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MILD HEARING LOSS AND ABORIGINAL CHILDREN'S LEARNING

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ABSTRACT

The failure at school of Aboriginal students from traditional backgrounds has generally been ascribed to cultural differences. This study, however, investigated the relationship between Aboriginal children's learning and hearing loss. Aboriginal students with hearing loss were found to be different in that they used the highly verbal teacher-oriented behaviours, which were associated with school success, less than other students. There was evidence that some students with hearing loss used alternative peer-oriented learning strategies with some success. Also compensatory practises by teachers, including using Aboriginal teaching styles, appeared to assist some students with hearing loss.

INTRODUCTION

The failure of Aboriginal students from traditionally oriented backgrounds to succeed at school has been a major concern of Aboriginal Education. Those considering this problem have mainly focussed on the role of cultural and linguistic differences. Aboriginal learning styles (Harris, 1988,86) and their mismatch with the instructional demands of school (Christie,1984) have been among the main factors put forward to explain Aboriginal students' learning difficulties and poor school achievement.

This study investigated the role played by mild hearing loss in inhibiting Aboriginal children's learning. A number of studies have demonstrated a far higher prevalence of hearing loss among Aboriginal children than among non-Aboriginal children in Australia: up to 50% of Aboriginal students at any one time are affected by mild hearing loss

and 80% have recurrent hearing loss throughout their schooling (Nienhuys and Burnip, 1988).

This is one of the first studies to investigate the relationship between Aboriginal children's hearing loss and their learning. The study used quantitative and ethnographic data to investigate the class room behaviour of a multi grade Aboriginal class group.

METHOD

Subjects

Twenty-three students from traditionally-oriented backgrounds who were in a multi-grade Aboriginal class in Darwin. Students were taught by a non-Aboriginal and two Aboriginal assistant teachers.

Hearing Tests

Hearing tests, pure tone audiograms, were carried out by an Education Officer trained and experienced in paediatric audiology. Students were classified as having a hearing loss if they had a bilateral (both ears) loss of greater than 20 dB. This level of hearing loss is classified as 'mild' and generally considered not to be educationally significant.

Teacher Survey

A teacher survey, completed together by the teacher and assistant teachers, gathered information on students' attendance, achievement and certain 'teacher-oriented learning behaviours'. These behaviours were:

- *contributions the student made to class conversations;*
- *the students attention in large group discussions;*
- *how the student carried out teacher directions and*
- *the degree to which students answered questions in class.*

Interviews

Interviews were carried out with the teacher and assistant teachers. All the teaching staff in this class were very experienced in teaching Aboriginal children. Information gained in interviews elaborated on teacher survey data and explored issues arising from analysis of survey data.

Observation

The researcher observed children's behaviour over a three month period.

QUANTITATIVE RESULTS

The four individual questions on students' teacher-oriented learning behaviours were scored to give a single TOLB¹ score for each student. The Mann-Whitney U Test was used to determine if there was a statistically significant association between teacher oriented learning behaviours and achievement, attendance and hearing loss.

Teacher Oriented Learning Behaviours and Achievement

Low teacher-oriented learning behaviours were strongly associated with students low achievement ($P < .005$). This supports that the successful exercise of these teacher oriented, highly verbal learning behaviours is crucial for students' school achievement.

Teacher Oriented Learning Behaviours and Hearing Loss

Seven of the twenty-three students tested were found to have a hearing loss at the time tested. These students had significantly lower ($p = .05$) TOLB scores than other students. This suggests that hearing loss contributes to Aboriginal students' difficulties in using teacher instruction to learn.

Teacher Oriented Learning Behaviours and School Attendance

There was a trend for poor school attendance to be associated with low TOLB, however, this did not reach a level of statistical significance ($P > .05$).

1 Teacher Oriented Learning Behaviour

ETHNOGRAPHIC RESULTS

STUDENTS WITH HEARING LOSS

Low Achievement and Hearing Loss

Four of the seven students with hearing loss achieved at a low level. Two of these students were the only students in class for whom their regular attendance was not associated with moderate achievement. They often avoided work by involvement in 'busy activities', drawing pictures, for example, and attempted to 'ritualize' activities. Their school behaviour exemplifies Aboriginal students being 'non-purposeful learners' as described by Christie (1984). Hearing loss would make 'purposefulness' difficult in learning contexts which are highly verbal and teacher oriented. For those students school is a place where unfamiliar social behaviour is expected of them in pursuit of little understood goals by means of instructions which are often incomprehensible because of hearing loss. In such a context ritualisation becomes an adaptive survival response.

He likes any routine tasks; such as copying from the blackboard. He has limited written language and has been limited by his trying to repeat the same formulae (Teacher)

Hearing Loss and Poor Attendance

The students who had the greatest learning difficulties of all students in this class, were two students with hearing loss and also attended school poorly. School for them was a frustrating place where they experienced failure constantly. These students were not even able to manage some degree of independence through ritualization. They needed one to one help to participate in any activities.

He needs lots of direct instruction...to be told what to do in each step of an activity (Teacher)

I would talk to her but she would just sit there laughing at me. Sometimes she would talk back to me but I could not understand her. She would not know what to do in class. If she was drawing a picture it would just be scibble. (Assistant Teacher)

The difficulties they experienced in participating in class activities often led to frustration and they often disrupted the work of other students in class.

If she can't do the work she will often want to do something else and she 'bosses' her cousins to do things with her. If she can't get her own way she mumbles in language, gets upset and stops doing things.

(Assistant Teacher)

Hearing loss and poor attendance appeared to lead to compounded educational difficulties for these students. Both these students ceased attending school during the course of the study. They were the only two students in the class to do so.

Moderate achievement and hearing loss

Three students achieved at a moderate level despite their hearing loss. These students exhibited classroom behaviours that appeared to help compensate for hearing loss, or in one case to engage in social activity that was an acceptable alternative to being a learner.

Helping as a coping strategy

One student was described as achieving at a moderate level and had high levels of TOLB despite a hearing loss. Her hearing loss would appear to be associated with no educational difficulties. However interview data suggests this may not be so.

Brenda² is known as "Auntie Brenda" by staff because she helps her younger relations constantly. Brenda has reached a plateau in her learning and that she has been on this plateau about 18 months; since she moved from the younger group in the class. Brenda rarely does her own work in class but spends her time helping.

It appeared Brenda has created a niche at school as a helper rather than a learner. She sought to progress no further than her present achievement levels, which was sufficient to enable her to help her younger relations.

² When presented ethnographic data students real names are not used.

Helping for Brenda may have represented a way of coping with learning difficulties associated with hearing loss; a coping strategy that is valued by Aboriginal society and sometimes even by teachers. Transition from the younger group in class was a critical point in Brenda's schooling where she ceased trying to progress at school.

Compensating for Hearing loss

Two students with a hearing loss had low TOLB yet still achieved at a moderate level. While this may be related to their normal hearing and better teacher-oriented learning behaviours in the past, there is also evidence they used alternative learning strategies; strategies which focused on peers rather than teachers. There were three type of peer-oriented learning strategies noted.

1) *Learning through observation of peers*

These two students were most noticeable among students in class in their use of observation to learn.

He (Malcolm) is always interested in what others are doing and seems to get ideas of what to do if he is not sure. (Teacher)

He (Daniel) is often with other children watching them without interacting. (Teacher)

Observation is typical of traditional Aboriginal learning styles. When observation is used by students in a traditional Aboriginal learning style, modelling is the teaching strategy that complements the student's observation. However, with these students, observation is mostly not part of a planned teaching strategy. It is vicarious observation of other students as they go about their work. Observation is also a step in the development of knowledge of class routines.

2) *Building a knowledge of class routines as a learning strategy*

These students appear to know school routines and use their knowledge of routines to help compensate for hearing loss in a way other students with hearing loss do not.

Their competence in this was most often mentioned in contrast to that of other students with hearing loss.

He (Daniel) knew class routines - when you sat on the mat and I'm in the chair you had to listen, if I had a book in my hand he knew I was going to read it and that he must sit and face me - some of the older kids, like Anne, did not understand that, but would get up to go and do something in the middle of a lesson. (Teacher)

Other kids, like Malcolm, had trouble with work too, but he had been at school long enough to know what to do. (Teacher)

3) *Avoiding risk taking in class participation*

Both these students were notable in their reluctance to respond in class. This was the first thing said about them by key respondents.

Daniel appears not prepared to take any risks. This involves minimal involvement in class to the point of refusing to talk or make non-verbal responses. (Teacher)

He (Malcolm) does not let you know if he has not understood something you have told him. Sometimes he is reluctant to do things you ask him. (Teacher)

Hearing loss would make it difficult for students to engage successfully in verbal interactions with the teacher. From these students' perspective, a response is likely to result in failure to give a 'right answer' and the subsequent likelihood of the teacher drawing attention to this by providing verbal help which they are then also likely to have difficulty benefiting from. Refusal to participate may avoid being shamed in class, while they use observation of other students to 'learn' what to do. It appeared that these students would sometimes respond in class when they were sure of what was expected in the task and confident in their capacity to meet these expectations.

Teachers assisting students with hearing loss

Certain teacher practises that appeared to help students compensate for their hearing loss were also observed by the researcher. The teacher was observed to change her communication style when interacting with some students with hearing loss. She spoke to these students in a louder voice, generally after touching them to gain their attention. She also encouraged these students to watch others engaged in an activity before attempting to give an explanation of what was expected in the task. Surprisingly, the teacher herself was unaware that she was communicating differently with some students. At the stage this was observed she also did not know which students had hearing loss. She was aware of which students had difficulties with class work, of course. The explanation for her adapting her communicative behaviours is most likely that her years of experience in teaching Aboriginal children has resulted in her developing 'intuitive' communication strategies with children having difficulties that were effective with students who had communicative difficulties associated with hearing loss.

Aboriginal assistant teachers also demonstrated teaching strategies which appeared to assist some students with hearing loss overcome learning difficulties. In one instance that was observed the assistant teacher removed a student with hearing loss from the group activity in which she was failing. She then taught the student in a series of steps by modelling the response expected. During this process there was no verbal interaction whatsoever.

The assistant teacher takes Alice to another table. At the separate table the Assistant Teacher writes a sentence on a sheet of paper. Through pointing to the words she has written and then to Alice's book she explains non-verbally what she wants Alice to do.

Alice responds by pointing to the words the Assistant Teacher has written - asking for confirmation. Assistant Teacher moves around behind Alice and holding Alice's hand, which holds the pencil, she co-actively writes the first letter in Alice's book. Alice watches intently. Neither Alice or the Assistant Teacher have spoken during this process.

The Assistant Teacher points to the next letter; an "o". Alice makes an "o" in the air; again asking for confirmation. The Assistant Teacher picks up the pen again and starts to write in Alice's book by herself. Alice watches intently, moving her head to get a better look around the Assistant Teacher's arm. The next letter Alice does by herself.

During this teaching the student's attention was rapt and she demonstrated a strong responsiveness. This was in contrast to the earlier activity, one heavily based on verbal instruction, where the student's attention had been distracted and she was little involved. In the activity described above there was a congruence between teaching style and learning style: modelling/observation were the reciprocal teaching/learning behaviours. This was a conscious teaching style adopted to suit the student's needs and one which the Aboriginal Teacher employed with other students with hearing loss.

"Stephen was slow to understand things. You talk to him and he does not understand you. But if you come and show him he would do it good."
(Assistant Teacher)

"I have to show him (Malcolm) before he starts doing it. Like with Alice. I would talk to him and he would sit and look at me, but if I stand behind him or sit with him and show him, he gets on well with it."
(Assistant Teacher)

The use of Aboriginal teaching styles, involving non-verbal communication, would seem to be able to assist students with hearing loss compensate for their inability to utilize verbal instructional strategies. In this class such teaching strategies were only used as a 'last resort' after the students failed to or refused to participate in highly verbal Western teaching styles. Aboriginal teaching assistants reported they did not use Aboriginal teaching styles too openly as they had sometimes been criticised for "not teaching properly" by some Western teachers when they had been seen to use them. Despite greater effectiveness of Aboriginal teaching styles with children with hearing loss

it would seem that these methods are inhibited by the views of some Western teachers that good teaching is only that which is based on lots of teacher-centred talk. This places Aboriginal teachers in a no win situation where if they attempt to teach students with a hearing loss most effectively they run the risk of being seen as incompetent teachers. One component of the educational problems of Aboriginal children's hearing loss would seem to be the attitudes of some non-Aboriginal teachers.

STUDENTS WITH NO HEARING LOSS

Low Attendance, Low Achievement

For most students without hearing loss who were poor attenders, their low achievement was associated with low attendance. These students were generally mentioned in regard to their poor motivation when they did attend school.

*Jane will do what is asked but no more.
She will often say it is too hard. She
will often do a little bit of work then
go to sleep on the carpet. (Teacher)*

*He can do his work but he is lazy and he
does not come to school much. (Assistant Teacher)*

These students' learning appears limited by their poor attendance and then by their low motivation when at school. Because of the limited time they spend at school, the learning activities they are involved in there may be of less importance to them, than they are to regularly attending students.

From the perspective of the class teacher these poorly attending students with normal hearing behave in a similar manner to regularly attending students with a hearing loss. Both groups are often similar in class in not answering questions, following directions. etc.. This makes it difficult for the teacher to suggest students who may have a hearing loss on the basis of classroom behaviour alone.

High Attendance, Moderate Achievement

For all students without hearing loss, regular school attendance was associated with moderate achievement.

These students were most often described as *'catching onto ideas quickly and being able to work independently.'* However the demands of less competent students on teacher time mean it is easy to overlook the needs of these students for educational challenge.

"I often worry about the danger of forgetting about her because she copes so well. Academically she can cope very well, but others slow her down and she is often bored.
(Teacher)

"He understands what you want done but he does not come back to ask what to do next when he has finished. Often I am so caught up in the chaos that I don't get back to him." (Teacher)

It is generally required of teachers that they give priority to assisting the less competent students or managing their actual or potentially disruptive behaviour. Failure to do so is to risk escalation of the 'chaos' to unmanageable levels. It is often a necessary expediency to leave the more competent students under-challenged.

"The trap is that its easy to give busy activities to students like Agnes and Nathan, to keep them occupied. It's difficult to find time to present them with more challenging activities, where they may need help. This is something that worries me.
(Teacher)

An end result of these students' educational needs not being met may be their choosing to join in the 'fun'.

"At times he (Nathan) would refuse to do his work and joins in with the kids mucking around - through boredom I think, due to the other kids holding him back.
(Teacher)

The students most demanding of teacher time to provide one to one assistance or to manage their disruptive behaviour were students with hearing loss. The fact that this was a multi-grade class with a wider range of achievement levels than exists in most Aboriginal classrooms may mean this occurs to a lesser degree in other Aboriginal classes.

It seems that all Aboriginal students' education may be affected by hearing loss, either directly by their own hearing loss or by the effects on the learning dynamics in Aboriginal classrooms of the high proportion of students with hearing loss.

DISCUSSION

Harris and Christie have pointed out that Aboriginal students have difficulties meeting the instructional demands placed on them in Western schools. They point to the contribution of linguistic and cultural differences in Aboriginal students' ability to benefit from Western education. This study suggests, furthermore, that students with a hearing loss have more difficulties than other Aboriginal students in learning through the teacher-centred, highly verbal teaching styles that are predominant in Western schools. Moreover, the difficulties of these students create demands that may affect the learning of all Aboriginal students.

Christie (1984, p357) argues that schools fulfil four functions - 'custodial care, socialization, indoctrination and education' and that the fourth function occurs only insofar as resources remain after the first three functions are performed. It would seem that the high utilization of resources by some students with hearing loss, may restrict the resources available for education, for other students in class.

Hearing loss and, to a lesser extent, poor attendance, appear to inhibit the learning behaviour important for success at school. Furthermore, students with the combined disability of hearing loss and poor attendance are those least able to successfully participate in schooling. Recognition of the role of hearing loss has been difficult because of problems of identifying students who possibly have a hearing loss. Students with hearing loss are similar in their learning behaviour to many poor attenders without hearing loss. Also, students' behaviours associated with hearing loss, for example, not answering and not following directions, are mostly ascribed solely to cultural and linguistic differences. As Price (1981) said, an Aboriginal child with hearing loss "is just like everyone else, except more so" (p11).

Before the hearing tests were carried out in this study, the class teacher believed that no students in her class would have a hearing loss. She felt that differences in students' learning capabilities were mostly due to cultural differences. Some students' more effective learning at school was accounted for by their greater acculturation to the Western school expectations. She may have been right, but in a round-about way. Aboriginal students have little experience in learning through verbal interaction with adults. Hearing loss, through limiting exposure to 'teacher talk', especially when talk is in a unfamiliar language, may act as a further obstacle to them 'learning-how-to-learn' from teacher instruction. Students with recurrent hearing loss are likely to have greater difficulties than other Aboriginal students in becoming acculturated to Western schooling.

THE IMPLICATIONS OF ABORIGINAL STUDENTS' HEARING LOSS FOR SCHOOLS

It is important not to consider these learning difficulties solely a problem of the students' poor learning competencies leading to their failure at school. As Christie commented, Aboriginal students' school failure can be viewed equally as the failure of the school system to take account of the special nature of Aboriginal education. This study suggests it is crucial for schools that are involved in the education of traditionally-oriented Aboriginal children to take account of hearing loss as a potential educational handicap. We need to consider how schools currently meet the needs of Aboriginal students with hearing loss and how the fabric of Western schooling can be altered to better meet these needs.

This will require extensive research and for the results of this research to be considered in formulating educational practice and policy in Aboriginal schools. Firstly, this means considering hearing loss when allocating resources within schools. This study points to the proclivity of students with hearing loss to behave disruptively, as well as their need for one to one educational support. When determining class sizes and allocation of additional support, the proportion of students in a class or school with hearing

loss should be considered. The potential of some Aboriginal teaching strategies to help compensate for educational difficulties related to hearing loss, would suggest one effective form of additional support. This would involve greater access of students to Aboriginal teachers and assistant teachers, who are skilled in Aboriginal teaching styles. If these skills are to be used gainfully the attitudes of some Western teachers may need to change to be more accepting of Aboriginal teaching styles.

Additionally, the compensatory practises described in the ethnographic results suggest ways to assist overcoming educational problems associated with hearing loss. Compensatory strategies noted in this study were: the use of peer-oriented learning strategies by some students; Aboriginal assistant teachers use of Aboriginal learning strategies; the adaptation by the teacher of her communication with students with a hearing loss. They indicate the potential for educational strategies to assist students avoid hearing related learning disabilities.

The compensatory support described in the ethnographic results was not part of planned interventions. It relied on the skills, intuitions and experience of particular teachers and assistant teachers, or the responses of individual children. Most of the teaching staff in remote schools are not as experienced as were the staff in the classroom studied. This means the capacity of staff to provide compensatory support in most Aboriginal classrooms is probably not as developed as in this class. It should be possible, however, to develop and refine compensatory strategies so they can become planned educational interventions, the components of which are taught to teachers and encouraged in Aboriginal students.

AMPLIFICATION AND TEACHING-HOW-TO-LEARN

Amplification is also one possible aspect of educational support for students with a hearing loss. Quinn (1986) used FM amplification which proved both beneficial and acceptable to Aboriginal children. Teachers reported students improved in both participation and performance. The use of modified Walkman radios also overcame students' reluctance to use devices that were more obviously hearing aids. None of the children in this study

used amplification. However, the results from the study suggest that the effectiveness of amplification, especially FM amplification, may be enhanced by teaching-how-to-learn through-teacher-talk.

FM amplification involves a microphone around the teacher's neck transmitting directly to the head phones of students in class who have a Walkman radio adapted to receive the signal. Amplification thus provides students with improved access to teacher instruction. If students have not adequately 'learned-how-to-learn' using teacher instruction, the improved auditory signal may not result in the degree of educational improvement that might be expected or is possible. Introducing FM amplification simultaneously with an aural habilitation program may enhance the educational effectiveness of amplification. An aural habilitation program would aim to 'teach-how-to-learn', using teacher-centred verbal instruction. Indeed, programs that teach how to learn from teacher talk may be of benefit to all traditionally-oriented Aboriginal students, but they would be of special benefit to students for whom hearing loss had been an obstacle to learning-how-learn-at-school.

In order to meet the needs of the high proportion of Aboriginal students with mild, recurrent hearing loss, much work is required to establish support strategies in the classroom and the school structures to implement them. It would seem Aboriginal students' hearing loss has long been an identified factor contributing to the problems of Aboriginal education. Hearing loss would appear to magnify the inherent difficulties existing in cross cultural education. Schools coming to terms with Aboriginal students' hearing loss is likely to be a valuable contribution to addressing the problem of the failure of Aboriginal students to benefit from Western schooling.

TEACHING ABORIGINAL STUDENTS WITH A HEARING LOSS

Anne Jacobs (1988) compiled a useful booklet on teaching Aboriginal children with hearing loss. Advice to teachers includes:

- get closer to students,
- eliminate noise in classrooms as much as possible and

- get students' attention before giving instructions.

This study suggests further teaching strategies to assist Aboriginal students with hearing loss.

- Maintain routines in class activities. Predictability in the responses required will assist students with hearing loss to participate in class activities.
- Encourage students to use observation as a learning strategy. This includes observation of the teacher, by modelling the responses expected of students, as well as observation of other students; for example by asking the more able students to do a new task first while other class members watch.
- Increase the non-verbal content of your communication. Use facial expression, intonation and gesture to supplement, or even at times replace words.
- Be careful of moving students between classes and within groups in class if you suspect they may have a hearing loss. If changes must be made give students a chance to observe new groups before they are expected to participate, or move them with another student who can help them.
- Encourage the use of Aboriginal teaching styles. This means non-Aboriginal teachers also learning Aboriginal teaching styles.

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Only a minority of students were able to learn effectively from 'teacher talk'. These were mostly students who did not have a hearing loss and were regular school attenders.



The demands on teacher time of students with hearing loss for, either 'one to one help' or to manage their disruptive behaviour meant that often the more able students did not have their educational needs met.