupil to learn to sing. This programme views singing as an aid to developing supra-segmental skills. Ling's (1976; 206) attitude can be gauged from this excerpt:

“... The child should be **taught** to make increasingly finer adjustments so that at least simple tunes can be sung”. (This writer’s emphasis).

The formal avenue consists of attention to stress patterns, duration, intensity and pitch. Stress patterns are developed using graphic support, kinaesthetic input and hand analogies. Duration, intensity and pitch are exercised according to the structured supra-segmental component of Ling’s (1976) speech programme. Transposition of these skills into spontaneous speech is not regarded as a consequence of following his programme.

Five modifications were made.

- **The entire suprasegmental programme is represented graphically, in book form.** Significant advantages are seen from this in relation to teachers, pupils and speech development. **Teachers** are provided with theory that is illustrated by practical examples. This is considered to make Ling’s programme easier to understand. Additionally, teaching material is ready – the teacher does not need to expend additional time preparing lesson material. **Pupils** are supplied with appealing child-centered material. For young pupils using a book is a novelty and may also encourage reading behaviour. **Speech development** is fostered in various ways. Firstly, employment of diacritical symbols and graphemes is regarded as a tool for enhancing audition. Secondly, the pupil’s attention is directed at the page, not teacher’s mouth. This is believed to generate a listening attitude from the pupil and to discourage the teacher from exaggerating mouth movements because the pupil is not watching. Once again principles of the Listening, Speaking, Reading method are pertinent.

- **There is a different emphasis**

Not all suprasegmental skills are deemed of equal value. **Duration** is given major emphasis. Exercising ab and adduction of the vocal cords is regarded as improving vocal quality. The ability to sustain vocalisation is viewed as the raw material of speech voice. The subskill that exercises short and long utterances on one breath is seen as important – being a model for connected speech patterns. **Intensity** is given less attention. The use of the forced whisper, as described, is only considered important in terms of vocal fold development. Repeated use of loud utterances is kept to a minimum since it is believed to be potentially vocally abusive. **Pitch** sub-skills are also regarded as potentially vocally abusive. (This view was supported in the Empirical Research by the group of teachers who followed a modified version of Ling’s programme in Chapter 5). An additional disadvantage is that in the absence of audition, teaching pitch variation may require digital contact with the larynx, and this is considered undesirable.

- **A specific consonant-vowel combination is used throughout supra-segmental subskills.**

Ling (1976) recommends that any vocalisation produced by the learner be accepted during suprasegmental subskills – any releasing consonant and any vowel or diphthong. This injunction is not followed as it is considered to provide too little structure for the teacher, and to may reinforce deviant voice. The consonant-vowel combination /ba:/ is used throughout the supra-segmental programme. This is a departure from Ling's (1976) on two counts. Firstly, introduction of a consonant – Ling develops consonants at a later stage, only after supra-segmental development and vowel acquisition have been completed. Secondly, the vowel is specified. There is a rationale for each departure.

The consonant /b/ is selected because it is regarded as providing a springboard for healthy vocalisation – the nature of production virtually propels the voice forward. In the light of the prevalence of cul de sac resonance (Lings, 1976) this is an important consideration. The voiceless cognate /p/ that shares the viseme is accepted as it serves the same purpose. The commonly substituted bilabial nasal, /m/, that shares the viseme is not accepted because of the danger of extending nasal resonance to the vowel. As Ling (1976: 250) states with regard to nasality: “prevention of hyper-nasality is better than cure. We stress the importance of babbling non-nasal syllables (vowels released with plosives and unvoiced fricatives) as early as possible in training. We do not encourage babbling syllables such as [mamm] until the child has established orality rather than nasality as a norm ... of course if [mamm] is the first series of sounds produced by the young hearing impaired child we must accept it...”.

In agreement with Ling, all the first spontaneously produced sounds of young hearing-impaired children are accepted and encouraged. However, once formal training is initiated new patterns are developed. For this reason the /m/ is not accepted to initiate the syllable and the /b/ is deliberately and specifically elicited. The vowel /a:/ is used because it is less problematic than other vowels. Firstly, it is less vulnerable to a deviant high pitch than the other two other peak vowels /i:/ and /u:/ (Ling, 1976); secondly the maximally open oral cavity means that nasalisation is less likely to occur as there is more room for oral escape; and thirdly the posture of the tongue is visible – this means that tongue retraction can be remediated from an early stage.

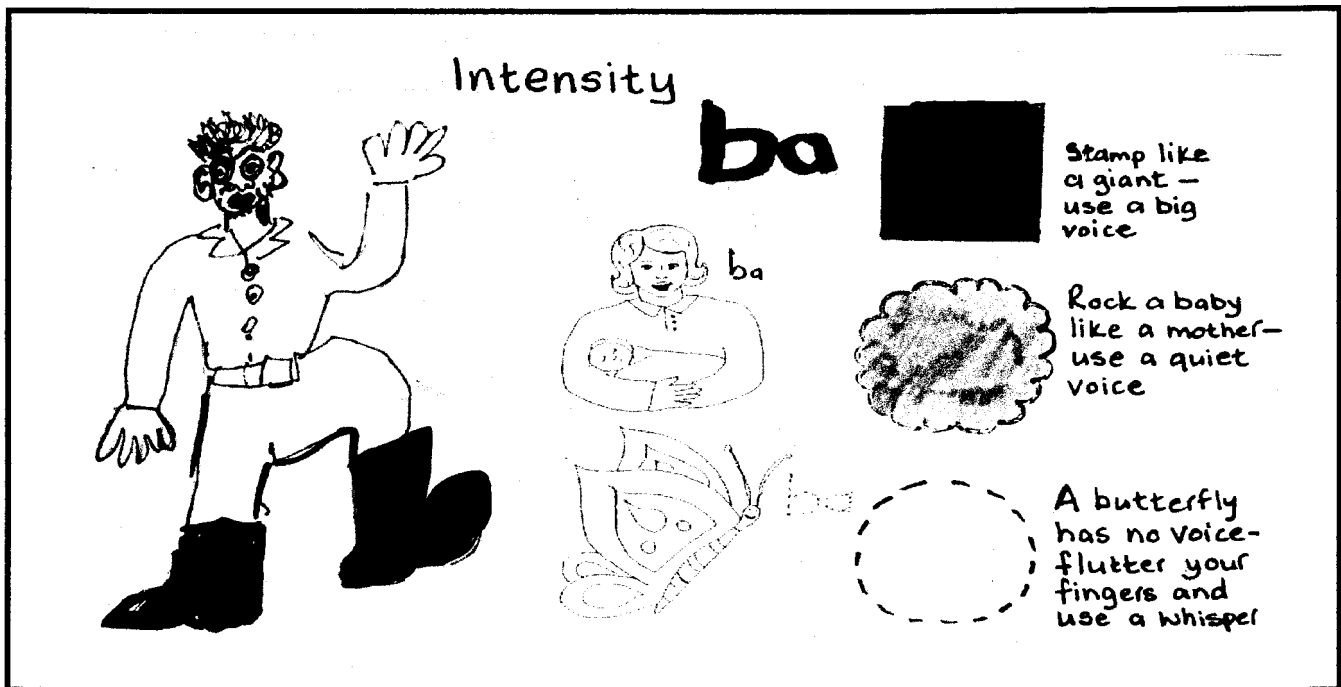
- **Dramatisation is used.**

The is well demonstrated in the intensity sub-skills. This soft utterance is dramatised as a mother gently soothing her baby, a loud utterance as a fierce giant, and the whisper as a voiceless butterfly. This is regarded as communication on a phonological level – even though a meaningless syllable is used, it is used to express emotion. Dramatisation is considered to be both child centered – in that it is appealing to pupils – and as vocally healthy, both because the focus of attention is not on speech production. Physical movement is regarded as promoting bodily relaxation, which in turn promotes the laryngeal relaxation necessary for healthy vocalisation.

- **Analogous physical movement is used.**

This is considered to be important on two counts. Firstly, analogous movement provides a gestalt for speech production – for example banging the fist simultaneously with production of a loud utterance, physically facilitates the target intensity. Secondly, attention is taken of the larynx as the initiator of voice production – the noxious effect of laryngeal tension has been noted repeatedly (Chapter 2). Figure 6.11 and 6.12 illustrates these principles.

**Figure 6.11 : Dramatisation and bodily movements incorporated into Ling's (1976) subskills relating to intensity**



Source: Extract from a booklet entitled "Speech Is Fun" which forms part of the proposed speech programme.

Figure 6.11 demonstrates how dramatisation and bodily movements are incorporated. The dramatisation of each character suggests a different vocal intensity, forceful stamping of a giant for a loud utterance, gentle rocking of a mother for a soft utterance, fluttering fingers and waving arms to represent a butterfly for a whispered utterance. Colour provides a visual illustration of differences – dark black for a loud utterance, soft blue for a soft utterance and no colour for a voiceless utterance. Additionally, analogous kinaesthetic hand movements highlight differences. The dark square is 'banged' forcefully with the fist while producing a loud utterance, the cloud stroked gently while producing a soft utterance. The fingers do not touch the dotted circle, which represents a whispered utterance, but flutter above it, thereby denoting a different vocal energy.



### 6.5.3 SEGMENTAL DEVELOPMENT: VOWELS AND DIPHTHONGS

Less emphasis is given to the development of vowels and diphthongs than to consonants for two reasons - achieving correct production as a result of formal intervention is regarded as unrealistically idealistic, because of the amorphous and exceedingly complex targets required for correct production of vowels. Vowels are considered to have a greater leeway in terms of intelligibility than consonants.

The range, which occurs with vowels, rendering them comprehensible even when they are distorted, is not regarded as extended to consonant production to the same degree. Consonants are more narrowly fixed in production for them to be intelligible.

The importance of vowels as carriers of suprasegmental features, including emotionally laden cadences and inflections, cannot be ignored. These complex elements, valuable though they are for the hearing listener, may not be accessible to the Deaf speaker. Tilting at windmills must prove a fruitless and frustrating task for pupil and teacher alike.

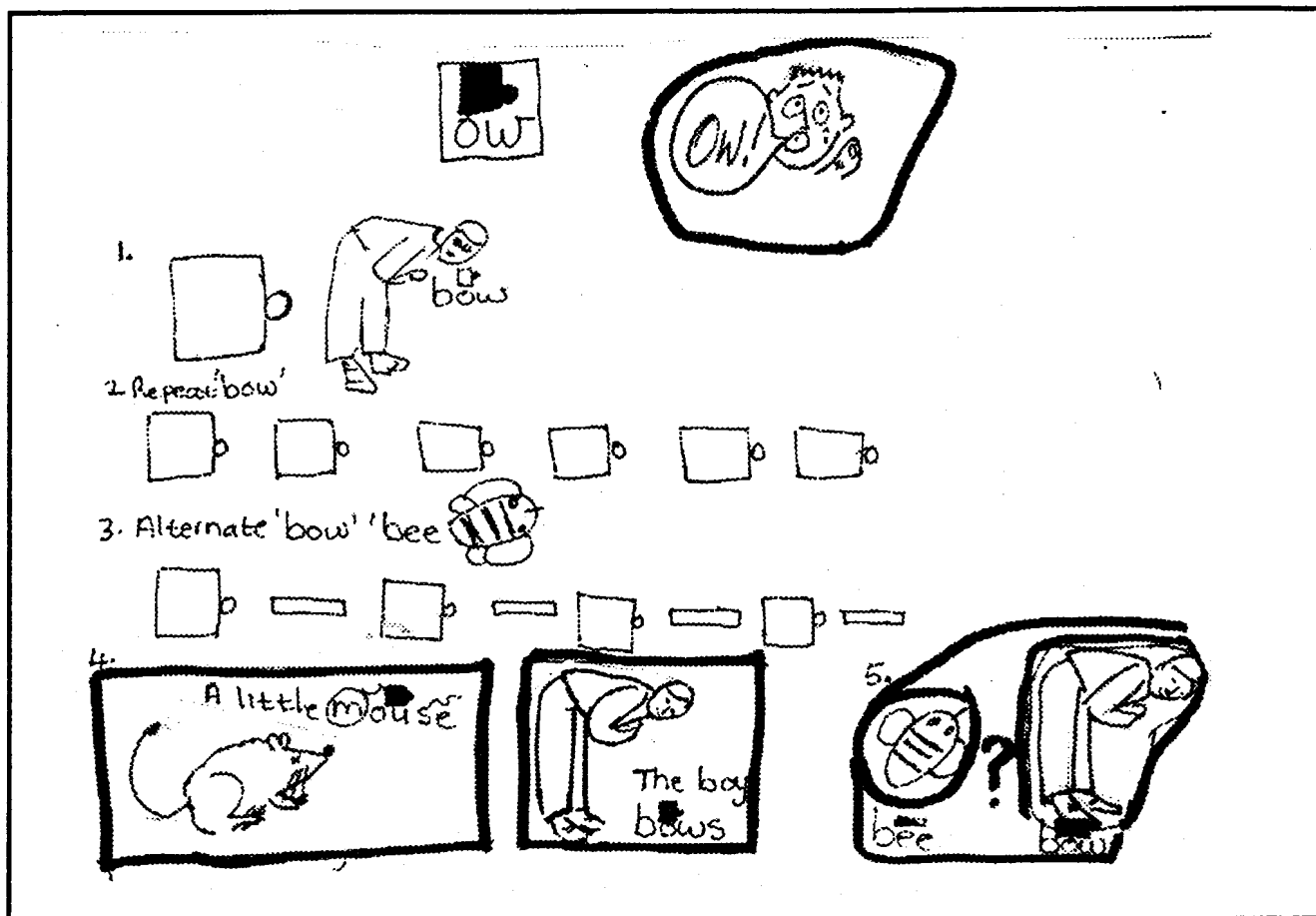
Accessible aspects of vowel production are reached via three avenues:

Firstly, by demonstrating tongue height – this is done through hand analogies. Secondly, a limited avenue, using diacritical symbols to demonstrate lip shape. Although this strategy is largely superfluous to demonstrate vowel production – as degree of lip rounding or spreading is a visible feature – it, has merit in developing diphthongs to accentuate that there are two elements.

The vowel drills advocated by Ling (1976) are incorporated into the programme, despite the fact that incorrect vowel production may be elicited and even reinforced. The rationale is that such drills, because voice is produced, may aid vocal fold development and consequently improve strength of vocalisation.

There are clear departures from Ling's philosophy. Firstly, drills are orthographically depicted – vowels are written. This is not congruent with Ling's policy of oral imitation. Secondly, vowels are used, communicatively, at a phonological level. This is demonstrated by Figure 6.12.

Figure 6.12 : Example of the drill pattern for /aʊ/; modified from Ling (1976).



Source : Extract from speech booklet entitled 'Fun With Vowels' which forms part of the proposed speech programme.

Figure 6.12 demonstrates use of diacritical symbols for diphthongs. In this example, a combination of symbols for /a/ and /ʊ/ are given. The second part of the diphthong is graphically indicated as a smaller component. The sequence of Ling's drill scheme is followed in that the diphthong is produced singly (#1), then repeated (#2) and alternated (#3). Formal auditory training is incorporated as recommended by Ling (#5). Provision is made for pupils with sufficient audition to discriminate between 'bow' and 'bee'. The diphthong is used phonologically to indicate expression of pain and the action of bowing.

#### 6.5.4 SEGMENTAL DEVELOPMENT OF CONSONANTS

In contrast to the lack of accessibility described for vowels and diphthongs, consonant development is considered to be a realistic goal. Because of this tenet the major thrust of the proposed programme centres on consonant development. Several principles are followed:

- Certain consonants are **paired**. This was described earlier in the chapter. Specific consonants that share visemes, voicing features and place of articulation are developed in juxtaposition in order to heighten orosensory perception.
- Consonants are **graded** according to level of difficulty. Front consonants are easier to develop than back consonants and are generally taught before back consonants. This principle has exceptions. For example the velar /k/ is taught before the alveolar affricate /tʃ/. This is because /tʃ/ is used less frequently in connected speech than /k/ and a /s/ could substitute in some measure for a /tʃ/, whereas no substitution is available for /k/. Consonants are graded according to five levels. These are set out in Table 6.6.

**Table 6.6 : Graded levels of consonant development**

<b>Level 1:</b>	/b/ and /m/ ; /f/ ; /p/ ; /s/
<b>Level 2:</b>	/t/ and /s/ ; /n/ and /l/ ; /h/ ; /w/
<b>Level 3:</b>	/k/ ; /ŋ/ ; /r/ ; /j/
<b>Level 4:</b>	/tʃ/
<b>Level 5:</b>	All voicing discriminations

Source : Original

Table 6.6 details five levels of consonant teaching. One group of paired phonemes occurs in Level 1 (/b/ and /m/) and two in Level 2 (/t/ and /s/ and /n/ and /l/). Ling's (1976) sequence for development of blends is followed.

The correlation of increased age and speech proficiency that occurs automatically for hearing children does not apply to hearing-impaired children. Therefore age norms cannot be applied to levels of phoneme development. Using a rough guide, Level 1 should be completed during the first two years of school attendance – the nursery section; Level 2 in the junior primary section and Level 3 by the end of primary school.

- Little emphasis is placed on the distinction between surd and sonant pairs. The rationale for this was described in the theoretical research (Chapter 2) and was borne out in the empirical research (Chapters 5). There are two reasons for this lack of emphasis firstly consideration of the complexity of the task, the seemingly simple function of voice/voiceless contrast is more than the presence or absence of vocalisation, it translates into a complex vocal skill which may not be an attainable goal, and secondly, substitution of one cognate for another is regarded as relatively unimportant in terms of intelligibility. For the most part the voiceless cognate is taught. This is true for:

*/f/, /θ/, /s/, /ʃ/, /t/, /k/*

There are several speculations that support this choice.

- Voiceless consonants are less likely to develop naturally as they require a change in the position of the vocal folds. They are not in contact for aspiration in contrast to adduction and abduction, which occurs during vocalisation.
- The precise, relatively incorruptible nature of voiceless consonants, particularly fricatives, gives a clear signal that improves intelligibility.
- In agreement with Ling (1976), drilling vowels released by aspirated fricatives is important for prevention of nasal resonance.
- Incorrect voiced substitution word - finally is more detrimental to intelligibility than incorrect voiceless substitution.

### **6.5.5 PHONOLOGICAL DEVELOPMENT**

Intervention on a phonological level is strongly featured throughout the programme. This, is even evident in suprasegmental exercises. A pupil dramatising a giant stamping while vocalising /ba:/ loudly or producing the vowel /a:/ to express a feeling of pleasure, is engaged in meaningful communication on a phonological level. Once developed, phonemes are practised in the context of words and phrases. Songs, poems, dramatisation and incidental work on the blackboard – are vehicles for development of phonological speech.

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### **6.6 FIT OF THE PROGRAMME TO THE EDUCATIONAL PARADIGM**

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Developmental research was defined as needing to fulfil two criteria – scientific credibility and practical applicability. The previous discussion has centered on – scientific credibility. To this end, theoretical principles that underpin the programme were described. This section views the practical applicability of theory. The goal is that relevant theory does not remain idealistically contained in an ivory tower, but is transported to the real world of the classroom. This addresses Ling's (1976) cogent criticisms that more PhD's have been earned describing problems than trying to solve them and that what is known scientifically does not find its way into the classroom. Before scientific knowledge can be transformed into classroom practice the current medico-pathological paradigm familiar to communication pathologists, needs to be transformed into an educational paradigm suitable for teachers.

The educational paradigm can be divided into three parameters:

The learner – the individual who because of a hearing loss attends a special school for the hearing impaired; the teacher – the person responsible for the general education of the learner who is also responsible for speech development; school structures – the educational systems operant in the school. Each of these is discussed below.

### 6.6.1 THE LEARNER

A crucial all encompassing philosophy underpinning the programme is that the learner is infinitely more than a vehicle for speech acquisition and improvement. The same principles that are sacrosanct in general education hold sway for the education of the hearing-impaired. The psychological integrity of the pupil is foremost – no skills is deemed worthy of compromising this. Speech development is subservient to psychological health. In agreement with (Northern and Downs, (1976:308) development of speech proficiency is certainly not the first goal. Once again their quoted maxim is pertinent, “Intelligible speech in an emotionally disordered mind is a useless function”. Descriptions of abuses by past pupils cannot be ignored. The empirical research conducted in this study (Chapter 5) bears witness to this. Speech instruction is subject to the same psychological requirements as set for other subjects.

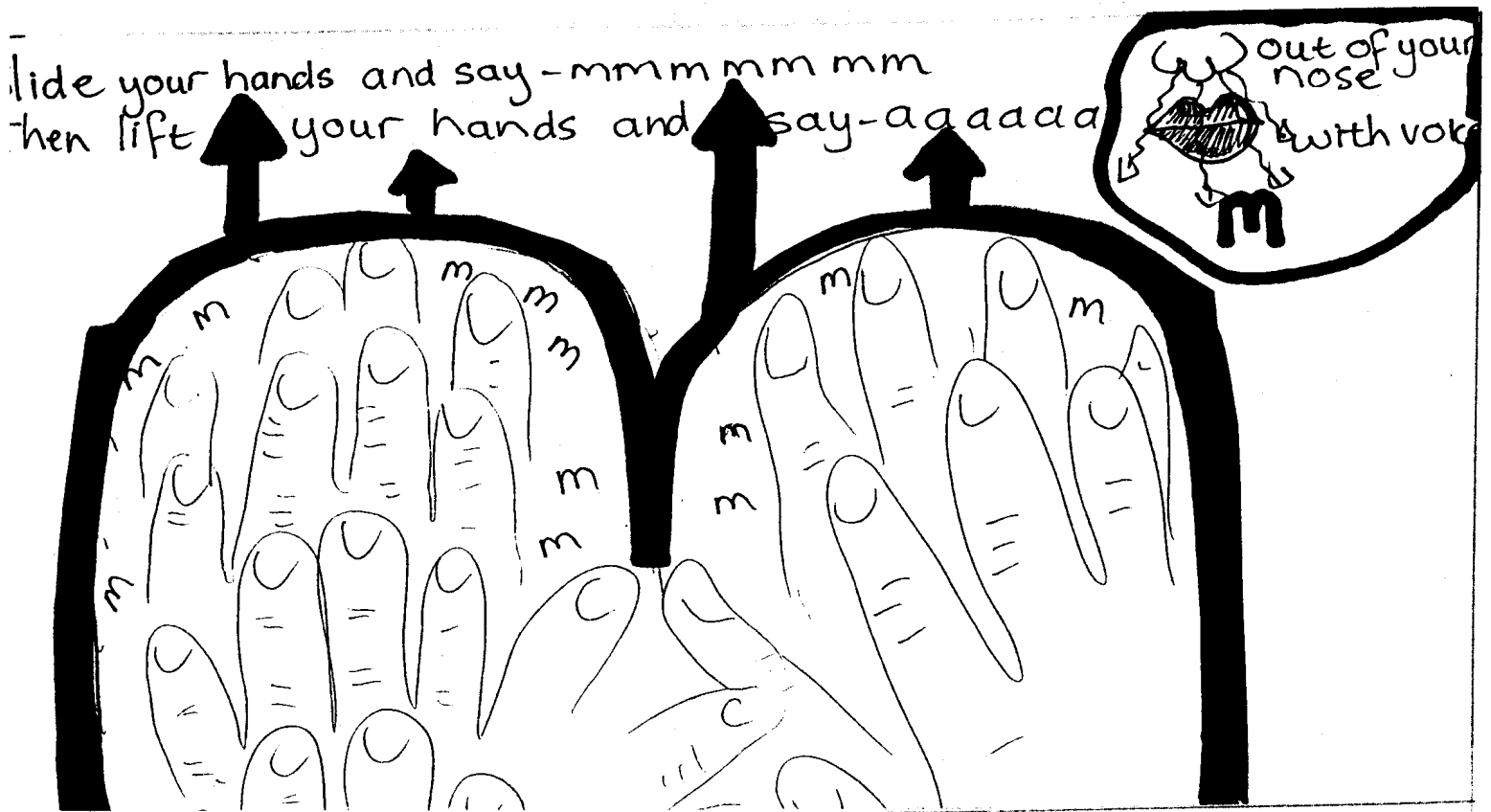
Fulfilment of these considerations is evident in many aspects of the design of the programme. For example speech material is child-centered, illustrations and explanations are designed around the needs of the learner. The need for variety and challenge are addressed despite the necessity of repeated cycles of intervention. To this end motivation, is tailored according to chronological age in order that the material is psychologically appropriate. Speech and age levels may be vastly disparate. Empirical research (Chapter 5) described how older children objected to material they regarded as inappropriate.

There are three levels of motivation.

- **Level one : nursery school**

The main thrust is intrinsic enjoyment. As Ling (1976) notes, hearing-impaired children may not experience pleasure in using voice. Enjoyment is regarded as a key factor towards healthy vocal development – dangers of vocal tension were described in Chapter 2. The young child who is directed to concentrate on vocal functioning may be engaged in an activity that is not pleasurable, and consequently endangers healthy vocal development. Figure 6.3 demonstrates how intrinsic physical pleasure in vocalisation forms the basic component of motivation.

**Figure 6.13 : Intrinsic enjoyment of vocalisation, in the development of nasal/oral/differentiation for the nursery school pupil**



Source: Extract from a booklet entitled "... is Clever", (the dotted line indicates a space for the pupils' name to be inscribed) that forms part of the proposed programme.

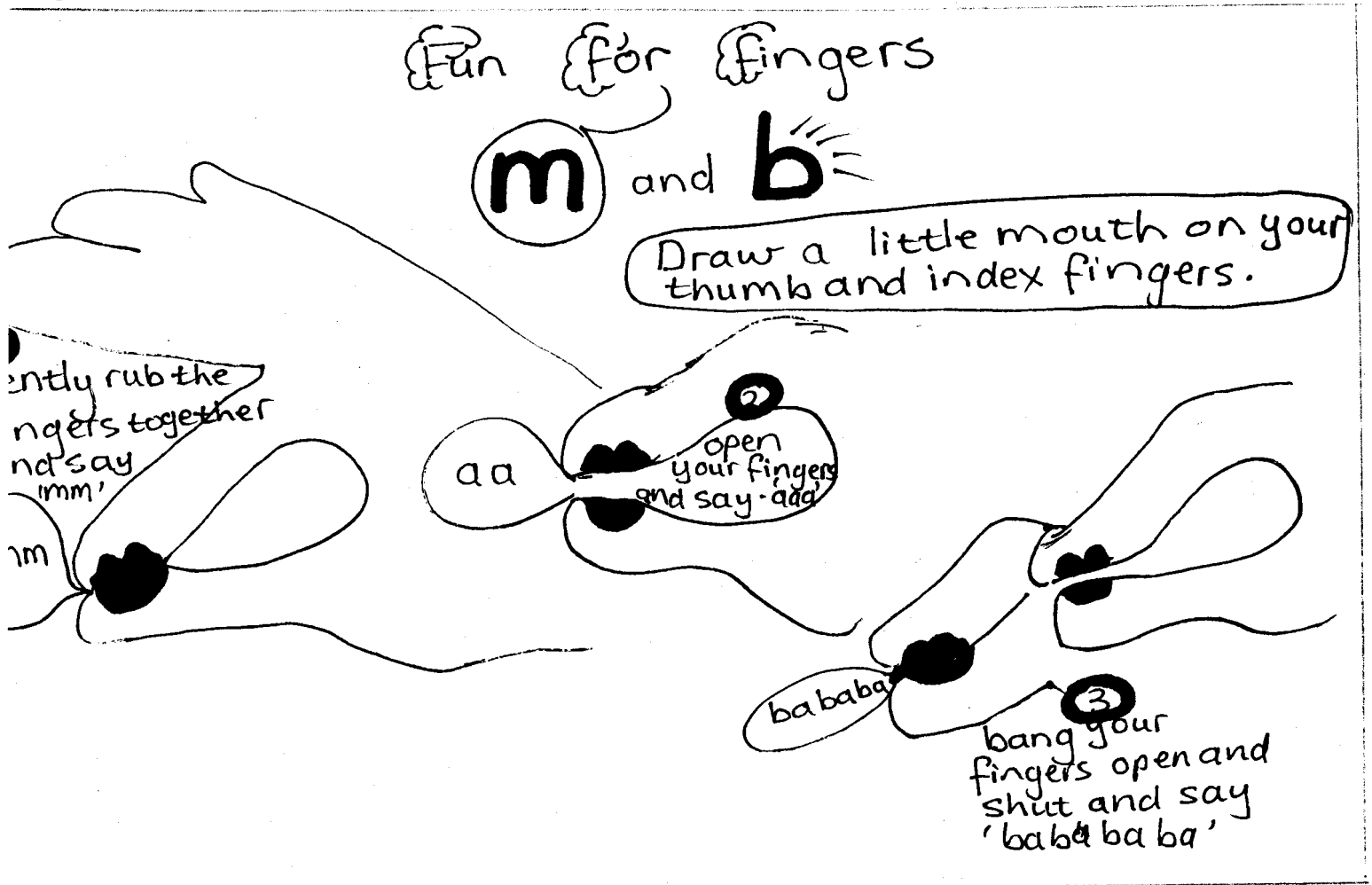
The young pupil, in a Montessori-type approach, engages in repetitive physical activity which is pleasurable. The hands slide touching the page for production of /m/. This emphasises lip contact and the feature of continuity. The hands are then lifted during extended production of /a:/. This indicates a contrast with the previous manner of production. Lifting the hands suggests a freeing action analogous to a free voice – unbounded by contact with organs of articulation. Reading behaviour is incorporated, the shape of the /m/ grapheme is exploited, the hands fit into the two cuppola's that form the grapheme.

- **Level two : primary school**

Novelty and pride associated with reading and writing are incorporated. The pupil learns speech as part of reading, writing, spelling. Enjoyment associated with cognitive challenges is introduced.

This is demonstrated in figures 14 and 15.

Figure 6.14 : /m/ and /b/ differentiation using a kinesthetic and orthographic avenues, for the primary school pupil



Source : Extract from a booklet entitled "Let's Speak Beautifully" which forms part of the proposed programme

The primary school pupil experiences kinaesthetic pleasure which facilitates correct production, the contrastive actions of rubbing versus pressing the fingers provides analogous kinaesthetic reinforcement for the features of continuity, versus stopping necessary for /m/ and /b/ differentiation. The nursery school pupil would not have the dexterity to manipulate the fingers in this way, and the senior pupil would find such play childish. The junior school pupil however will enjoy and be able to execute the finger puppet dramatisation.



Figure 6.15 : Phonological development of /f/ for primary school pupils

Now think of all the words you know with the windy **f** sound

Sometimes **f** words are spelled differently  
Look at these:—  
lau **f** **f**  
photo **f**

Say these words beautifully. Feel the **f** on your hand  
hello **f**  
fish **f**  
after **f** farm **f**

Who's names have **f** sounds in them?

words.  
beginning middle end  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Have you read the story of Jack and the Beanstalk?  
**f** **f** **f** **f** **f** **f** **f** **f**

Cut out pictures that show words with an **f** finding **f**'s is **f**un!

Hello I'm a clown I like **f**un  
four **f**

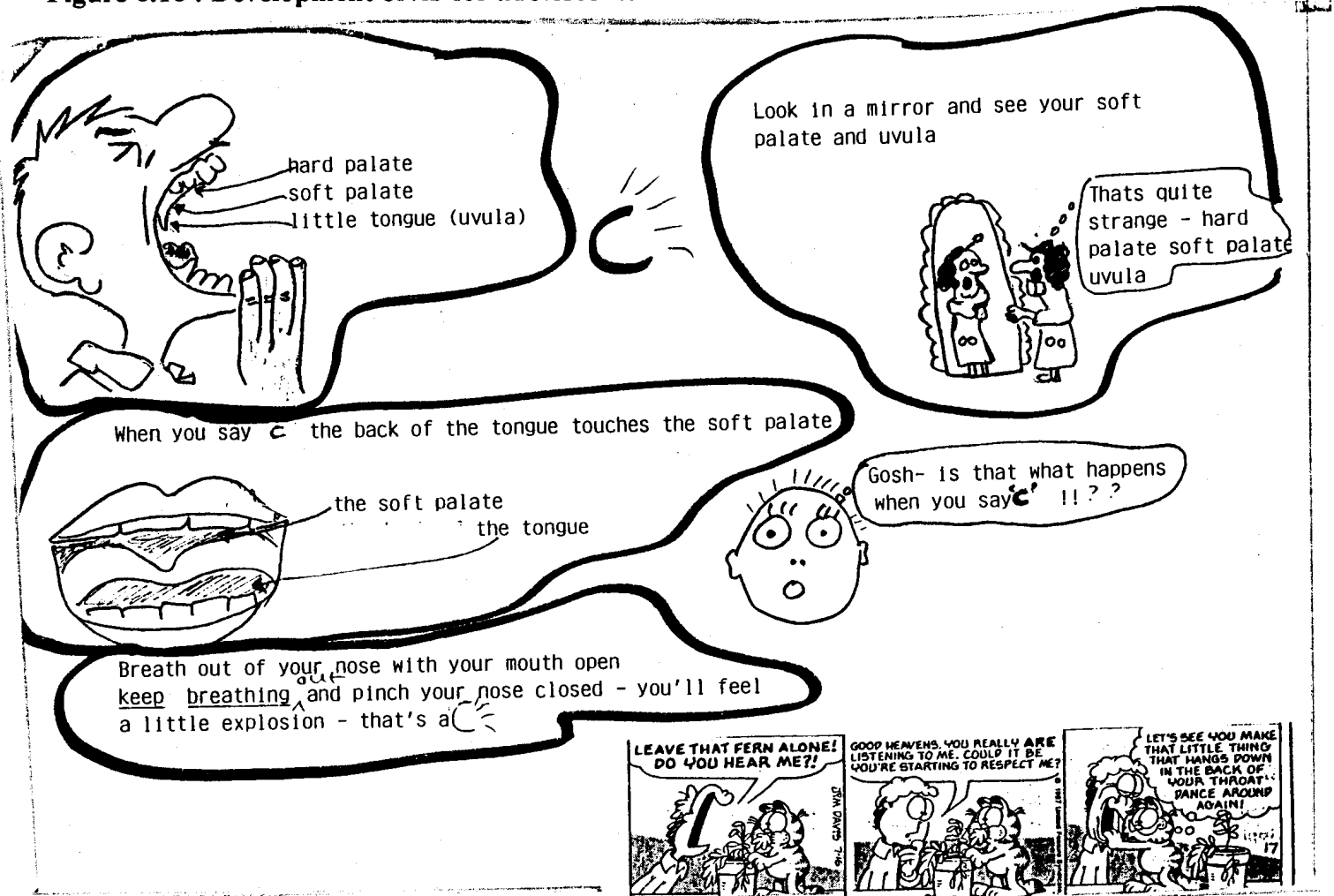
Source : Extracts from booklet entitled "Let's Speak Beautifully", which forms part of the proposed programme.

Figure 6.14 shows how although kinaesthetic input remains a feature spelling is now incorporated. The book is personalised by providing an opportunity to include familiar names. The activity of finding words containing /f/ in magazines and cutting and pasting them aids class organisation. The teacher has an opportunity to help individual pupils while the class is constructively engaged. The same diacritical symbol of aspiration provides the continuity.

• **Level Three: high school**

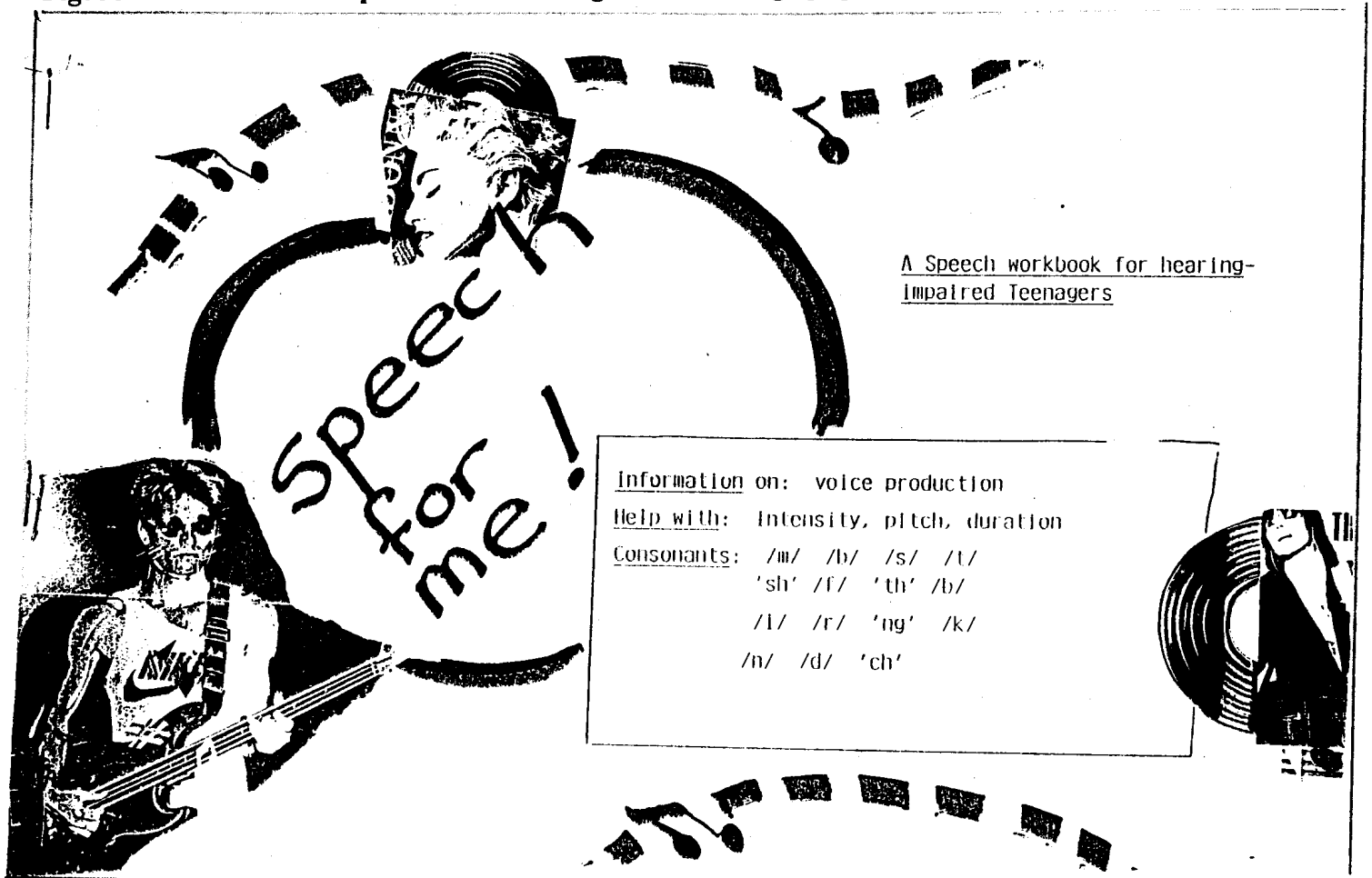
This addresses adolescent pupils. The approach is suitable for more mature students. Material is designed so as not to be insultingly inappropriate in terms of age. This is demonstrated in Figures 15 and 16.

Figure 6.16 : Development of /k/ for adolescents



Source: Extract from a booklet entitled "Speech for Me" which forms part of the proposed programme.

Figure 6.17 : Cover of a speech booklet designed for teenage pupils



Source: Extract from a booklet entitled 'Speech For Me' which forms part of the proposed programme

The cover is designed to appeal to teenagers and not appear childish.

## 6.6.2 THE TEACHER

In a regular school, speech problems are dealt with by a communication pathologist. However, congruent with the view of Ling (1976) in a school for hearing-impaired children responsibility for improving speech devolves on the class teacher. Empirical research identified problems that teachers face in this regard. These included lack of training, time, evidence of progress, problems of class organisation, perception of pupil negativity. The programme addresses a large number of these problems.

### 6.6.3 SCHOOL SYSTEMS

A school is more than a physical building that houses learners and teachers. It is an organisation that has conduits for imparting knowledge which operate according to established principles.

- **Written systems are available**

This is exemplified by the concept of a syllabus. Reading, arithmetic or writing schemes are usually available as concrete entities in the form of books. To this end graded speech workbooks form part of the programme. They stand as a permanent, concrete system which provides a greater chance of continuity being less vulnerable to changes of personnel.

- **Incremental continuity is present**

There is a system whereby pupils advance through the school in a continuous, pre-planned way – the next class continues instruction at an appropriately higher level. As Campbell (1980) pertinently notes in relation to speech teaching, lack of continuity across the school will mean pupils need to adjust to marked differences of approaches which may compromise efficient learning. To this end, the proposed programme has a consistent approach.

- **Evaluative procedures are established**

Schools traditionally evaluate progress, often on a pass/fail continuum.

Evaluation for speech development differs. One aspect of traditional evaluation is appropriate, namely, keeping a record of progress. This occurs with the use of speech booklets which are written records of individual progress.

- **Designed for the class context.**

Generally school education occurs in classroom settings. This is congruent with the proposed speech programme as significant percentage of instruction occurs in a class context, thereby allowing the teacher to work in a familiar situation. Not only is group work convenient in terms of the time constraints, it also generates a stimulating dynamic that may be absent from tuition in an individual setting. This is particularly pertinent to creative activities such as songs, poems and drama.

- **Based on traditional structures**

A programme is more likely to fit into the school situation if it is congruent with traditional learning practices. Several aspects of the proposed programme reflect this.

- **Use of graphemes**

Involvement with graphemes is pivotal to traditional education, for example spelling, reading and writing. Use of the grapheme is similarly central to the speech programme. Additionally, diacritical symbols are considered to heighten awareness of graphemes by directing attention to aspects of speech production. It may be that this emphasis promotes learning that goes beyond speech improvement. The hearing pupil has an a priori knowledge of the element of production the diacritical symbol represents via the avenue of hearing. For example, aspirated frication is available to the hearing pupil but not to the hearing-impaired pupil. Diacritical symbols may in some way compensate for information lost due to impaired auditory acuity, thereby rendering the grapheme more accessible to learning.

- **A whole language approach.**

Linked to the aspect above, congruent with modern tenets of education, a Whole Language Approach is followed. This means that speech is incorporated into diverse areas including graphemes but also to creative activities, such as drama and singing, and other subjects, such as history and biology and also language.

- **School entrance is qualified by chronological age.**

The programme is designed for pupils of school going age; it is not appropriate for younger learners for four reasons that have been described previously, interspersed in other aspects of the study. They are presented together at this point, demonstrating the integral nature of the union of medico-pathological and educational paradigms. Firstly, the consideration of the physical maturity of the speech organs. Iatrogenic harm may occur where too much is required of immature organs. Secondly, the level of mental concentration required during speech instruction is not suitable for younger pupils. Thirdly adequate conceptual development is required to comprehend graphemes which form a significant focus of the programme. Fourthly, speech is considered to be best learned initially by enriching the auditory avenue. This programme would cause competing sensory pathways to occur which would detract from full development of audition.

- **Apparatus is congruent with the school situation.**

Apparatus is not a superficial nicety, but is kernel to theoretical principals. Booklets, for example, do not only function as traditional vehicles for lesson schemes, they also provide an efficient

infrastructure for auditory training. Fortuitously traditional, school apparatus, namely, printed books, the blackboard and the empty notebook, are well suited to theoretical constructs.

- **Graded booklets** containing lesson material perform five important functions. Firstly, booklets are a source of continuity, secondly they provide an evaluative record of progress. Thirdly, they offer opportunities for auditory training. When reading a book to a child the teacher's mouth is obscured. The child therefore focusses on the auditory signal which is enhanced by the grapheme. Fourthly, in tandem with lesson material, booklets provide an opportunity for teacher training. Fifthly, they are vehicles that naturally fulfil the requirement of repeated cycles of intervention, A booklet is re-read many times as is a favourite story. Psychological issues are also addressed by their design. Booklets are not condensed into one single volume but appear as numerous thin editions. This gives tangible expression to the concept that speech development occurs as small, incremental gains. This strategy may prevent teachers from feeling overwhelmed at the enormity of the task. A further psychological consideration is the deliberate de-emphasis of a medico-pathological approach. Illustrations are cartoon-like and child centered and terminology is appropriate for teachers and pupils. This is considered to reinforce the concept that speech development fits an educational paradigm and as such is the responsibility of teachers. An additional psychological consideration, is the potential for individualisation. Booklets make provision for inclusion of personal data, such as the pupil's name, the names of family members and opportunity to be coloured. This means that the pupil is encouraged to see the programme as reflecting his own individuality and not as an impersonal textbook. Sixthly, booklets provide a platform for inclusion of a multi-disciplinary team. Parents are provided with an opportunity to observe and positively reinforce progress and other school personnel can give complementary instruction.

The next piece of apparatus is the ubiquitous **blackboard**. It offers practical advantages in that it is cheap, hardy and an established education aid. It is also a vehicle for propagating theoretical constructs. Firstly, auditory training is naturally achieved using the LRS method – the focus is on written material, not the teacher's mouth. Teacher training will be needed to incorporate this concept. A teacher who, for example, bangs emphatically on the board while speaking will obscure the auditory message. Secondly the black board provides a structure whereby incidental schoolwork can be transformed into material for speech development. Correction of speech within a meaningful language context is realised. Thirdly, group speech is facilitated. The blackboard is of particular value in poetry and singing because the class can be vocally co-ordinated, an otherwise difficult task with pupils who have hearing losses.

The final piece of equipment is the **empty notebook**. This performs a variety of functions. It is used to illustrate poems while the teacher gives individual help. In this way the problems of class organisation are addressed. It is also used to record individual speech problems and to incorporate other aspects of education such as dictation of poems learned during speech for spelling development, practising writing skills by copying poems, language exercises based on speech activities, and pasting pictures representing phonemes targeted.

The description above shows that apparatus and theoretical tenets are interconnected.

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## 6.7 CONCLUSION

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Bishops's (1980: 420) petition quoted earlier is re-examined in the light of the description of the proposed programme:

“This is a time for boldness in our approach to the complex challenge of facilitating speech in profoundly deaf children. Traditional approaches have at best been marginally successful with a few notable exceptions. Unfortunately the exceptions are more the result of personalities than they are the result of effective processes. If we are to gain significant improvements we must be willing to break with tradition and take significant risks”.

The programme breaks with tradition and proposes significant risks. However, paradoxically in as much as originality and departure from traditional practices are viewed as strengths, so are inclusions of past contributions. The need for new solutions does not preclude incorporation of established systems that have merit – the baby should not be thrown out with the bathwater. Acknowledgements are made to influences of previously established theories. Ling's theories have a major impact. This is seen in the inclusion of his programme for suprasegmental development consonant and vowel drill patterns. All are used extensively – albeit in a modified form. Additionally, his philosophy that teachers assume the primary responsibility for speech development is kernel to the proposed programme. van Uden's philosophy on writing as an auditory support, graphic design for stress

patterns, and the hand analogy for /s/ are featured. The Listening Reading Method, designed by the Ewings is pivotal. Additionally hand analogies are used in a similar manner. Sneddon's rhythmic drill patterns, designed for hearing learners, are incorporated. A system of bodily movements, as cognitive analogies for speech and antidotes to physical tension are used in a similar manner to Guberina – albeit without the use of amplification vibratory adjuncts. The tenets of the Whole Language Approach are well represented – a holistic approach is followed. The manner in which phoneme-viseme confusion is viewed as a single causal factor to explain a wide variety of faults is in philosophical agreement with the phonological approach to the diagnosis of speech faults.

Technological advances are not included despite their potential merit. Major reasons for exclusion are the expense and technical knowledge required for their implementation.

The final chapter provides a brief evaluation of the study.



## **CHAPTER 7 : EVALUATION AND CONCLUSION**

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### **7.1 INTRODUCTION AND CHAPTER OVERVIEW**

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The final chapter has two broad goals – to assess the fulfilment of the aims delineated in Chapter 1 and to evaluate the proposed programme. In order to realise these objectives the chapter opens with an assessment of the fulfilment of the aims set out in chapter 1 then proceeds to an evaluation of the proposed programme and makes recommendations for future research.

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### **7.2 FULFILMENT OF THE AIMS OF THE STUDY**

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The three aims described in Chapter 1 – theoretical, empirical and developmental – have all been attained. Theoretical constructs support empirical investigation, and both combine to validate the developmental contribution, namely the proposed programme. Although the proposed programme is placed at the end of the thesis the strands of conception and validation are spun in Chapter 1. Each subsequent chapter adds new threads, inextricably interwoven to form a strong connection with the proposed speech programme. Without these precursors the proposed programme would stand as an idiosyncratic work, unconnected to broader issues in Deaf education or theoretical constructs. Contentions issues of the oral/manual controversy are taken into account as are practical problems, such as lack of teacher training. The detailing of theories of speech teaching – historically, contemporarily and potentially – provides insight into the choices that underpin its hermeneutic basis. Empirical research is extensive because of a lack

previous investigation. Finally, cumulative information of the earlier chapters crystallises in the proposed speech programme.

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### 7.3 THE CONTRIBUTION OF THE PROPOSED PROGRAMME TO SPEECH SCIENCE FOR THE DEAF

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Several major contributions are proposed:

- **The transformation of speech teaching from a marginalised activity to one that is part of the normal education programme.**

Speech instruction no longer detracts from but rather enhances academic learning.

- **The transformation of speech teaching from a rare skill limited to a few highly trained professionals to one that is accessible to all educators, particularly class teachers.**

The essence of the programme is that it simplifies speech teaching so that it can be implemented by non-specialists in speech instruction. Additionally it enables them to study other theories, particularly Ling (1976). Every element of Ling's (1976) sequential model is present in the proposed programme, albeit with significant modifications.

- **The transformation of a negative, even abusive teaching situation, into one that is positive, cognitively challenging and creatively fulfilling.**

The emphasis on creativity is accentuated throughout the thesis. Additionally, repetition of correct phonemes, necessary for mastery at a motor level, does not need lengthy, potentially boring sessions. This is because cycles of intervention are repeated, and repetitive drills are therefore given in "small doses". There is a built in structure for variety appropriate for the age.

- **The transformation of a lack of attention to the needs of teachers to one in which their requirements are addressed.**

This is summarised in Table 7.1

**Table 7.1 : Extent to which requirements of teachers are addressed in the proposed programme**

Requirement of Educator	Extent to which the requirement is addressed
<b>Training and resource material</b> <ul style="list-style-type: none"> <li>• Intensive training</li> <li>• Workshops</li> <li>• A person</li> <li>• A video</li> <li>• A written programme</li> <li>• Visual aids showing anatomical information</li> <li>• Computers</li> </ul>	<p>Addressed</p> <p>Not addressed because of lack of suitable personnel</p> <p>As above</p> <p>Addressed</p> <p>Addressed</p> <p>Addressed – cartoon like diagrams in the speech booklets</p> <p>Not addressed – expense and teacher training make this impractical. Few requests were made for computers</p>
<b>Psychological requirements</b> <ul style="list-style-type: none"> <li>• Enjoyable</li> <li>• Protection of self-image</li> </ul>	<p>Addressed</p> <p>Addressed. Individual instruction is featured, where the pupil does not feel compared to peers. Group instruction places less emphasis on the child's performance and more on the teacher's input. An injunction is given to teachers not to regard the learner merely as a student of speech but at all times to give regard to his psychological well being.</p>
<b>Need for technical information related to speech instruction</b> <ul style="list-style-type: none"> <li>• Special help for /k/</li> <li>• Voice help</li>   <li>• Pre-speech exercises</li> <li>• Order of sound development</li> </ul>	<p>Addressed</p> <p>Minimally addressed because of the complexity of the task. Booklets for deviant high pitched and nasal voices are available</p> <p>Addressed</p> <p>Addressed</p>
<b>Group work</b>	Addressed
<b>A written handbook</b>	Addressed
<b>Ready to use</b>	Addressed

Table 7.1 shows that most of the requirements were addressed

- **Can easily be modified for any language that uses the English alphabet**

In South Africa this indicates that the system can be used in Afrikaans and African languages. They are eminently suitable because phoneme/grapheme correspondence is high. Modifications need to be made to include appropriate phonemes, such as the Afrikaans /X/ and /ǀ/ and the clicks of African languages.

#### 7.4 LIMITATIONS OF THE PROPOSED PROGRAMME

Three limitations are apparent:

- **There is a lack of evaluation of the efficacy of the proposed programme.** Empirical research supports the claim that teachers reacted positively to the programme in its preliminary form. However, no definitive claim for efficacy can be made. The theoretical constructs of the programme are untested.
- **No feedback was accessed from Deaf learners for the proposed speech programme.** The preliminary programme was designed in conjunction with Deaf learners. Their reactions were not however, formally evaluated.
- **There is minimal attention to suprasegmental aspects.** There are two reasons for this. The first is that development of natural suprasegmental contours are considered inaccessible to formal teaching and the second, that correction of deviant suprasegmental features is a highly complex task, challenging to even the experienced instructor. Booklets on suprasegmental deviations are available, but are limited in scope.

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#### 7.5 RECOMMENDATIONS FOR FUTURE RESEARCH

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- Evaluation of the efficacy of the programme. A careful design need be followed as a multitude of confounding variables complicates the evaluation of any speech programme. These include the experiment effect and diversity of teacher's ability.
- The opinions of Deaf learners should be formally assessed.

- Attention to suprasegmental aspects remains a problematic area. The conjoining of art and science is inextricable in this area. Possibly video's showing remediation of deviant voices is the best compromise. This remains a challenge for future researchers.
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## 7.6 CONCLUSION

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Gruwer's statement in 1945 (:71) made more than five decades ago, still resonates. "Many teachers are anxious to improve their results but do not know where to turn for help. The scientific studies that have been made have not been interpreted to our teachers in ways they could understand and put to use in their own classrooms".

It is the author's fervent hope that the results of this thesis are a step towards bringing classroom practice and scientific research into alignment.

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## APPENDIX A

### TEACHING TRADITIONAL FAIRY TALES TO YOUNG DEAF LEARNERS

#### 1 Need for incorporation of Fairy Tales into the education of young, Deaf learners

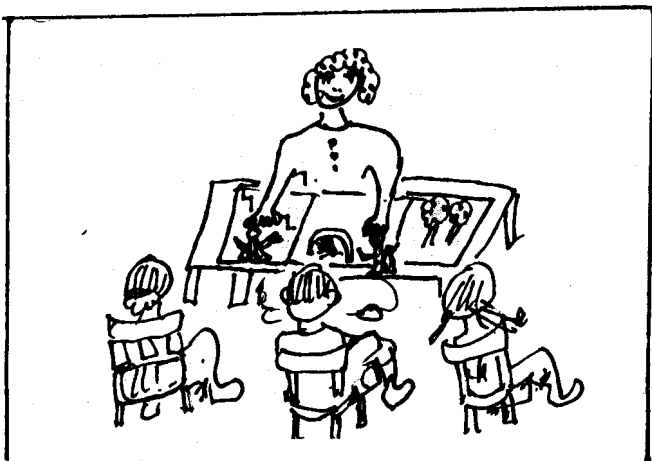
Traditional tales are part of the knowledge base of each culture. In a Jungian sense they are vehicles for transmission of the collective unconscious of mankind (David, 1991). It cannot be assumed that hearing-impaired pupils will gain knowledge if they are not taught directly. A problem exists in that the imaginative, fantastic plot may be complex, and language may be rarefied or archaic. This means that explaining the story at an appropriate time has obstacles. The scheme detailed below shows how these difficulties can be overcome and fairy tales can be dramatised and used as creative channels for speech instruction.

#### 2 Lesson scheme for teaching fairy tales

Five steps are followed. Each fairy tale should take approximately one month to complete. The story of Cinderella is used to illustrate the theory.

- **Step 1 :** The story is told using a miniature stage set and puppet characters. Cardboard, designed as a stage set is placed flat on the teacher's table which is low enough for pupils to see the teacher's mouth. Puppets are manipulated on the stage set (Figure 1).

Figure 1 : Classroom Organisation

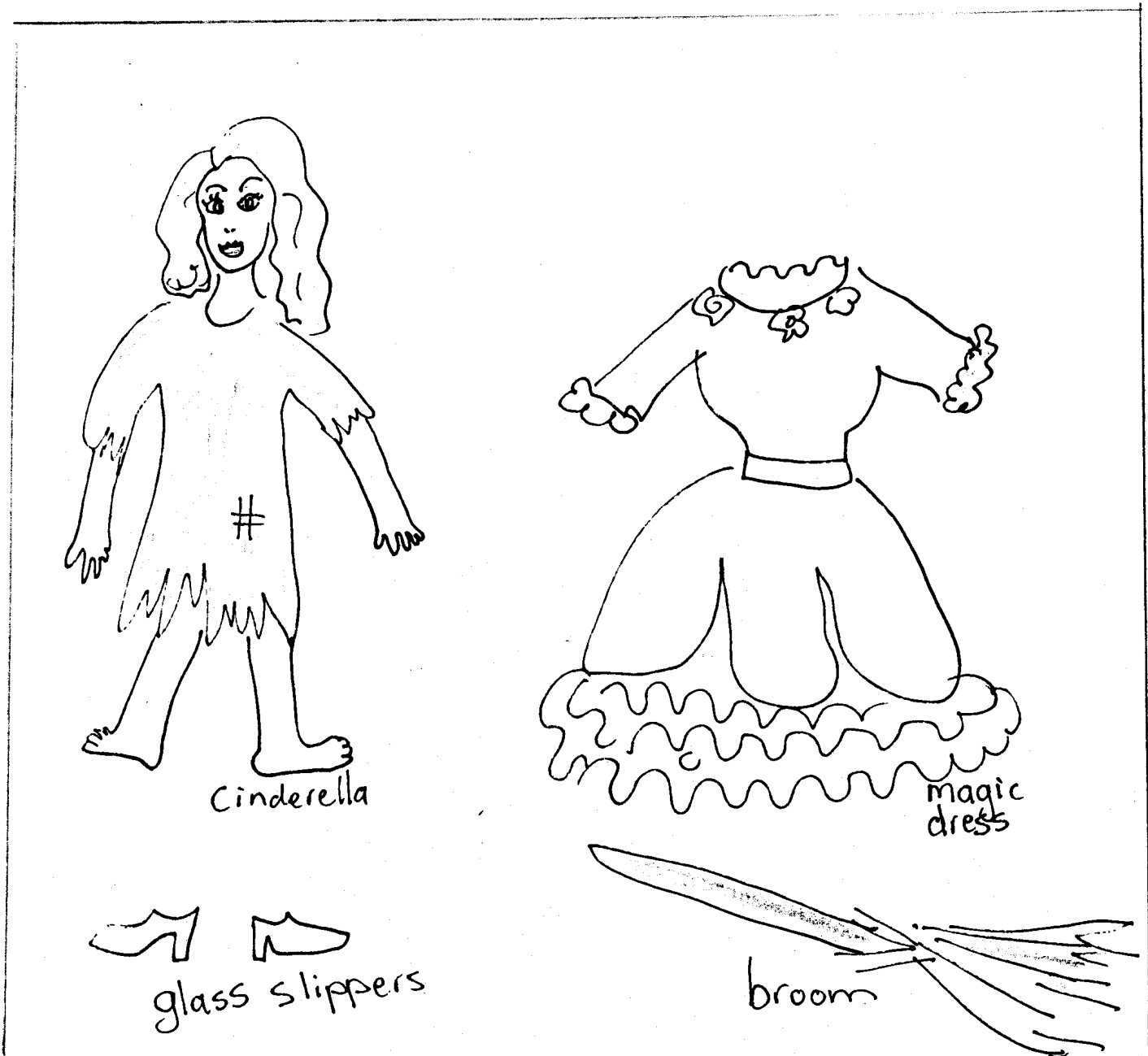


Source : Original

Figure 1 portrays pupils sitting at a suitable height in a semi circle. To facilitate lipreading the teacher sits on a chair at the same height as pupils. Appropriate classroom organisation for hearing-impaired pupils is a vital factor.

The stage set for Cinderella includes areas for kitchen, forest and palace. Cut out figures represent different characters and props. Some of these are shown in Figure 2.

**Figure 2 : Examples of cut out characters and props used to tell the story of Cinderella**



Source : Original graphic

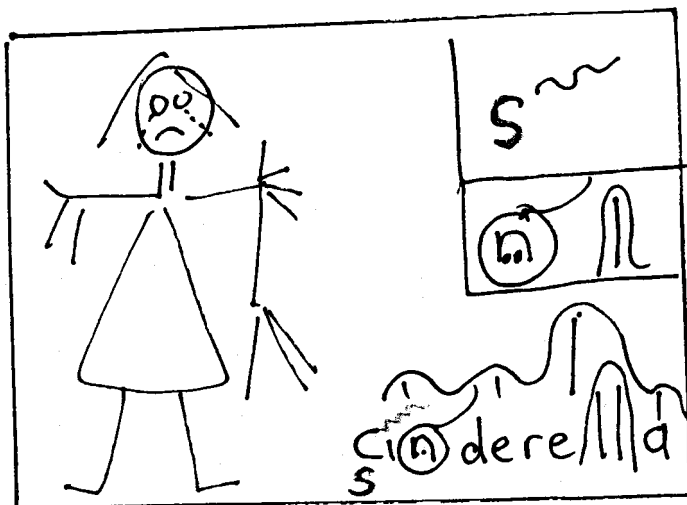
Figure 2 : Shows examples of the actual size of the characters and props. The broom, magic dress and glass slippers can be temporarily attached with commercial putty. The period mood of the story is maintained. This can be seen in the depiction of the broom and Cinderella's dress.

The pupils' focus is on the stage set and cut out characters. This provides a highly effective opportunity for auditory training, as attention is naturally directed on the animation of the stage set, and not the teacher's mouth.

- **Step 2 : Pupils illustrate the story**

The teacher uses this opportunity to help pupils individually. Pictures are displayed in the classroom, creating a focus of ongoing interest and discussion. Figure 3 is an example of a child's drawing accompanied by evidence of the individual help provided by the teacher.

**Figure 3 : Example of a child's drawing with superimposed speech instruction**



Source : Original

Figure 3 shows the type of help the teacher provides. Correction of speech is individualised, based on each pupil's illustration. In this example the teacher helps with stress patterns and the consonants /s/, /n/, /d/ and /l/. The phoneme /r/ is not given any attention as the teacher considers it too difficult at this stage.

## APPENDIX B

### TEACHING SONGS AND POEMS TO DEAF LEARNERS

Example of a lesson scheme for teaching a song entitled, “The Animal Fair”. Nine steps are followed. This scheme should take approximately ten lessons.

- **Step One : Elicit interest**

An activity or dramatisation related to the theme of the poem initiates the lesson. This introduce a playful mood causing speech lessons to be viewed in a positive light.

For this example, pupils can play a guessing game – each pupil mimes an animal and the class must identify the animal dramatised.

- **Step Two : The teacher reads and explains the song in an animated manner**

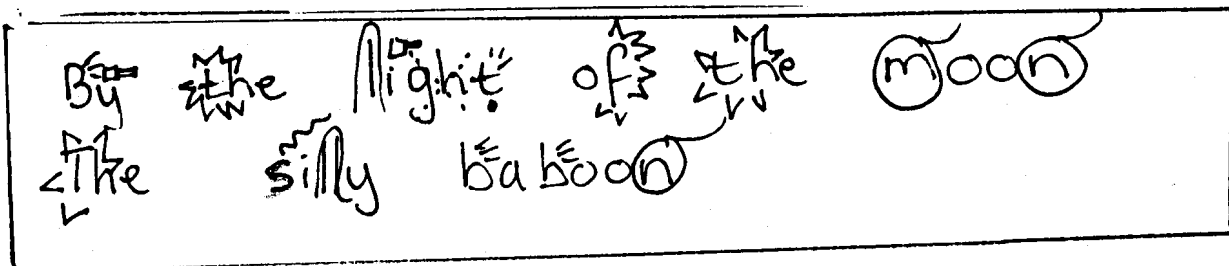
- **Step Three : The song is written on the board line by line.**

A Listening, Speaking Reading approach is used.

- **Step Four: Diacritical symbols and modifications of graphemes are added**

An interactive approach is followed, pupils call out words containing the target phoneme. Challenge and excitement are created as pupils try to be the first to call. A diacritically coded example is provided below.

**Figure 1 : Diacritical Coding**



Source : Original

Diacritical coding has been used for consonants, - /b/ /l/t/v/m/n/s/ - and a diphthong /ɔɪ/. This is done incrementally. Principals of the Listening, Speaking, Reading method are followed.

- **Step 5: Cognitive and motor reinforcement of diacritical symbols**

Various class games are played. For example, the player stands with his back to the board and is asked to recite all the words containing /m/ while the rest of the class watches his challenge good humouredly.

- **Step 6: The class writes the poem in speech books**

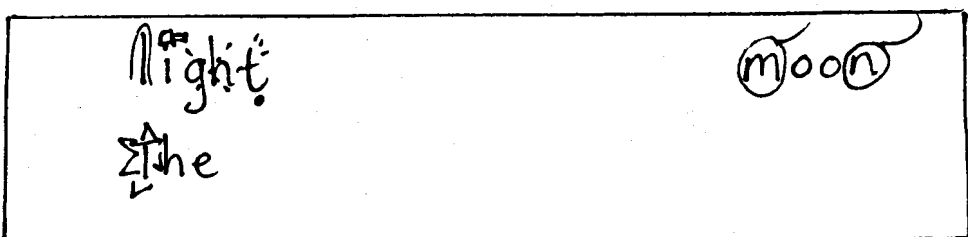
While the class is working constructively and independently, the teacher gives individual speech help. Speech has moved from a group to an individual setting. Other constructive class activities are provided to enable the teacher to give attention to individual pupils. Such activities include learning the poem for spelling-dictation, (recommended by van Uden) illustrating the poem, categorising words containing a target sound according to its position in the word.

- **Step 7 : Teaching pupils to say the poem by rote**

This is important for the development of auditory memory. It is noteworthy that this step is only taken when significant input has been given to speech development. The author considers this a measure to promote generalisation and automaticity of learned skills into spontaneous speech, because correct patterns are learned by rote improved. The poem read aloud many times in unison. The teacher deletes words incrementally everytime the poem is read until the entire poem has been deleted.

This is demonstrated in figure 2.

**Figure 2: A strategy for learning poetry by rote – deleting words incrementally.**



Source: Original

Figure 2 shows that most of the words have been deleted. Repetition assumes a game like approach. The pupil is challenged with each repetition and boredom is obviated. Because of the nature of the handicap, repetition is a strong need.

- **Step 8 : Choral speaking**

The class speaks the poem in unison by memory. The teacher conducts to enable pupils to synchronise speech.

Movement is an important element. Mimed action is used throughout as it creates interest and also relaxes the body which in turn relaxes the speech apparatus which promotes healthy vocalisation. In this example pupil gesture upwards in unison, pointing to the moon.

- **Step 9 : Pupils work in groups to produce their own playlets**

Originality is encouraged. Different classes may combine to perform for each other.

This creates interest and excitement.

The lesson scheme shows how principles of the proposed programme are interwoven. These include provision of a clear structure for group and individual work, opportunity for creativity, incorporation of modalities to enhance speech perception – the auditory/graphic avenue receives particular emphasis – and a holistic approach to speech instruction.



## APPENDIX C

### STEP ONE: THE TRANSCRIPT IS READ AS A WHOLE

The transcript was read as a whole. Outstanding personality features of participants and relevant interpersonal dynamics were recorded. Appendix C provides a more extensive account of the atmosphere and dynamics than chapter 1.

### GROUP INTERVIEWS

#### Focus Group One 5 participants

The interview revealed an existent infrastructure for speech instruction. Teachers demonstrated a strong desire to express generally negative attitudes towards speech instruction. Negativity was strongly directed against communication pathologists for seemingly enforcing a programme based on Ling (1976).

Teacher 2 became emotional to the extent that she reacted somewhat aggressively, and the atmosphere became highly charged. The emotional crescendo was reached in the excerpt below. “Teacher 3 (Page 9): “Ek het net die spiëel en myself as voorbeeld. Kyk ons vra vir die spraakterapeute maar ek wil nie. Ek wil dit ook self hê. Verstaan jy nou? “ Teacher 3 is highly emotional at this point).

(English translation: I have just the mirror and myself as the example. Look, we ask the speech therapists but I don't want to. I also want to have (the skills). Do you understand now?”)

The aggressive and emotional outbursts was confusing because Teacher 3 had been interviewed the previous year in a single interview situation and was then labelled “the Positive Teacher”. Various suppositions can be made to explain her radical change of attitude. Firstly it is possible that she did not reveal true feelings in 1994 as she may have felt less confident in a one-to-one interview situation. Secondly, she may not have been in touch with her true feelings at that time because (as she states in that interview) she felt it was her duty to teach speech and consequently she may have suppressed negative feelings. Hearing other teacher's express

negative sentiments may have allowed her own negative feelings to surface. Thirdly, she may not have revealed her true feelings in the group interview because of peer pressure – other teachers state they find speech teaching a negative experience and she may have felt constrained to agree with them. This third explanation does not seem plausible as her responses in the group were spontaneous and unambiguously negative in contrast to her more controlled ambivalent responses in the single interview; fourthly, she may have started off optimistically, but a year later felt demoralised because of the lack of pupil's progress and the monotony of teaching the same programme repeatedly.

Possibly a combination of reasons explains her change of attitude. A scenario that demonstrates the interplay of variables is given in the following hypothetical example. Initially in, Teacher 3 enjoyed the novelty of teaching speech to children with hearing losses and also believed that her efforts would bear fruit - she would see improvement in the speech performance of her pupils. Negative feelings were therefore unconsciously suppressed or were mitigated by an inherent belief that the task was meaningful. After a year of teaching the novelty has worn off, lack of improvement is patent and she feels demoralised. In a safe group environment she hears congruent feelings expressed and is secure enough to be in touch with and express her true feelings.

## **1.2 Focus Group Two 5 participants**

For the most part there was an easy camaraderie between participants. However, a few in moments of tension were perceived. These occurred in relation to Teacher 1 who by other teachers in the group was regarded as an accomplished speech teacher – this attitude is demonstrated by the following excerpts.

“Teacher 1 used to come into my classroom everyday, and I must be honest that she got sounds out of these children that they didn't have before. Really you know, I've seen it. I've seen what can happen.”

“...Teacher 1 has tremendous results.”

Tension seemed to arise when this position was in any way challenged. This was noted in Teacher 1's reaction to descriptions of the consummate abilities of speech and communication pathologists to improve speech – this is discussed as part of Theme Six. It was also noted when she was asked to explain her method of teaching speech. It transpired that for over a decade she had been using material designed by this researcher. She had not made the material available to colleagues and did not volunteer this information at the onset of the interview.

In the exchange below Teacher 5 seems to virtually interrogate Teacher 1 before the information is surrendered.

Teacher 5 states :

“I know Teacher 1 has tremendous results and she does speech in a fairly – may I call it informal way Teacher 1?

Teacher 1: We do”.

Teacher 5 (continues probing and asks) “Conversational?. (Teacher 1 is rather non-committal, it is as if she would like to end the conversation).

Teacher 1 : “Ja, Ja” (However Teacher 5 persists) “But also slightly formal?”

At this point Teacher 1 blusters before finally “admitting” to follow the interviewers programme.

Teacher 1 : “There is a – we do follow a – what do you call it? It's not a rigid.... In actual fact I do your (addressed to the interviewer) programme.”

### 1.3 Focus Group 3

Participants were keen to express views. Despite the fact that no infrastructure existed they seemed motivated to teach speech and learn new strategies in any way they could.

Three participants coloured the atmosphere distinctively.

The **nervous novice** who was reticent and only responded to direct questioning. As demonstrated by the excerpt below:

“Interviewer: You seem to be agreeing Teacher 1?”

Teacher 1: I think so.

Interviewer: Let’s hear your idea.

Teacher 1: I’m not sure I haven’t been here very long, so I’m not sure about speech (nervous laugh)”.

The **imported expert**, had been trained abroad and was accorded a high status by other participants. She had a forceful personality and reiterated opinions strongly – particularly that hearing impaired children develop speech in the environment of hearing children. This led to a sharp exchange with another experienced teacher who answered. “But they’ve got to learn their sounds somewhere, Teacher 4, instead of just saying ‘use it’. I mean we still have to do all those beginning sounds.”

## 2 Single Interviews

Unstructured phenomenological interviews were held with teachers, single unstructured interviews with principals and semi-structured interviews with speech and communication pathologists.

### 2.1 Unstructured phenomenological interviews with teachers

The three phenomenological interviews gave support to the virtues of random sampling as they reflected – on the surface - discrete points on the continuum of negative to positive attitudes; Teacher 1 was labelled the negative teacher; Teacher 2, the moderate teacher and Teacher 3, ‘the positive teacher’.

- **The negative teacher** The teacher was consistently and outspokenly negative regarding speech instruction. In fact the first word she spoke in answer to the interviewers question: “Hoe voel jy?” (Referring to speech instruction) (English translation: “How do you feel?”) is “negatief” (English translation “negative”).
- **The moderate teacher**. This teacher stated she found speech difficult to teach and lacked training and confidence however she still considered it a worthwhile task.

- **The positive teacher.** On the surface Teacher 3 seemed well disposed to teaching speech. She stated that saw it as important and in a somewhat judgmental tone implied that she could not understand or condone the attitudes of those teachers who did not wish to teach speech to deaf children.

“.... Ek weet nie hoe jy Dowes onderrig as jy nie spraak wil gee nie.” (English translation “.... I don’t know how you can teach the Deaf if you don’t want to teach speech”.)

However, a closer examination of the text reveals each positive statement regarding speech teaching is abutted by a negative or ambivalent statement.

At outset when the interviewer asks whether Teacher 3 feels positive or negative about speech, she does not answer the question directly but tangentially describes the necessity of teaching speech.

Interviewer: “As jy spraak onderrig, hou jy daarvan – voel jy positief of negatief

Teacher: Ja ja ek dink dis baie nodig. Absoluut nodig.”

(English translation: Interviewer: when you teach speech, do you like it – do you feel positive or negative?

Teacher 3: Yes, yes I think it is very necessary. Absolutely necessary)

- When asked if she enjoys speech teaching she gives a positive answer (blocked in red), adds a negative qualification (blocked in blue) and concludes with a positive answer (blocked in red).

Interviewer: En geniet jy dit?

Teacher: Ja ek geniet dit – dit is partykeer frusterend maar ek geniet dit baie.”

(English translation: Interviewer: And do you enjoy it?

Teacher 3: Yes I enjoy it – its sometimes frustrating, but I enjoy it).

This pattern of abutting positive and negative statements continues throughout:

When asked if pupils enjoy learning speech.

Interviewer: En die kinders?

Teacher 3: Ja ek dink die kinders ook. Hulle raak gefrustreerd as hulle nie ‘n klank kan sê.

English translation: Interviewer: And the children?

Teacher 3: Yes I think the children also. They get frustrated if they can’t produce a sound.

When asked if she enjoys teaching speech the same pattern of a positive statement qualified by a negative or ambivalent statement emerges.

Interviewer : En geniet jy dit?

Teacher 3 : Ja ek geniet. Dit is baie tydrowend want jy moet individueel werk met die kinders.

English translation: Interviewer: And do you enjoy it?

Teacher : Yes I enjoy it. It’s very time consuming because you must work individually with the children.

As can be seen from these examples Teacher 3’s responses are complex and ambivalent.

The contrast between the overtly positive sentiments found in the 1994 single interview and highly negative sentiments expressed in the 1995 group interview have been commented on in section(??) Various suggestions were given in an attempt to explain the radical change in attitude over time and in a different interview situation. One explanation was that in 1994 Teacher 3 is still hopeful that hard work will pay off and she will see results (page 3).

She states this expectation clearly in this interview:

“Ek dink jy moet net aanhou, een of ander tyd gaan jy resultate bereik”. (English translation: I think you must just persevere, sooner or later you’re going to see results).

A perception of lack of congruence of the subject and connection between interviewer and interviewee was noted. This was unlike perceptions gained from other interviewees.

## **2.2 Single interviews with principals**

Once again by the virtues of random sampling directly contrastive subjects were selected.

**Principal 1** was inexperienced in the field of the education of the hearing impaired. **Principal 2** was highly experienced in the field of Deaf education. These features coloured the interview.

## **2.3 Single interviews with and communication pathologists**

Interviews were essentially similar in tone. Usefulness of speech teaching was questioned without emotional undercurrents or hidden agendas.