Chapter 2

Review of Literature

Introduction

"If words can be seen by a deaf child as completely as they can be heard by one whose hearing is normal, the deaf child could and would acquire, through lip-reading alone, the living language that he needs to express his thoughts in intelligible speech. But words are not as clearly visible to the eye as they are audible to the ear. Therefore, a deaf child has to learn to recognize many of them from incomplete patterns."

Here is a statement put forward by two outstanding teachers of children handicapped by hearing difficulties, I.R. Ewing and A.W.G. Ewing.

The educational needs of students who develop language before acquiring a profound hearing loss are likely to be very different from the needs of those whose impairment is congenital or who lose their hearing in the first few years of life. For the pre-lingual deaf child, intervention is focussed on the acquisition of language and the development of basic communication skills. This process is often very demanding and takes time.

The background experiences that students bring to a learning situation greatly affect what they get out of corresponding instruction. Many students with hearing-impairments have had more restricted interactions with their environment due to their limited hearing abilities as well as the method of communication by whom the child interacts.

Perhaps, the most challenging aspect of teaching these students is making sure that, one: they participate fully in the communication activities that are occurring in the classroom, and two: they are able to handle the reading and writing demands of the class.

The Reading Process

Learning to read is a formidable task for most children, a frustrating task for many children, an impossible task for some children. Reading is one of the central difficulties of students with hearing-impairments, as this is the principal cause of failure in school.

This is due to the fact that only through literacy can the deaf share in the linguistic experiences of the society and also the fact that they usually understand very little from reading.

Over the years, the knowledge about the actual process of learning to read has increased, teachers and other educators have come to realize that reading is not merely such a simple task as it was formerly considered to be. As Smith (1978), has indicated, '... fluent reading is more complex that is frequently believed, and learning to read is far more involved.' Since learning to read is a very complex task involving a series of perceptual, linguistic and conceptual skills, numerous definitions exist.

Reading is known as a visual-auditory task that involves obtaining meaning from symbols (letters and words). To learn to read, one must apply his knowledge of language to the written words, which are the symbols for the spoken words he already knows.

According to Goodman (1973), reading includes two basic processes: first, the decoding process which involves understanding the phoneme- grapheme relationships and translating printed words into a representation similar to oral language and thus, this decoding skills enable the learner to pronounce words correctly. Second, the comprehension process which enable learner to understand the meaning of words in isolation and in context (Traux, 1978). Another stresses direct perception of the visual

details of print and access to memory where some children seem to store phonological units in the short term memory.

Goodman (1973 p. 139), defined reading as "a dynamic psycholinguistic process by which a reader extracts meaning from a message presented in graphic form." Smith (1978), suggested that there are two kinds of information which facilitate the reading process: the visual information, which is the written word: and the non-visual information, which is the knowledge already present in the reader's cognitive store. The reader must, therefore, learn to make full use of both forms of information in order to comprehend written language effectively (Hart, 1978).

Since reading is a sampling process, strategies must be developed that lead to the correct interpretation of a written message while the reader uses a minimal amount of available visual information. According to Goodman (1973), three cueing systems are available to assist the reader in the use of visual information. They are cues within words, cues about the relationships among words, and cues related to the discourse structure and its pragmatic context.

Children must either use either one of the three systems to the reading process, as stated by Traux (1978 p. 286), "a reader can employ these strategies independently or interdependently as he reads." When processing a written message, the skilled reader is able to assimilate cues from each of the three cueing systems simultaneously.

In addition, Smith (1978), emphasized that non-visual information is an essential component of the reading process. In the use of non-visual information, the greater amount of non-visual information available, the less visual information is required to comprehend a written message.

Why reading is difficult?

If learning to read is considered difficult for the normal child, how much more difficult must it be for the hearing-impaired child? Not only do achievement test scores testify to the poor progress they make in mastering reading, but the daily evidence in schools and homes indicates that the vast majority of deaf children are uninterested in opening a book, or frustrated if they do so.

Learning to read requires the reader to apply the knowledge of language to the written words, which are the symbols for the spoken words they already know (Hart, 1978). Hearing children learn to understand and use spoken language naturally and easily as part of their maturation process. Hart (1978), version of the reading process is the transfer from the auditory signs for language signals to the new visual signs of the same signals. However, this process does not apply to the deaf child. Learning to read is more difficult for them because they are not just learning to read, but they are also learning a new language at the same time.

Not only are they trying to decode the written word, they are also trying to learn its meaning. Because progress is usually slow and painstaking, their linguistic skills are generally quite limited. Their vocabulary is small, highly concrete and deficient in functions words (Hart, 1978). That is why, we say that hearing-impaired children must be taught language deliberately.

Educators of the deaf believed that the process of reading for hearing- impaired children involves two tasks when he is presented with a written message. Firstly, the reader may decode the writer's meaning directly from the print, or secondly, the reader may first decode the print into symbols that represent his internalized language system

and then decode the meaning (Hart, Walker & Gray, 1977). Hart, et al. continued that fluent readers are generally able to decode directly from print to meaning meanwhile, beginning readers, however, seem to recode first and then decode. For example, when young hearing children engage in silent reading, they often subvocalize or overtly vocalized, thus recording graphic symbols as auditory symbols before decoding the message.

Young hearing-impaired readers also appear to approach the beginning reading process by recoding. However, Hart (1967) suggested that most hearing-impaired readers convert print to a strictly visual form and graphic symbols are recoded as lip movements, signs, or fingerspelling, depending on the nature of the child's internalized language system.

Internal Speech / Internalized Language

In a research conducted by Conrad (1979), he suggested that one of the primary reason of the difficulties that hearing-impaired students exhibited in their academic achievement, was their failure to develop oral thinking or internalized language. Conrad called this internalized language as 'internal speech' and described this as "a silent, inner form of verbal activity – a subvocal talking to oneself while carrying out cognitive tasks". He further stated that " for this internal speech to be a viable medium for thinking, it must be intelligible and discriminable (Berstein & Finnegan, 1983 p.483). In reporting his findings, Conrad emphasized the failure of internal speech to develop in a significant number of children. Only about 40 percent of these children with a hearing loss of 85dB or more were said to be thinking orally, that is, employing internal speech in the short term memory task. Therefore, he concluded that " the more severe the hearing

loss, the poorer the internal speech the child possesses.(Conrad, 1979 in Bernstein & Finnegan, 1983 p.484).

The typical profoundly hearing-impaired child is faced with the task of learning to read without having developed an internal language symbol system. Reading readiness for this child involves developing a new symbol system. Trybus & Karchmer (1977), reported that the English Language symbol system is not yet adequately developed by the majority of deaf students even when they complete their high school education.

The internal language system developed by a majority of hearing-impaired children depends upon the nature of the input signal. For these children, the most complete signal is a visual one, as their auditory signal being distorted and incomplete. Whether these children will experience ease or difficulty in learning speech, speech reading and reading skills is entirely dependent upon the internal language code which they possess for applying to these tasks. If their internal language code is absolutely isomorphic with the spoken word and written form of the language, then these learning processes will be greatly facilitated. Should such as isomorphic relationship be absent or not established, then immense difficulties will be encountered.

On the other hand, the internal language code derived from Cued Speech, being absolutely isomorphic with the spoken (and indirectly with the written) form of the target multi-syllabic language, ensures automatic competence in the language and facilitates the development of both speech and reading skills in children who have acquired it, especially when the target language has a relatively simple phonological structure and a perfectly regular spelling system, as is the case with Bahasa Malaysia (Tan, 1997).

Studies on Reading of Hearing-impaired Students

A majority of deaf children had no systematic symbol either modeled for them or shared with them during the critical language acquisition years. This lead to their weakness in reading performance. This low achievement levels, according to Conrad (1979), are usually attributed to general deficiencies in language, that is, deaf children cannot read because they lack competence in the language they are trying to read.

Severe deafness has been described as a 'promissory for reading failure'. The first studies left no doubts about the massive deficits in reading skills when deaf children were compared with their hearing peers on traditional reading tests. Pintner and Patterson (1916), cited in Webster (1986 p.93), found that the majority of hearing-impaired children aged 14 to16 years were unlikely to possess a measured reading age of more than 7 years, i.e. about seven years lagging behind their hearing peers. This degree of deficits has been reported consistently by many investigations since then. Some examples below are taken from Webster (1986 p 93).

In the North American Survey of Wrightstone, 1963, a sample of 5000 children aged between 10 to 16 years was given the elementary reading test from a battery called the Metropolitan Achievement Test. For the age range 15.5 to 16.5 years, the mean reading age achieved was about 9.5 years.

In a similar survey, conducted in 1969 by Gentile and DiFrancesca (1972), measures of paragraph meaning in 2,878 deaf students from 12 to 19 years of age ranged from a grade level of 3.35 to 5.68.

In another survey, Meadows (1975), reported that 17,000 number of hearing-impaired children , aged 16 year-old, across the entire school age range were tested on a

paragraph comprehension test, and it was found that the equivalent reading age was just over 9 years.

In United Kingdom, several studies have been conducted and the results were similarly disheartening. Redgate (1972), in a study of the effects of using the Initial Teaching Alphabet with deaf children and the results of 15 to 16 years old students showed their mean reading age was only 7 years and 8 months. As such, this lead to conclude that severely hearing- impaired children reach a plateau in their reading development as well as a large proportion of these adolescents will not have achieved generally-accepted levels of literacy at the end of their school years..

However, pupils using Cued Speech in other countries in the west presented a more successful outcome. Dr. Orin Cornett outlined four important milestones. The first significant milestone in the process of validation of Cued Speech as a viable and effective system for the development of verbal language in deaf children was the success of the first child with whom it was used. The family of Leah Henegar started using Cued Speech with her in September 1966, when she was exactly two years old. At the end of the first year of use, her vocabulary had grown from zero to 450 words (Cornett, 1990).

The second milestone was the research conducted by Gale Nicholls which found that profoundly deaf children using Cued Speech received spoken language at a very high level of accuracy, comparable to that of children with normal hearing (Cornett, 1990).

The third important milestone observed was on the research reported in May 1989 by Algeria and Leybaert, cited in Cornett (1990), which claimed that the lexicon development has properties which are equivalent to the phonology of hearing

children and the effectiveness of the internal phonological code which deaf children develop as a result of exposure to Cued Speech. These internal representations of the words are compatible with their orthographic representation which allows the use of phonological coding to identify unfamiliar words which may lead to the whole process of reading acquisition.

The fourth milestone reported, is that, the reading and comprehension levels have increased with Cued Speech in the home (Cornett, 1990). Another example of success which showed children who have grown up in bilingual hearing families whose family members used Cued Speech with them consistently in more than one language.

Anastasia Jones, who lives in France, is the daughter of a British father and an American mother. Her mother brought her to the United States at the age of 24 months, and learned the basics of Cued Speech in both French and English in one week. Two years later, Anastasia went back for a visit to the U.S. at age 48 months. On standard tests of English, she scored 53 months of age. This showed that Anastasia was not only being able to speak in English, but she was also able to speak in French and capable of interpreting from either one to the other. When she was a teenager at age 16, she was learning German as well and was at the level normally acquired through a few years of study in high school. In this manner, Cued Speech users can communicate in various languages (Cornett, 1990).

Another achievement, an eight years old girl, Tamara Suiter, whose parents were also deaf, used ASL at home, chose Cued Speech for her when she was ready for first grade. In her third grade, she was mainstreamed and ranked above the 50th percentile in all areas of the California Achievement Test, where she acquired 76th percentile in

English vocabulary (Cornett, 1990).

From the above examples, it was clearly described that successful achievement of language has been learned through Cued Speech.

Intervention Methods used by the Hearing-impaired

Below are some common approaches still currently being in used by the hearing-impaired. Parents of the deaf can choose among the several methods of communication available. Some will favour one method while another will favour another method. Each method must be viewed with expression and reception. The type of approach chosen depend greatly on the preference of the individual as well as the type of hearing loss.

Educators of the deaf used BMKT as their main means of communication in respect to the implementation of Total Communication practice in all the local schools for the deaf. Below are described some methods available for the hearing-impaired.

Lipreading / Speechreading or the Aural-Oral Method

In this method, a German educator, Samuel Heinicke in the late 18th century advocates this "natural" method where the hearing-impaired child is expected to watch the mouth of the speaker, and use whatever is seen as a clue for identifying each word as it is being spoken. This was the method used in Malaysia from 1954 until 1978.

While the post-lingually deaf person may sometimes be able to cope by making contextually assisted guesses, the child being a first language learner, having no previous knowledge to fall back on, can only find the high degree of ambiguity in lipreading a thoroughly confusing experience.

People who already speak a language before becoming deaf will probably find lipreading the most natural visual aid to use in their reception of spoken language. However, the presence of a high degree of ambiguity makes learning one's first language by this method almost impossible. For example, the words: 'mat', 'bat', 'pat', 'met', 'bet', 'pet' and many more; these pairs of words all look almost identical at the mouth and are impossible to distinguish through lipreading alone, even the post-lingually deaf child will be unable to identify most words when they are heard in isolation, a situation constantly faced by deaf first-language learners.

Although this aural-oral approach continues to be still in used, and can be fairly successful when applied to children who are merely hard-of- hearing, it is now widely conceded that, with few exceptions, this method of intervention is not ideal for use with children who have severe to profound hearing losses, and that such children require more precise visual assistance than is available from speechreading alone. For this reason, following the lead of the United States, many countries including Malaysia, adopted the Simultaneous Method during the 1970's.

Fingerspelling or The Rochester Method

This method makes use of different hand shapes to represent letters of the alphabet. Each spoken word is spelt out as a sequence of these manual letters. The hearing-impaired child is expected to read each fingerspelt word at the same time as it is spoken. This method has never been used on its own in Malaysia, but only as a supplement to Manually Coded Language.

In a book published in Spain as early as 1620 by Juan Bonet who advocated the use of fingerspelling as a means of teaching speech to hearing-impaired children. It is a

manual alphabet for teaching spoken Spanish to deaf children, each manual hand-shape used to represent a speech sound as well as a letter of the alphabet. Unfortunately, fingerspelling has two serious inherent disadvantages.

The first of these drawbacks arises from the limited short term memory span of very young children. It is extremely difficult for toddlers to remember sequences of more than two visual events. Therefore, even monosyllabic words which are finger-spelt with a sequence of three or more manual letters became extremely difficult for such children to learn.

The second drawback of fingerspelling arises from the fact that it is very difficult to fingerspelt words fluently at the same rate as they are spoken in normal speech. This makes it almost impossible to first language learners to get a clear idea of the correct sequence patterns of words (syntax) in a sentence until well after they have learnt to read, i.e. when they can see sentences as complete wholes.

Nevertheless, fingerspelling has been reported as having been used with some measure of success in Spain around the end of the 16th century and in the Soviet Union during the 1950's.

Manual Coded Language / Simulteneous Method

or 'Sign Language'

This method mainly makes use of individual gestures (sign) to represent each word simultaneously as it is being spoken. Fingerspelt sign are also used in this method whenever a gestured sign is not available. The hearing-impaired child is expected to identify each spoken word by its accompanying manual sign. This is the method which

has been officially adopted in all schools for-the-deaf since 1978 by the Malaysia Ministry of Education in the form of Bahasa Malaysia Kod Tangan (BMKT).

Manual Coded Language (MCL), also popularly known as 'sign language', was first developed in France by the Abbe de l'Epee around the last quarter of the 18th century. Since approximately 1970, it has been universally adopted as the method of choice for the expression and reception of language in nearly all educational programs for the hearing-impaired which profess to practice Total Communication philosophy.

Gestured signs have greatly helped the hearing-impaired in their development of communication skills. However, for various reason, language speakers have not been able to express themselves fluently and correctly (in grammar and syntax) at a regular conversational rate when expressing themselves in the manual coded form of their language. In consequence, lacking correct visual language models, hearing-impaired children have found it impossible to acquire competence in any spoken language solely through this method.

Cued Speech

Cued Speech is " speech which is simultaneously accompanied by manual cues to make individual speech sounds visually identifiable at the same time as they are spoken (Cornett, 1990). This is done through specific hand shape being placed at particular locations near the speaker's mouth when each syllable is enunciated.

This system is devised by Dr. Orin Cornet in 1967 which combined both the Oral-Aural method and the Manual method. In Cued Speech, the corresponding vocal and visual components of spoken and cued morphemes are synchronously expressed. The result is a truly bimodal syllable form of language expression from which

morphemes may either be received solely as visual patterns by totally deaf children, or as holistic bimodal sensory patterns by children who possess useful residual hearing.

In either of these cases, the use of Cued Speech will help to establish in the minds of the hearing-impaired children as internal language code which is absolutely isomorphic with the spoken target language.

Total Communication

A philosophy incorporating appropriate aural, manual and oral-aural modes of communication with and among hearing-impaired persons. This philosophy of communication was first devised by Roy Holcomb but was popularized by David Denton. The term 'Total Communication' (TC) as defined in 1970 at a Communication Symposium held at the Maryland School for the Deaf, in the United States of America, as:

> *"the right for the deaf child to learn to use all forms of communication available to develop language competence. This includes the full spectrum: child-devised gestures, speech, formal sign, fingerspelling, speechreading, reading, writing, as well as other methods which may be developed in the future. Every deaf child should also be provided with the opportunity to learn to use any remnant of residual hearing he may have by employing the best possible electronic equipment for amplifying sound."*

The Local Cued Speech Practice

Tan (1997), states that Cued Speech was adapted for use with the Malay Language in September, 1982 to a small group of young hearing-impaired children. Then in December 1988, the National Society for the Deaf (NSD) initiated a project for evaluating Cued Speech in Malay as a language medium for intervention purposes with prelingually hearing-impaired children. This special project was housed in the premises

of the Malaysian Child Welfare Council (MKKM) in Kampung Pandan, Kuala Lumpur. Since its first year of implementation in the year 1989, more than a hundred deaf children have undergone this nature of communication and a minority of them were stationed in the local primary schools while a small number of them have been mainstreamed. Over the years, after a period of a few months, it was found that almost all the children in this project were able to vocalize, to associate syllables with their appropriate cues, to use Cued syllable combinations for naming familiar nouns and verbs and lastly, to associate each Cued syllable with its corresponding written form.

Tan (1977), also reported that these children are able to achieve a fairly normal verbal language development and most important, in a natural way as their hearing siblings. Because Cued Speech is based on speech sounds, it therefore provides these hearing-impaired children with verbal language that is coded in exactly the same syllabic form as a speech. This further helps them to develop speech skills which later promotes speaking. In a study conference on Cued Speech, Tan (1995), stressed that Cued Speech is a realistic and practical tool for Malaysian deaf children to be literate, numerate and at least functionally adequate in our national spoken language.

This chapter has looked at the process of reading for hearing-impaired children and why it is difficult for them. It has also described the various intervention methods for use with the hearing-impaired and also some achievements made in western countries as well as locally.