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HEARING LOSS IN ABORIGINAL CHILDREN

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I have a particular interest in the topic of hearing impairment within this human development unit of study and specifically I have a concern for the hearing loss of the Aboriginal child at school. The content of this assignment firstly will address the major characteristics associated with hearing impairment and then the condition specific to the Aboriginal community. The second part of this essay will explore the implications in relation to the child, the classroom, the teacher and the community setting.

In my role as a future educator I would define any child who cannot hear normal speech as having a hearing impairment. Hallahan and Kauffman (1988, pg. 260) use a definition which indicates that a hearing disability can range in severity from mild to profound. Those with hearing losses at about 90dB (dB is the level of intensity at which a person can first detect a sound) or greater to be deaf and those with less are categorized as hard of hearing. If any measurement of hearing on an audiogram is lesser than 30dB it follows that a child will have trouble hearing in the classroom (Hallahan & Kauffman, 1988, p.265). The Northern Territory Aboriginal Teachers Manual promoting "Healthy ears hear better" (Jacobs, 1989) describes the shape of the pattern of the loudness of the teacher's voice on an audiogram as that of a banana and so it is called "teacher's speech banana". Those children whose audiogram results register above the banana are O.K. but those whose results register in or below the banana will have trouble hearing the teacher's voice. "Any such loss (25 - 45 decibel loss) termed moderate to severe represents a significant educational handicap", (Black, 1989, p.5).

Medically, the condition of hearing impairment is in the first instance categorized according to whether the child was born deaf which is described as congenital deafness or whether deafness occurred after birth described as adventitious deafness. Some children are congenitally deaf due to hereditary factors or the fact that during pregnancy

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their mothers contracted infectious diseases such as rubella, german measles, influenza and mumps. Also certain drugs like quinine contribute to deafness. Physical deformities or other structural defects such as cleft palate will also affect hearing ability. Causes of deafness after birth (adventitious deafness) include injury: excessive noise, other diseases such as meningitis, mumps and chicken pox, (Parents of Hearing Impaired (SA) Inc. 1990, p.4). I feel it important to add that in the case of Aboriginal children, the health, environmental factors and substandard living conditions are significant after birth causes as well. Burnip (1990 Conference) states that the incidence of hearing loss arising from middle ear disease appears to vary among Aboriginal communities and according to the seasons and climatic zone. This once again emphasizes the after birth causes I felt contribute as well to adventitious deafness.

Teachers of the deaf need to know specifically whether deafness occurred before the development of speech or language. Brill, MacNeil and Newman (cited in Hallahan & Kauffman, 1988) use the terms prelingual deafness and post-lingual deafness. These two terms provide us with a clue to the relationship between the degree and extent of the hearing loss and the delay and amount of expressive language affected by the loss. Hallahan & Kauffman (1988, p.260) suggest that the social problems and intellectual developmental problems are primarily due to hearing-impaired peoples' deficiencies in language, in terms of comprehension, production and speech. Thus the earlier the hearing loss occurs, the worse the language deficit will be. Hearing impairment is a hidden disability and consequently early detection is delayed and non-conforming behaviours are often mis-interpreted and categorized as learning difficulties or behavioural problems.

For a teacher to begin to become aware of the nature of the hearing impairment one must be familiar with the anatomy and physiology of the ear. As well as knowledge and an awareness of the associated behaviours are necessary for early detection for any partial loss or the onset of a recurring hearing loss which will grow greater in degree and duration. Any existing hearing problems for Aboriginal children are often further compounded by poor hygiene, nutrition and vitamin deficiency, inherent immunological problems and generally poor living conditions. The early childhood teacher has a responsibility to use the knowledge

they have about otitis media (middle ear infection) as they are one of the community members who are in a position to detect the associated behaviours of a hearing loss at an early stage in the child's life of formal learning. Thus this area implies that "Awareness" be the starting point. Emphasis should be on community education in relation to potential hearing problems because of the effects on pre-lingual deafness.

The hearing mechanism is divided into the outer, middle and inner ear. The unseen middle and inner ear are complex and in order to classify the cause of the hearing loss the location of the problem is vital so that an appropriate course of treatment can be implemented.

Following is a brief outline of the three components of the ear. The outer ear consists of the auricle, the part we can see, and the external auditory canal which ends with the tympanic membrane (eardrum). The auricle collects sound waves and conducts them to the canal on to the eardrum which vibrates, sending the sound waves on to the middle ear (Hallahan & Kaufman, 1988, p.263). The middle ear is composed of the ear drum and three tiny bones called the malleus (hammer), incus (anvil) and stapes (stirrup). These tiny bones conduct the vibrations from the eardrum to the oval window of the inner ear. The eustachian tube connects the middle ear to the outside air (nose). The tube can block with mucous during a cold and the unequal pressure can cause temporary deafness. Inside the oval window is the vestibule (responsible for the sense of balance) which leads into the cochlea (little shell) and the semi-circular canals of the inner ear. The cochlea contains the organ of hearing which connects to the auditory nerve leading to the brain. The whole inner ear is filled with fluid and the vibrating bones in the middle ear make ripples in this fluid which stimulates the auditory nerves (Hallahan & Kauffman, 1988, p.264). There are three major classifications of the causes of hearing loss which relate directly to the location of the problem within the hearing mechanism. The above description has illustrated the structure of the ear and its functions so it is a little easier to understand the three major causes and where they are in relation to the position of the ear. The major causes are classified as: a conductive loss, a sensorineural loss, and mixed impairments (Hallahan & Kauffman, 1988, p. 267).

Conductive losses are the result of problems in the outer and middle ear, sensorineural impairments involve the inner ear and mixed loss is evident when puretone tests (one type of scientific hearing test) are conducted and compared with an indication of an impairment in both air conduction and bone conduction tests. Impairments of the outer ear may result from a condition called atresia which occurs when the external canal is not formed properly. Other conditions of the canal such as external otitis media or swimmers ear, tumours on the canal, excessive buildup of cerumen (earwax) can result in a loss of hearing. The most common childhood disease of the middle ear is otitis media which results from an infection of the middle ear space and if left untreated can rupture the ear drum, allowing pus to run out through the canal. The most severe hearing impairments are associated with the inner ear.

Disorders of the middle ear resulting in a conductive hearing loss commonly occur during childhood. However, hunter/gatherer societies are more susceptible to such disorders. Otitis media or middle ear infection is more common in Australian Aboriginal children than in any other population throughout the world (Black, 1989, p.1). Statistics tabled at a recent conference on conductive hearing loss and the Aboriginal child showed a high prevalence throughout Australia. In the Northern Territory (in cattle country) in 1987 it was estimated that between 50 - 80% of Aboriginal children had perforated hearing conditions in one or both ears by the age of 12 months (Nienhuys 1988, p.58). Recent National Acoustics Laboratory figures in the Northern Territory, suggested that 25% to 50% of all Aboriginal children attending school suffer an educationally significant hearing loss (i.e. a loss exceeding 25 dBHl) (Nienhuys, 1988, p.58).

Black (1989, pp.4-5) outlines that infection of the middle ear may result from an upper respiratory tract infection, the flu or a common cold. Aboriginal children have frequent infections and perforations. Therefore following the initial medical/health assessment it is essential that a multi-disciplinary approach be adopted. Teachers and health workers must jointly approach the treatment and the use of teaching strategies which take into account the hearing problem. This is paramount because the otitis media condition fluctuates, therefore daily audiograms will produce different results and the needs of the child will change accordingly.

Research conducted at the Menzies School of Health Research in Darwin recognizes that otitis media develops at a very early age in Aboriginal children causing hearing loss and that the hearing loss may have educational and social effects persisting into adulthood. "To date, no cause, prevention or treatment has yet been established"(Westwater, Nienhuys & McDonnel, 1988, p.66).

Reichman and Healey (cited in Black, 1989, p.6) conclude that: 'sufficient data have been presented to suggest that children with early onset, recurrent otitis media and mild hearing loss may be at risk for developing delays in auditory, language and academic skills". Thus the major characteristic of any hearing impairment is the barrier it creates to normal speech development. What is more devastating for the hearing loss of an Aboriginal child is the limitation impairment it puts on the learning of their mother tongues; the dimished auditory experiences necessary for safety and survival in an isolated environment and the cultural learning through stories and songs and other sacred information regarding law, mythology, relationships and ceremonial songs which are all components necessary for the survival of a complete spiritual identity. The disadvantage is increased when the Aboriginal child is learning English as a second language. Price (1981, p.10) states that "the Aboriginal child will have difficulty distinguishing the sounds of English which do not occur in his or her language or those features which are not significant in that language". There is some research by Baarda (cited in Black, 1989) to indicate that those aspects of English speech which do not occur in Aboriginal languages are those sounds which are outside the range of audibility for an average conductive hearing loss condition. This suggests that even normally hearing Aboriginal children have learnt to tune out aspects of the English speech which have no semantic meaning. Baarda (cited in Black) identifies: initial vowels, final consonants, unstressed initial syllables or aspirated sounds as the certain aspects which are not in many Aboriginal languages. In general, the English as a second language child will not be able to predict and fill in missing elements when spoken to in English because they do not have enough linguistic knowledge and western exposure to successfully interpret the meaning. English is the language of instruction for learning and is the language of our Australian society. Thus competency in English is necessary for the development of broader communication and social skills for

early childhood education, primary, secondary and academic achievement and general life skills.

I have investigated the characteristics associated with hearing impairment and now I will explore the implications that these characteristics will have for the child in the classroom, the responsibility of the individual teacher of Aboriginal children, the teaching strategy, the classroom environment and parent/community education and involvement.

I have structured my approach to exploring the implications by identifying five areas from the detailed information on the major characteristics. These areas are congenital and/or adventitious deafness; prelingual and/or postlingual deafness; hidden disability; the middle ear infection - otitis media and education. I feel that these particular areas have a direct implication for the Aboriginal child at school and for that matter, any hearing impaired child who has similiar low socio-economical backgrounds and whether English is their second language or not.

Aboriginal childrens' hearing impairment results from a combination of congenital and adventitious deafness. For example, the children have to cope with the burdens of being born with hereditary factors associated with the condition and on top of that living in a non-conducive environment. Poor hygience and inherent immunological problems contribute to continuous infections or perforations resulting in the inner ear drums reduced capacity to spontaneously heal itself. This leads to the added risk of permanent damage and the increasing possibility of severe impairment and/or profound deafness. Price (1981, p.9) provokes the readers' awareness to the risk of possible infection to the inner ear as a result of the middle ear's continuous perforations which leave the inner ear dangerously exposed to infection. As I previously mentioned the most severe sensorineural impairments are associated with the inner ear. Research is still struggling to establish the cause, prevention and treatment so with such a high prevalence now of hearing impairment in the Aboriginal community there is a real urgency for ongoing priority research. The recent conference (1990, Middle Ear Disease, Conductive Hearing Loss and the Aboriginal Child) identified guiding principles for any successful strategy and that is:

1) it must be Aboriginalised
2) part of a holistic Aboriginal approach
3) national
4) interdisciplinary, and
5) evaluated and planned

For a teacher this area of concern implies that the interdisciplinary approach is a must. The school and health clinic must work together in sharing knowledge and collating information. For example, a teacher could draw up a chart of the children who have otitis media in their class. The Aboriginal Teachers Manual (Jacobs, 1989) illustrates such a chart to record when which children have pus in their ears

The next implication arises from the characteristics of prelingual and postlingual deafness. Aboriginal children as young as 3 months have their first case of infection and perforation and this is a common occurance. Nienhuys (1988) states that "Australian Aboriginal infants, pre-schoolers and school-aged children suffer alarming rates of conductive hearing loss due to early recurrent otitis media". Because this deafness is prelingual, language acquisition is disrupted. Irrespective of which language is being learnt, English or their mother tongue, there is substantial interference with the processing of the auditory information. Hallahan and Kauffman (1988, p.272) identify three disadvantages hearing impaired children are faced with and they are:

1) "Receive inadequate auditory feedback when they make sounds.
2) Receive inadequate verbal reinforcement from adults.
3) Are unable to hear adequately an adult language model."

The skills and processes essential to language development involve the infant learning to "select for attention, localise, identify, discriminate, interpret and respond" (Price, 1981, p.10). It is obvious then that all the skills and processes necessary for language acquisition depend on a quality of hearing and that it is a critical part of the infants response to appropriate sounds in their enviroment. This area of concern implies the importance of educating the

community about "healthy ears hear better" (Jacobs, 1989) and in particular parents/caregivers of infants and children up to three years of age. More so this age group because it is the developmental period for learning and acquiring language. The early childhood educator is a valuable resource in the setting of a child care centre, playgroup and/or kindergarten because of their training in basic listening and sound awareness programmes. Price (1981, p.12) suggests that the children who attend these early childhood settings should begin with the identification, discrimination and interpretation of environmental sounds. These programmes could be utilized in school programming.

Early detection is hindered by the fact the hearing impairment is a hidden disability. Not until the ear is running with pus is the hearing loss obvious. Previous to that perforation may have been the period when the child's hearing was worse. Consequently any compensatory and/or non-responsive behaviours may have been mis-interpreted and categorized as learning difficulties or behavioural problems. Price (1981, p.11) raises the point that Anne Hoey's list of "Symptoms of possible auditory problems" can be put down to linguistic and cultural causes for all Aboriginal children who are in an uncommon cultural environment of the European style school. Once again this implies and supports the notion of an interdisciplinary network. However, for the knowledge and experience needed to assess the child's own linguistic and social performance, it is necessary to involve the child's mother and the local Aboriginal teaching staff. Price also suggests this approach to networking.

The implication for the teacher is to train yourself to be tuned into recognizing compensatory and non-responsive behaviours or for the school to network special education services. Kate Stratford in her lecture shares a wealth of indicators from which I list some compensatory behaviours:

1) intent watching of a speaker's face
2) instinctive positioning within sound range
3) a favoured head position
4) unusually good ability to use nonverbal cues

and some non-responsive behaviours:

1) when the back is to the speaker

2) when attention wanders in relation to noise

3) failure to come and get an orally notified treat

4) when levels of oral response are lowered.

However, points more specific for the Aboriginal child can be possibly identified as limited participation in the classroom and prolonged absences leading to non-attendance. The Aboriginal Teachers Manual (Jacobs, 1989) offers the following indicators:-

1) children may pull at or rub their ears

2) may not want to say much

3) they look blank, especially when it is noisy in the room

4) don't answer when you or other peers call them

5) look around a lot

6) may leave school early

7) have trouble learning English and learning to read and write.

Though these are some behavioural indicators for the teacher's awareness, running records and other notes of the child's general level of interest and performance with certain tasks should indicate any change in behaviour which are significant. So the teacher needs to be aware of traits such as the child's concentration span and other capabilities.

The major cause of the hearing impairment depends on the location of the problem within the ear. The Aboriginal child is commonly affected by the middle ear infection - otitis media which results in a conductive hearing loss which fluctuates. This means their hearing will change depending on the stage of the infection. Hearing is at its worst when pus is behind the ear drum and pus is in the auditory canal. Parents of Hearing Impaired (SA) Inc. give a simple definition for conductive deafness and that is, it is "caused by some blockage of sound to the inner ear". Consequently the inner ear cannot fulfil its function because of the build up of mucus or other foreign matter (insects, bits of stick). This implies that there is a need for a preventative approach. Simple things like

talking to the children about regularly blowing their noses to clear the eustacian tube, the need for routine ear washes because runny ears must be kept clean and dry (for better hearing and healing), the importance of regular screening and when recommended, the importance of taking medicine (antibiotic). I would also suggest appropriate commercial products like demazin cough medicine to keep the eustacian tube clear of mucous and multi-vitamin supplement tablets.

This conditions shows a history of problems with auditory processing and verbal response. Price (1981, p.10) refers to research done by J. Armstrong who identified that children "have extra difficulties with articulation of words and connected speech, use of word endings, auditory discrimination, sound blending and auditory closure". However, this research is not specific to Aboriginal children learning their mother tongue. In fact, there is little evidence to support the above conclusion that chronic otitis media sufferers are actually impaired when learning their mother tongue. Wendy Baard (cited in Black, 1989, p.7) suggests that this is so because of language differences. For example "Aboriginal languages may actually be easier to hear and see, through lipreading and the use of gesture than English". This implies the importance for maintaining their mother tongue for communication and learning cultural aspects in language context. I believe this to be true for all Aboriginal children, but its relevance to Aboriginal children with hearing impairment is of added importance.

The final area focuses on educational and social implications. The main disadvantage for the Aboriginal child with hearing impairment at school is the fact he/she is unable to hear clearly suffering a mild to moderate hearing loss of the language of instruction (usually English) which is a must for learning and coping in the Australian society. This implies that an appropriate type of amplification be addressed and a concentrated English as a second language programme be adopted. Aiming towards the focus of bilingualism. However, before a child acquires any language, they must be able to hear the spoken words. There are three main types of amplification - hearing aids, bone conduction hearing aids, and the FM radio system. Black (1989, p.15) states that the "National Acoustic Laboratory in the Northern Territory is currently conducting pilot projects using radio systems". Until research can detail the feasability and

and viability of amplification systems for the long term solution, current useage of the FM radio system is an attempt now to address the dilemma hearing impaired children are faced with in the classroom. In addition, it is suggested by Quinn (1988, p.28) that the following steps will help the child in the classroom. Make sure the impaired child can see the speaker, use visual information and be supportive of the child who uses amplification in the classroom. To create a good listening environment you must have the child's attention, use familiar words and experiences, introduce new words slowly with visual clarification, speak naturally, be willing to repeat your sentences, encourage peer support and praise every effort. The current useage of FM radios implies that teachers will have to be inserviced on the handling of the equipment. They also need a knowledge of the nature of reverberation so that echoing or bouncing back of sound is minimized in the classroom environment. Once the sound quality is improved for the child in a caring and understanding environment, the provision of a linguistically rich atmosphere can be tapped into. The Aboriginal child can be presented with those sounds in English which are not common in their mother tongue and given repeated opportunity to practice skills for identification and production in English for gradual familiarization and natural useage. Groht (cited in Black, 1989) states that children can become "language conscious" if they are taught to use words and language constructions through constant, repetitive, meaningful communication."

However, this intention will achieve limited success if the teacher does not "acknowledge cultural factors which influence a pupil's way of knowing." (McEvoy, 1985, p.39). The Aboriginal child's learning style and language process must be incorporated in any curriculum planning. All the new English words and speech; print and stories must describe familiar oral stories and messages from their own backgrounds in a respected attempt to make the connections for the use of a functional language. Price (1981, p.12) sums up the importance of such an approach, "a child needs a good vocabulary and a competent use of language before he/she can learn to read." Speaking and reading English offers a significant educational gain for the hearing impaired Aboriginal child.

I have a general interest in the specific area of hearing impairment because my two nephews both have had a

mild impairment resulting in operations. After researching the topic with particular reference to the Aboriginal child I am somewhat overwhelmed with the significance of the otitis media condition and its effects upon the critical early sensory development of the child. Auditory impairment severely limits one of the critical means through which the child gains information about his/her world. Therefore, the child with otitis media is very much restricted in terms of the quality of sound he/she is receiving. The varying educators of the child with hearing impairment all have a responsibility to share their knowledge so everyone involved is aware of the condition, educated about preventitive measures and sensitised to the needs of the child in all of their learning environments.

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WELCOME TO WORLD COUNCIL of CHURCHES *

First of all I would like to extend to you all a warm welcome to Canberra. For the next ten days the focus of the Christian world will be on this Assembly.

Aboriginal and Islander Christians have played a prominent and active part in the planning of this Assembly and the particapation of our people in all aspects of the program will be critical for the success of this meeting. I would like to take this opportunity to congratulate the Aboriginal & Islander Commission of the Australian Council of Churches for the considerable effort they have put into this conference.

The relationship between the various European Christian Churches and the indigenous people of this country has been long and at times a painful one. I do not wish to dwell on the negative and often destructive impact of past Churches' role in the suppression of Aboriginal spirituality and culture. But we welcome the profound changes that have taken place, and are still taking place in the Christian Community. These changes have led to a remarkable affirmation of the unique contribution Aboriginal and Torres Strait Islander people are making to a now more enriched Christian presence on this continent.

It took the churches a long time to come to terms with our culture and spirituality. You must remember that for thousands of years, long before the birth of Christianity, Aboriginal people were free to grow without the interference of people from other places.

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* Welcome speech delivered by Miss Lois O'Donoghue Chairperson of ATSIC to the opening session Seventh Assembly, World Council of Churches, Canberra, on February 7th, 1991. (Abridged)