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**Knowing Who May have a Hearing Loss:
a simple speech reception game for use by teachers and parents**

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Damien Howard

Middle ear disease is one of the most common childhood illnesses (Kokko 1974) and often results in hearing loss. This type of conductive hearing loss is endemic among Aboriginal children in particular. Between twenty-five and fifty percent of Aboriginal primary school age children are affected by hearing loss at any point in time (Quinn 1988). However, Aboriginal children's hearing loss is often not identified, in part because of 'masking' due to cultural differences. The awareness of possible hearing loss among non-Aboriginal children is usually prompted by children's behaviour. For example, the children don't follow directions and fail to answer questions. However, among Aboriginal children these behaviours may also be attributed to cultural differences in appropriate social behaviour (Harris 1980). Therefore, concern about possible hearing loss is less likely to emerge on the basis of the behaviour of Aboriginal children (Price 1981, Howard 1991). This means identification of Aboriginal children's hearing loss often occurs only if children are tested, usually as part of a hearing screening program. However, in some areas of the Northern Territory at least, the likelihood of Aboriginal student's hearing being screened has actually diminished in recent years.

There are a number of obstacles to regular hearing testing programs operating. Since the conductive hearing loss fluctuates, it is necessary to conduct regular testing programs. These require trained staff and equipment which must be regularly maintained. Further, nurses and Aboriginal health workers, who most often conduct screening programs, already have heavy demands placed on them. It is often difficult for health staff to find the time to conduct hearing screening, especially given that the middle ear disease which produces conductive hearing loss is a relatively 'minor' health problem in comparison with the range of other Aboriginal health problems.

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Nevertheless, identification of Aboriginal children's hearing loss is important because of the major educational and social consequences of conductive hearing loss (Howard 1991). The identification of Aboriginal children's hearing loss is likely to continue to be problematic while it remains so reliant on hearing screening being carried out by health professionals who often do not have the training, reliable equipment or the time to conduct regular programs. *There is an obvious need for simple, reliable ways that those most concerned with the consequences of hearing loss (parents and teachers) can become aware of whether children may have a hearing loss.*

Informal Speech Reception Testing

One method of identifying students with a possible hearing loss was suggested by Peter Strong, an adviser on deafness from New Zealand, who worked for a short time in the Northern Territory. He suggested an informal speech reception test which was adapted from a test sometimes used by audiologists (the Kendal Toy Test). The test involved determining if a subject can consistently respond to verbal instructions given in a quiet voice.

When this test was used to identify children who might have a hearing loss among Aboriginal students in two remote schools, it successfully identified all students with a hearing loss greater than 35 dB in the better ear (Gutheridge and Strong in press). While this informal test is very promising, it has the disadvantage that administration is individual as well as needing the involvement of two adults- one to say the instructions and one to check the sound level. Further, there are reasons to believe that it is not desirable to have an adult, especially non-Aboriginal adult, determining what is an 'adequate' sound level for Aboriginal children. Plant (1989 p 215) presented evidence that in noisy conditions, the speech perception of adults who speak English as their first language will be significantly better than that of children for whom English is not their first language or who speak non- standard English.

This author sought to overcome the above difficulties by further adapting the speech reception test. This resulted in a game called '**Blind Man's Simon Says**'. The game involves a group of no more than five children standing at the front of the room with their eyes shut, while an adult standing at the back of the room asks them, in a quiet voice, to put their hands on different parts of their body (how to use this game is described in detail later). The children in the group without hearing loss provide the 'check' that the sound level is adequate. This test can be used by a single person to quickly test a whole class group.

This informal hearing test was evaluated at a Darwin school where Aboriginal students' hearing was formally tested¹. Students were initially involved in a hearing screening (1000& 4000 Hz at 20 dB). Any students who failed this screening were given a full hearing test using pure tone audiometry and tympanometry. Immediately before screening tests were carried out students were videoed playing 'Blind Man's Simon Says'. A teacher, who did not know any of the children tested or their hearing test results, then watched this video and on the basis of particular behaviour exhibited during the game (criteria of behaviour is included in the description of how to play "Blind Man's Simon Says") identified which students may have a hearing loss. A comparison of students who were identified by using this informal speech reception game and those who were found to have a hearing loss after formal audiometric assessment is presented in Table 1.

Table 1

Comparison of Results of Speech Reception Game and Formal Audiometric Assessment for forty-nine Aboriginal Students

Speech Reception Game

<u>Identified</u>	<u>Passed</u>
(hearing suspect)	(hearing not suspect)
n = 26 Children	n = 23 Children

Formal Hearing Assessment

<u>Identified</u> (hearing loss in both ears > 20 dB). n =18 children	17	1
<u>Identified</u> (hearing loss in one ear > 20 dB). n = 3 Children	2	1
<u>Passed</u> ² (no hearing loss) n = 28 Children	7	21

These results indicate that the informal speech reception test identified nineteen of the twenty-one students who were found by formal audiometric assessment to have a hearing loss in one or both ears. Of the two students not identified by the informal speech reception test, one was found to have a mild hearing loss at some frequencies in one ear and the other was found to have a mild hearing loss in both ears (Av. 29 dB left ear, 27 dB right ear). This second student's hearing loss appeared to have been 'masked' during speech reception by being in a group with younger students most of whom had more severe levels of hearing loss than she. *These results suggest that this informal speech reception test is a simple, effective way for parents and teachers to identify which children may have a hearing loss.*

It must be noted that this speech reception game has been compared with an hearing assessment process that relied on 'hearing screening', a method which has been described as inadequate as a means of identifying conductive hearing loss (Cooper 1983). However, since hearing screening is what is used in current programs which identify hearing loss among children, these results are meaningful as a comparison of this speech reception game with the predominant group identification procedure in current use.

One advantage of speech reception testing is that it enables communication difficulties of students with a hearing loss to be demonstrated in a way that is immediately meaningful. This is important since even when hearing loss has been identified it is sometimes ignored by parents and teachers, who are unaware of the implications for communication and education. Hearing results are usually presented in the form of an audiogram, which does not present hearing loss in a particularly meaningful way for those without some training in audiology. Further, it is described in terminology (slight, mild, moderate) which tends to minimize concerns about levels of hearing loss that may, in fact, have major communicative and educational importance especially for Aboriginal students who are linguistically and culturally different.

Therefore, this speech reception game may be useful to 'demonstrate' hearing loss in a meaningful way to parents and teachers in conjunction with formal hearing tests. However, it is among children who do not have easy access to audiological services that this game is likely to be most useful. In the absence of regular or any formal testing, it can provide a way for teachers and parents to be aware of which students are likely to have a hearing loss.

Parent and teacher awareness of hearing loss is crucial if the negative educational and social consequences of hearing loss are to be avoided. Communication problems resulting from unidentified hearing loss can drastically affect children's relationships with peers, parents and teachers as well as students ability to learn from verbal instruction. Identification of which students have a current hearing loss is essential if these negative consequences of conductive hearing loss are to be avoided (see Appendix 1 for strategies to assist this). Additional methods to identify Aboriginal children's hearing loss are particularly urgent because of the 'masking' effect of cultural differences. However, this game may also be useful among non-Aboriginal children, since identification of conductive hearing loss is also a concern among them (Moore and Best 1984). A greater awareness of conductive hearing loss among teachers and parents is a necessary step toward the development of adequate audiological and educational services for the many children who experience conductive hearing loss. The simple speech reception test that is described on the following pages may assist to identify children with hearing loss and, hopefully, contribute to the development of greater understanding about the educational and social consequences of conductive hearing loss, about which we know so little.

How to play 'Blind Man's Simon Says'

Select four or five students at a time for this activity. Be sure to select a mix of students in each group, including some whom you believe have good hearing. Firstly, explain the rules - these are, that you will ask them to shut their eyes and then ask them to do some things, often in a very quiet voice, but they do not have to wait for you to say, 'Simon says'. The students participating stand at the front of the classroom, while you stand at the back. As much as possible groups should comprise students of a similar age, so try to avoid testing year one and year six students in the same group, for instance. Make sure students stand a little apart from each other so they do not pick up 'touch cues' from their neighbours. It is important to minimize the background noise in the classroom during the game; explain to students the importance of their silence while others are having their turn, turn off air conditioners and fans and even move to a quieter room if necessary.

Step One

Start the game by saying one at a time all the instructions you are going to use in a loud, clear voice. Ensure all the students can perform the directions when they are given in a loud, clear voice.

Below is a list of instructions you can use.

*Put your hand on your nose
Put your hand on your hair
Put your hand on your cheek
Put your hand in the air
Put your hand on your ear
Put your hand on your chin
Put your hand on your knee*

Be sure to vary the order that these directions are given when playing this game regularly, so students cannot predict what they are going to be asked to do next.

Step Two

After all the students have demonstrated that they can follow these instructions when they are given in a loud voice, tell the students that you are now going to say them quietly.

Dropping your voice, but not whispering, give a direction. Use the students participation to check your sound level. You do this by lowering your level till some students can follow the instructions but others have difficulty. If all the children have difficulty hearing you then you know you need to raise your voice level. The children in the group with normal hearing confirm for you that you can be heard. This is why it is crucial that the groups are not made up only, of students whose hearing is suspect. If you think that the hearing of all the students in a particular group may be suspect, rearrange the group to include those who had no problems earlier and play the game again.

Step Three

When you have said an instruction a few times quietly, repeat it in a loud voice again. Those requiring a louder level of voice to hear' are then obvious. This also ensures that even those who have difficulties can still experience success during the game.

Step Four

Continue to go through the different instructions until you can discern which students are having consistent difficulties. Some words, through sounding similar, are harder to distinguish between - for example air, ear and hair; cheek and chin; knee and nose. Use these more frequently to help confirm which children are having difficulties.

What To Watch For

As well as watching for students

- (a) who have consistent difficulties following the directions you give in a quiet voice, and*
- (b) who make sudden corrections when you say the direction, finally, in a loud voice, also watch for students who:*
- (c) follow the instructions after a short delay,*
- (d) turn to peek at what others are doing,*
- (e) consistently turn their head around to favour one ear,*
- (f) make ambiguous movements - for example having their hands hover' around the sides of their head, or,*
- (g) are reluctant to participate or are disruptive during the game.*

Take note of students who you consistently observe responding in these ways. These are students whose hearing is suspect.

Students with a current hearing loss in both ears and even some students with a loss in one ear display obvious difficulties during this activity. Further, some other students, without a current hearing loss but who may have had past hearing loss which has left them with some listening difficulties in class, also demonstrate problems³. However, be aware that students with a hearing loss in one ear may not have difficulty with the activity. If a student's behaviour or learning difficulties raise the possibility of hearing loss, but they do not seem to have difficulties with 'Blind Man's Simon Says', you should still refer them to have their hearing formally assessed.

This simple activity is popular and can be used regularly with the whole class⁴. It is an activity that can be useful in suggesting students to refer for hearing tests. Also, importantly, it can assist teachers to be aware of which students in their class are having difficulties with verbal instructions. An elaboration on this activity is to carry it out in normal classroom conditions (i.e. with fans and air conditioners going and normal background noise). Recent research suggests that children who have a history of otitis media are left with difficulties in detecting and perceiving speech in noisy environments (Moore et al, 1991). Therefore, playing the game in normal classroom conditions may identify some children who do not have a current hearing loss but do have 'listening problems', in that they have difficulties in detecting and attending to speech in the presence of background noise.

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² Of the seven children identified by the speech reception game who were passed by audiometric assessment, three of these had also failed the hearing screening but 'passed' full assessment.

³ This possible explanation of the difficulties demonstrated by some students without a current hearing loss during 'Blind Man's Simon Says' was suggested by Anne Lowell - a speech pathologist who is currently investigating Aboriginal children's hearing loss.

⁴ A video of how to play 'Blind Man's Simon Says' is currently being planned. If you are interested in a copy write to:

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Appendix 1

Responding to the Educational Needs of Aboriginal Students with Hearing Loss ⁶

Implications of Aboriginal Students' Hearing Loss for Educational Policy

- Schools need to develop and implement programs to identify students with a current hearing loss.
- The educational needs of students with a hearing loss should be considered in allocation of resources at both a system and a school level.
- Access to Aboriginal teachers should be considered a priority when providing resources to Aboriginal students with hearing loss.
- Students' greater access to Aboriginal teachers will not be productive if these teachers are expected to replicate unsuccessful Western teaching practises.
- Streaming which concentrates students with hearing loss into lower ability groups should be avoided since this inhibits student's use of valuable peer learning strategies.

Teaching Strategies for Aboriginal Students with Hearing loss

- Organize instruction so that students have maximum visual cues- stand in a well lit area facing students when speaking, seat students in a circle during large group work so they can also see the faces of other students who speak.
- Maintain routines in class activities. Predictability in the responses required of students will assist students to know what is expected of them even, if they cannot hear the instructions well.

⁶ For details on the rationale of the suggestions described below see Howard (1991) Mild Hearing Loss and Aboriginal Children's Learning. *The Aboriginal Child at School*. Vol.19 No.1 Feb/Mar.

- Encourage the use of observation as a learning strategy. This includes student's 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, so other class members have an opportunity to watch.

- Take care in moving individual students between classes and within groups in class if it is suspected they may have a hearing loss. If changes must be made, it is better to move the student together with another student who can assist them. Further, students are likely to cope better if giving chance to observe new groups before they are expected to participate.

- encourage the use of Aboriginal teaching styles in schools.

Communication Strategies With Hearing Impaired Children

- Get students attention before speaking
 - Get as close as possible to students when speaking .
 - Minimize background noise in the classroom.
 - Increase the non-verbal content of communication. Facial expression, intonation and gesture can supplement, or even at times replace, words.
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