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Music Therapy in an Early Intervention Centre for Children who have Cochlear  
Implants

A research dissertation in partial fulfilment of the requirement for the degree of

Masters of Music Therapy

New Zealand School of Music

Wellington, New Zealand

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2012

## Abstract

This research paper presents qualitative study using exploratory research as the framework. The aim of this research was to describe the music therapy interaction between children with cochlear implants and a music therapy student working in an early intervention program, and to open avenues for future research. The families/parents of three secondary participants gave informed consent for the use of their children's clinical data, including video footage of sessions, for research purposes. The findings highlight the complexities and the potential strengths and difficulties associated with the use of group music therapy to promote audition and language development in young children who have cochlear implants, in an early intervention program. However, the findings suggest that music therapy in this context can be used to support family relationships, participation, vocalisation, singing and self-confidence.

### Acknowledgements

It is my pleasure to thank and acknowledge all the people who assisted in the completion of this research dissertation.

I would really like to thank all the children who were secondary participants in this research and their parents. A special thanks to the staff at the Early Intervention Centre and the Deaf Education Centre.

I would also like to thank my wonderful supervisor Daphne Rickson who has helped me so enthusiastically with her unlimited energy for music therapy research, and is truly an inspirational person.

Completing this thesis was made possible through my fabulous family Grannie Jill, Papa, Grandma Noeline, Grandpa Sam, Jane, Helen and Tom.

Very special thanks to my husband Mark, who supported me through the highs and lows on this long journey.

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## Introduction

This research took place in an Early Intervention Centre (EIC) for children with hearing impairment over a five month period, where I was placed as a music therapy student for my final year of my Masters in Music Therapy. The EIC is part of a residential special school for hearing impaired children that also provides services and support for mainstreamed children and their teachers.

Music was already an important part of the early intervention programme and a music therapist had previously worked as part of the programme a number of years before I began my placement. Staff used music throughout the programme and specifically once a week with the group of children that are involved in this research. I was part of the early intervention programme for two thirds of the school year leading the weekly session as a music therapist, as well as working with other children on the programme who attended on other days.

The main aim of working with the hearing impaired children in the programme was to promote language development. Music therapy is part of the programme. The focus of this research was to explore the data I had collected, describing my interactions with the children, reflections on the practice of music therapy and also how music therapy might support auditory and language development in an EI programme. I felt this research could be useful for other music therapists working with hearing impaired children, as well as raise questions that could promote further research in this area.

The children who attend the particular group I am describing were hearing impaired and used cochlear implants. They attended the programme once a week from 9am to 12pm. Group music therapy sessions took place around mid-morning, lasting for 20 minutes. The children attended the morning programme and music therapy session with their parent/parents and siblings.

## Literature Review

### *Cochlear Implant*

To understand the usefulness and impact of cochlear implants on children with hearing impairment, it is important to know about the device itself. The cochlear implant is an electronic device that can restore sound awareness in children who are profoundly deaf or have a severe hearing loss. It can help to improve communication skills for children who have been unsuccessful acquiring benefits from hearing aids (Langman, Quigley, Souliere, 1996; Ackley, Decker & Limb, 2007). The cochlear implant helps users to perceive sound by bypassing dysfunctions of the inner ear and providing electrical stimulation to the functioning fibres of the auditory nerve (Gordon, 2011; Ackley et al., 2007) (see Appendix A).

There are many different types of cochlear implants, however cochlear implant designs at present commonly have external (outside the head) and internal (surgically implanted) components that are not physically connected to each other, but rather communicate via a radio frequency (Ackley et al., 2007). The external component has a microphone/receiver which picks up sound and sends it to the speech processor; the speech processor converts the sound to an electrical signal and sends it to the magnetic radiofrequency transmitter, which then sends the information via a radio frequency to the implanted component of the device. The receiver/stimulator receives the radio frequencies, processes them and sends them to the electrode contacts, stimulating the remaining fibres of the auditory nerve. In the final part of this process, the brain interprets these signals (Ackley et al., 2007) (see Appendix B).

To date children have largely received unilateral implants, however the amount of bilateral implants stimulating both ears, is increasing (Trehub, Vongpaisal, Nakata, 2009). In more recent years unilateral implant users have begun to use a hearing aid on the non-implanted ear should there be residual hearing improved by

the device (Litovsky, Johnson, Godar, 2006a). There are some limitations of the CI device that can create challenges for the CI user. One problem is that the CI produces an electrical sound that cannot be seen as a replacement for natural sound, as it is unable to perfectly code acoustic sound (Gordon, 2011). The CI also only offers unilateral stimulation, unlike the bilateral hearing of normal hearing children, this makes it difficult to locate sound and detect speech in a noisy environment (Gordon, 2011).

Currently cochlear implantation takes place at around 12 months old or possibly younger in certain circumstances, such as when parents give consent and medical staff deems it possible, and as approved by organisations such as the Food and Drug Administration (FDA) of North America (Winter & Phillips, 2009). In New Zealand implantation can take place with babies younger than 12 months old, however no younger than six months old (Bird & Murray, 2008).

### *The Development of Audition and Language in Children*

Evidence suggests that auditory development first begins when the physiological structure necessary for hearing develops, and anatomic connections from the cochlear to the brain occur in the foetus at around 20-30 weeks of gestation (Werner & Marean, 1996; Harrison, 2011). Once a child is born auditory development in the first three months can be observed when babies turn their heads towards the source of sound and are distressed by loud noises, and are sometimes quietened by a rattle, or bell. Babies are soothed by the human voice, cry when hungry, uncomfortable or annoyed, make contented guttural noises and coo in response to their mother's voice at around five to six weeks. They vocalise when happy and alone, by making sucking noises (Sheridan, 1973). Deaf babies also cry and vocalise however may not show a startle response to sudden noises. A baby, although sleeping for long periods of time, gradually becomes more alert and progresses towards smiling especially when hearing their mother's voice (Sheridan, 1973).

At six months babies vocalise alone and with others including single and double syllable sounds and vowel sounds, a-a, muh, goo, der. They tend to laugh and squeal, scream when annoyed, grasps small toys and puts them in their mouth, reaches for a rattle when offered, reserved when going to strangers. At nine months intentional inter-personal communication through vocalisation occurs. Babbling starts loudly, tunefully and repetitively and simple language such as 'no' and 'bye-bye' is understood. Babies begin to imitate sounds made by adults. A deaf baby's vocalisation does not progress to this level of repetitive tuneful babbling. At 12 months a child responds to their name and vocalisations contain vowel sounds and consonants. Children from the age of 12 months can understand several words in context and simple instructions accompanied by gesture. At 15 months they vocalise loudly and freely including a large variety of vocal tunes and phonetic units. They are able to speak around two to six words in context and understand many more. Children are able to communicate by vocalising and pointing at familiar objects, and listen and obey simple instructions. By 18 months the typically developing baby uses between six and 20 words confidently, understands more vocabulary than he/she is able to speak and attempts to sing. By the time a child is two years old they use 50 words and understand many more. The beginning of simple one to two word sentences are attempted to be articulated and they often talk to themselves; though their speech is not always easily interpreted by others (Sheridan, 1973).

#### *The Development of Audition and Language Skills in Children who Wear CI*

Children who wear cochlear implants do not necessarily reach the language milestones that normal hearing (NH) children do (Gordon, 2011) although children who are implanted early and have good auditory and linguistic input can develop speech and language skills that parallel normal development. Factors such as the child's age of implantation, their aided hearing levels, the skill level of parents and professionals involved in intervention, as well as the cognitive abilities of each child determine their progress (Perigoe, 1999). For NH babies the period in which they

discover sound environments through listening, is essential to their speech language development (Monti, 1985), particularly as they begin to connect meaning to sounds (Darrow, 1990b). However children with hearing impairment miss out on this initial exposure to sound, and studies show that the age of a child at implantation greatly influences whether they develop an early onset of babbling and good auditory performance (Robbins, Koch, Osberger, Zimmer-Phillips, Kishon-Rabin, 2004).

The earlier the implantation is received; the closer a child's auditory performance is likely to be to his/her normally hearing peers (Schauwers, Gillis, Daemers, Beukelear & Govaerts, 2004; Robbins et al., 2004). A study with children who received implantation before the age of five results showed that children implanted before 18 months old followed similar language development trajectories of normal hearing peers (Niparko, Tobey, Thal, Eisenberg, Wang, Quitter, Fink, 2010). The same study indicates that children receiving CI at a younger age showed higher increases in comprehension and expression compared to children implanted at an older age. Variables that also affected this outcome were greater levels of residual hearing prior to implantation, higher levels of parent-child interaction, and higher socioeconomic status (Niparko et al., 2010). Nicolas & Greers 2007, indicate that children implanted in the age range 12-16 months were more likely achieve age appropriate spoken language, and children implanted after 24 months did not catch up to normal hearing peers by four and a half years, and after the age of three years children may have great difficulty reaching language levels of normal hearing peers. Research suggests that children who undergo implantation before the age of three years old, show impressive auditory skill development during the first year of using a CI (Robbins et al., 2004). Nevertheless not all children who receive a cochlear implant will have their hearing improved or necessarily develop good oral communication. This is due to abnormalities in the auditory system, cognitive issues, and/or limited access to rehabilitation programs (Winter & Phillips, 2009; Gordon, 2011). The rehabilitation immediately following implantation such as intensive therapy and educational programs, are essential to the initial stages of identifying and understanding speech (Winter & Phillips, 2009).

While early intervention (EI) programs can provide the necessary support for children with cochlear implants post implantation, they also help the child and their families through the rehabilitation process. Specialised programs are very important for children with special hearing needs. EI helps children to reach their greatest potential through supporting their growth in socialisation, self-expression, communication, concentration, and within physical domains (Archer, 1995; Humpal, 1990; Perigoe, 1999; Rickson, 1993; Romanik, 2008). The use of music is common in early intervention and music therapy is a practice that can support and enhance the work of other professionals in that context (Humpal, 1990).

Music therapy as part of the early intervention program can offer encouragement and support to parents to become involved with their children in enjoyable and enriching ways, giving them the confidence to use music with their child (Archer, 1995; Mulcahy, 2009; Yucel et al, 2009). The music therapist aims to motivate parent participation, choosing appropriate repertoire and activities to encourage parents to continue the work in the home environment (Archer, 1995).

Parents play a very important role in the rehabilitation process of their child as they enable language development and intervention programs to be more effective (Simser, 1999). When children first receive their hearing aids or cochlear implants it is useful for parents and caregivers to use a simplified form of speech often used by a mother with her child, which is different to a typical adult directed style. This is called *parentese* or *motherese* and is a form of acoustic highlighting used to make speech more perceptible, giving infants more time to analyse the language (Simser, 1999; Trehub, 2009). It is important at these initial stages for parents to support language development by interacting vocally with their child, motivating and encouraging them to increase their vocal responses (Perigoe, 1999). Stern's developmental theory supports the idea that pre-verbal communication or *motherese* is linked to music sharing elements such as tempo, rhythm, tone, phrasing, form and intensity (Wigram, Pedersen, Bonde, 2002). In particular, music therapy improvisation is based upon Stern's theory that communication and self-expression can be found in any form of sound (Trevanthen & Malloch, 2001).

### *Music to Support Auditory and Language Skills*

Acoustic highlighting as described above is also evident in music, suggesting the development of language can be supported through music therapy. For example, while it is useful to speak to children who have HI using shorter phrases, many children's songs are made up of short repetitive phrases. Emphasising key words in speech can be paralleled in music by accenting (emphasising) key lyrics. A strategy is to position a word intentionally in a sentence, by placing a word at the beginning of a sentence, moving it to middle and then the end of a sentence. In music a word can be placed at the beginning, middle and end of a musical phrase (sentence), pausing before the word, after the word and/or singing a word louder with clear articulation to make it sound more important. An example of this is singing "How (then pausing) much is that Doggie in the window", or "That doggie, how (pausing on how), much is he" and "That doggie in the window, is (pausing) how much?" The use of music therapy to support the principles of acoustic highlighting could also be applied to other language learning techniques.

Music can include the principles of open and closed set to encourage language development. Open set is when students process language without prompts, for example asking a child to name an instrument without giving them a visual cue. Closed set involves giving a child a limited number of choices or given prompts to assist identification, recalling and comprehension. In music this can be the same as offering a student a choice between one to two instruments or songs, and then expanding the number of choices. Speaking at a slightly slower rate can be paralleled in music by singing a song at a slower tempo (speed) in music. Increasing pitch variations and rhythm in speech correlates with singing songs using a melody that has pitch variation in the melodic line and/or changing the pitch up and down (perhaps using a glissando) on any given note and using songs that have a variety of rhythmic styles. Lastly, increasing repetition in speech correlates to repeating songs and/or lyrics of a song in music. When a child first learns language, acoustic highlighting is used often and then decreased as their development progresses (Simser, 1999).

Presenting information in what is termed an *auditory sandwich* is a communication strategy used to support language development with hearing impaired children who have cochlear implants (Koch, 2000), and this approach could also be used in music therapy. The auditory sandwich has been developed from understandings that children with HI initially rely largely on visual information, and so the *auditory sandwich* aims to combine the vision and hearing to encourage auditory skill development (ibid). Firstly new auditory language, such as 'dog' is presented to which the children listen. The language is then repeated as often as necessary to create an *auditory impression* and subsequently a visual cue such as a picture of the object, a soft toy, or sign is introduced. Finally the auditory information is presented again to the child (ibid) without the visual cue. The three steps in the *auditory sandwich* approach involve the important and necessary repetition of sounds which are produced in language (Romanik, 2008).

Visual, tactile or kinaesthetic cues are also important for supporting understanding and participation in sound development (Gfeller, Knutson, Woodworth, Witt, Debus, 1998; Romanik, 2008). This is similarly the case in music therapy. Interacting with a child by making eye-contact, establishing turn-taking and using the appropriate tone to match a facial expression, can help develop and enhance communication (Perigoe, 1999). Listening though is most important where possible and often more effective than using visual, kinaesthetic or tactile cues (Romanik, 2008). Strategies for developing audition should be assessed when a child is not producing sound. Visual cues can then be re-introduced until a child produces sounds (Romanik, 2008), as it is essential for children with hearing impairment to develop audition.

Audition is the foundation for language development (Romanik, 2008), and it is the child's auditory processing abilities that determine their ability to learn (ibid). Auditory location, as mentioned earlier, is when a given sound is connected to its source or location (Werner & Marean, 1996; Britannica, 2010). Auditory discrimination is the ability to recognise difference between any two auditory stimuli. This ability is necessary for reading, spelling, writing and listening to the sound

intensity, duration and pitch of speech sounds (Romanik, 2008; Ross-Swain & Long, 2004). Auditory association is the ability to give meaning to auditory information and label or name what has been heard (Romanik, 2008; Ross-Swain et al., 2004). Once a child develops both their auditory discrimination and association skills there is a natural progression to auditory comprehension. This is the ability to understand meanings of what has been heard, by drawing from ones already established knowledge of sound and language (Romanik, 2008; Darrow, 1990b).

Music has been used to help HI children to develop auditory skills and language through singing, listening, encouraging participation, and the use of nursery rhymes as a structured musical experience (Romanik, 2008). Music and music therapy is also a useful medium for speech training and language development because children find it engaging and enjoyable (Darrow & Starmer, 1986; Gfeller, Witt, Spencer, Stordahl, Tomblin, 2000; Darrow, 2006; Perigoe, 1999; Mulcahy, 2009), which can support acquisition of a new skills (Perigoe, 1999). Using music with the HI encourages non-verbal and verbal communication (Mulcahy, 2009), and musical games and action songs give children an opportunity to express themselves and learn about their emotions (Darrow, 2006). Singing can help improve vocal reproduction, promote listening, turn-taking and participation for HI children (Darrow, 1991; Mulcahy, 2009). While the benefits of music for hearing aid users seem clear, there is little empirical evidence regarding how preschool children who wear cochlear implants might respond to music. Nevertheless, music therapy can create positive experiences for children, encouraging self-confidence which is particularly effective in group settings (Amir & Schuchmann, 1985), as it helps to promote awareness of the wider environment, drawing the minds attention outside the self, as well as helping children find a connection with other class and group members (Archer, 2004).

### *Listening through the Cochlear Implant*

The cochlear implant device has limitations that impact on language development and music perception. The technology used for transmitting sound in the cochlear implant is designed primarily for electrical hearing and speech processing; this has important implications for music perception (Gfeller, 2000; Veekmans, Ressel, Mueller, Vischer, Brockmeier, 2009). Research with postlingually deafened adults suggests that hearing aids (HA) offer significantly better pitch perception than the cochlear implant (CI) (Looi, McDermott, McKay, Hickson, 2008b). Gfeller (2000), in research with children indicates CI technology may also make it difficult for users to recognise the direction, or source of sound (sound localisation) as information is being heard by one ear and then transmitted to both ears (Gfeller, 2000). However children may find bilateral stimulation using a cochlear implant and hearing aid or bilateral implantation beneficial for improving speech clarity and sound localisation (Grieco-Calub & Litovsky, 2010; Litovsky et al., 2006a). Adult recipients of bilateral implantation, also show significant advantages for speech understanding in a quiet environment from six months after activation (Litovsky et al., 2006b).

Gfeller, Loesson, Knutson, Brehent, Driscoll, Olszewski, (2008), write that music perception for children who wear cochlear implants is different to normal hearing children. However it is evident that they still experience enjoyment from music (Yucel, et al., 2009; Trehub, et al., 2009; Gfeller, 1998), particularly musical entertainment such as dancing and attending concerts, and they listen to recordings and radio equally as much as hearing children (Stordahl, 2002). Gfeller (2000) writes that rhythm; timbre, pitch, melody recognition and the appraisal of musical sounds heard through a hearing aid is different to what a cochlear implant recipient experiences, which is due to the two devices transmitting sound and effect music perception differently. Given this it is important to consider how the different elements of music may be perceived by children using cochlear implants (Gfeller, 2000), as well as how the cochlear implant in combination with a hearing aid may sound (Litovsky et al., 2006b)

Research with adult CI users suggests that speech perception through the CI may be different to that of music perception,(Gfeller et al., 2008). In a study aimed at training young children with cochlear implants in pitch, rhythm, and melody perception with the goal of improving discrimination in these areas and to assess the impact of training on speech perception, results after a two year training period showed improved appreciation of music, listening attitudes and social relationships , (Yucel et al., 2009). Veekmans et al., (2009) suggests the differences in music perception and speech perception are related to the CI design that was intended for speech perception through electrical hearing, which is very different from the acoustic hearing of a normal hearing person. Nevertheless, prelingually deafened adults have found an improvement in music perception and appreciation using bilateral implantation (Veekmans et al., 2009). Research suggests the cochlear implant device shows unsatisfactory performance in regard to pitch recognition(McDermott 2004; Xu, Zhou, Chen, Li, Schultz, Zhao, Han, 2009; Trehub et al., 2009). Although pitch perception may be difficult, studies show that children and adults with cochlear implants perceive rhythm more accurately than pitch (Gfeller, 2008, Looi et al., 2008b). Additionally they have a similar perception of musical rhythm to that of normal-hearing listeners (Gfeller & Lansing, 1991). Adult CI users are able to recognise a melody more easily when the melody has a strong rhythmical structure (Gfeller, 2002b). Children and adult implant recipients should be able to recognise the simple melodic rhythm of music when it is played at a moderate speed (Gfeller, 2000).

Fujita and Ito (1999) indicate that CI implant recipients are able to recognise melodies more successfully when the melody also has words. Stordahl (2002), found that children with implants had difficulty recognising instrumental versions of well-known songs such as "Happy Birthday" and "Row, Row, Row Your Boat", and describing features of a melody they have heard, or recognising a song when the words are omitted (Stordahl, 2002; Gfeller, 2000; Gfeller & Lansing, 1991). A child's ability to identify a melody may then influence their ability to sing. Some prelingually deafened children with cochlear implants can develop certain forms of vocal singing,

but have significantly poorer pitch recognition than normal hearing children (Xu et al., 2009). It is suggested by (Trehub et al., 2009) that children with cochlear implants haven't heard music through a normal hearing system and therefore have different mental representations of music from hearing children and are less dependent on pitch cues. As pitch perception and melody recognition are difficult for cochlear implant users, activities based around pitch perception, song recognition, identifying melodic features in music, and sound localisation may be challenging, especially for congenitally or prelingually deafened children (Gfeller, 2000). A cochlear implant in combination with a hearing aid may improve pitch perception if the patient has sufficient hearing remaining for a hearing aid (Looi et al., 2008a).

Timbre is the quality of a note or sound, the characteristics that enable one sound to be distinguished from another. A single note may be played at the same loudness and pitch by different instruments, though each instrument is recognisable because of the different types of sound production. It is difficult to achieve accurate or effective music perception and timbral appraisal through CI and HA (Looi et al., 2008b). During instrumental recognition tests with adults who use CI and HA the results showed no significant differences between the two groups. Both groups scored higher in the subtest incorporating single instruments, and as more instruments were introduced and the music became more complex, the instrumental recognition decreased (Looi et al., 2008b).

Gfeller (2002c) compared normal hearing (NH) and CI users abilities to recognise eight different musical instruments and four different instrument groups. Results showed CI users were significantly less accurate in recognising different instruments than NH participants. CI users gave lower ratings than NH to sound produced by instruments of higher frequencies, and the string family. CI participants described instruments such as the flute, violin, and piano as having a noisier and duller quality than appraisals by NH. Similar results were found with regards to instrument identification and timbral appraisal in a study with adult CI recipients and NH population (Gfeller et al., 1998). NH participants were more accurate than CI

users at recognising four instruments, the trumpet, clarinet, violin and piano. CI users had lower appraisal ratings for these instruments than NH population.

Although it is difficult to compare postlingually deafened adults with prelingually deafened children due to differences in physical, cognitive and social development, these findings have implications for children with CI. It is important to consider that the perception of timbre through a CI device inadequately enables identification of musical instruments and their varying timbral qualities. However there is evidence that through repeated listening to music, some implant users have shown an improvement in timbre recognition and timbre appraisal over time (Gfeller, et al., 2002c).

Maintaining a quiet and positive listening environment is very important for children with cochlear implants (Gfeller et al., 1998). Shared musical enjoyment for adults and children can be improved by reducing unrelated background noises and reverberation, and playing music at a moderate to low volume (Gfeller et al., 1998; Gfeller, 2000a). Research suggests that not all adult cochlear implant recipients can extract lyrics from the music itself, and instrumental accompaniment can seem like background noise especially when played at a louder volume with more complex accompaniments (Gfeller, et al., 2008). Due to delay in reaching normal language developmental milestones as well as the acoustic limitations of the device itself, children have to work very hard focusing their attention to listening and understanding speech in their normal listening environments (Gordon, 2011).

The CI produces an electronic representation of sound that is designed to restore sound awareness allowing the development of language for the profoundly deaf. The CI device has limitations that impact on the language development and music perception, and children with CI do not necessarily reach the language milestones of NH children. A child's age at implantation has important implications for their language development and ability to catch up to normal hearing peers. With rehabilitation post-implantation a child has the best possible chance to achieve or come close to normal language milestones. Early intervention programs that have

auditory training programs especially designed for children with CI, including music therapy programs, can assist children and their families. Research suggests that music perception through the CI device continues to be inadequate. It is difficult for CI recipients to interpret pitch and melodies, however song recognition can be improved by using a strong rhythmic framework as rhythmical representation through the CI is similar to that of NH. Research also suggests that it is difficult for CI recipients to achieve accurate timbral appraisal. Recipients are often unable to differentiate between the timbral qualities of each instrument; however they may indicate a preference for an instrument. Although the device may not be adequate for music perception in comparison with NH, it has been suggested that over time and training using music, some of these elements may improve. Music therapy could over time therefore support auditory development.

## Methods Section

### Methodology

This study focused on exploring the music therapy component of a programme designed to promote auditory and language development for hearing impaired children with cochlear implants. Specifically, the focus of this research was to explore the data I had collected, describing my interactions with the children; in particular, uncovering what was occurring between us during the moments that seemed important for the children. Also to reflect on the practice of music therapy and how music therapy might support auditory and language development in an EI programme.

This research is exploratory. Exploratory research is used when researchers venture into unfamiliar situations. It is primarily a form of descriptive research that describes what has happened in a situation, focusing less on why it has happened or testing theories about it. However it is different from purely descriptive research as it also seeks to understand or explain the situation (Reaves, 1991). This research is retrospective and began after the completion of my placement at the Early Intervention Centre (EIC).

I have explained the work by analysing 1) video footage of my interaction with three of the children, 2) music therapy clinical notes that relate to those children, and 3) my music therapy student reflective journal.

### Ethical Considerations

The information sheets (refer to appendix C) explained the aims of the research and assured the parents that confidentiality would be adhered to. It outlined the voluntary nature of the study and their right to withdraw their child from the study at any time.

The consent forms (refer to appendix D) encouraged parents to contact the researcher and/or research supervisor should they wish to ask further questions regarding their child or withdraw their child from the study.

Another ethical consideration was that the music therapy student was the therapist as well as the researcher. The parents may have felt pressure to agree to allow their children to be secondary participants in the study because they were grateful for the work that I had done for them. I aimed to avoid this pressure by having a number of children who could be potential secondary participants, so that some at least could feel free to refuse. I gained ethical approval from the Massey University Human Ethics Committee: Southern A, Application 09/71, Palmerston North, New Zealand. The participants that were involved in this research were protected by the standards in the Massey University code of Ethical Conduct.

Every effort has been made to preserve confidentiality but the fields of music therapy and deaf education are small and confidentiality cannot be guaranteed.

### Cultural Issues

#### *Deaf culture:*

I am aware that some members of the Deaf community may be uncomfortable with the promotion of audition and would prefer their members to use sign language, rather than to focus on the use of hearing aids/and or cochlear implants. Because the work focuses on the use of assistive devices it may be interpreted by some to highlight a 'deficit viewpoint'; i.e. the focus appears to be on deafness as a 'problem' that needs to be fixed, rather than a difference which can be valued. There was no

particular member of the Deaf community that could speak on behalf of others in respect to this research, however the research project was approved by the school's board and staff members were available for further consultation if necessary.

### *Maori culture*

Before beginning this research I consulted the Kaumatua or Maori cultural worker of the school, who confirmed that the research was appropriate for Maori.

### Informed Consent for the Use of Clinical Data for Research Purposes

I used three forms of data which included detailed clinical notes that were produced after each session as part of usual practice, a research journal which captured my experience of and reflections on working in the centre and interacting with children, parents, and staff, and the analysis of video footage which was collected as part of usual practice for evaluation purposes. I asked the families/parents (appendix C) and the Early Intervention Centre (EIC) for informed consent to use these three forms of data for research purposes. The research began after the completion of my clinical placement at the (EIC).

### *Recruitment:*

Information sheets and consent forms were sent to the parents of all children who attended the morning music therapy session as part of the early intervention programme. The head of the EIC was asked to notify the parents that they would be receiving the information in the post. Three children were to become secondary participants in the research, and I chose to include data relating to the first three children whose parents gave informed consent were included in the research. This

was to ensure that parents and children felt there was no bias in the selection process.

*Participants:*

The participants attend an early intervention program for hearing impaired children once a week. Nine children aged between 18 months and five years participated in the music therapy sessions. Six were children who wear cochlear implants, and three were hearing siblings. The parents of three children gave informed consent to participate in the study.

*The Three Children:* The Freedom Cochlear Implant (contour advance), CI24RE with a freedom processor was used by all three children. The ACE speech processing strategy was also used with all children. The Receptive-Expressive Emergent Language Test Third Edition (REEL-3) and the preschool language scale test (PLS 4<sup>th</sup> edition) were used to assess their language skills. The Ling Developmental Scales (LING) was used daily as a speech perception test, however the children were only asked to repeat back the LING sounds.

*Lily:*

Lily was diagnosed with severe to profound hearing loss in both ears at 18 months old, and at 21 months; she was fitted with hearing aids for both ears. Lily received a CI for her left ear when she was two years, six months old and the CI was switched on four weeks later. Her aided audiogram test two months before MT began showed hearing levels between 15 and 25 dB, indicating she had full access to the speech spectrum. Lily continued to use a hearing aid in her right ear along with the CI, although she would often take the hearing aid out. Lily used around 50 words before received a CI. Approximately one year after implantation, two months before the MT sessions began, Lily tested at a standard 86 in the REEL test, placing her just within

the NH range of 85-119 range. Lily was very happy to complete the daily LING speech perception test with one of the EIC teachers. Lily received weekly individual language development sessions with a teacher of the deaf. Lily was 4yrs old when she attended music therapy sessions.

James:

James was diagnosed with profound hearing loss at 12months old and the reason for his diagnosis was unknown. James received a CI in his left ear when he was 14months old and was switched on three weeks later. The aided audiogram tests for using the CI showed hearing levels between 20 to 30 dB. James was profoundly deaf in his right ear with no residual hearing, and therefore did not use a hearing aid. Seven months after implantation, at the age of two years one month, James was tested using the REEL language scale and results placed him in the 19-21 month language range, five months behind his NH peers. One year later, when James was three years old, he was tested again using the preschool language scale, results showing a standard 82 (85-115 normal range) and his auditory comprehension 89 (within normal range). This test took place just over half way through the period in which he attended MT sessions. James completed the LING speech perception test daily. He also received physiotherapy to help improve his gross motor skills as he walked with a wide gait. James was around 3yrs old when he attended music therapy sessions.

David:

David was diagnosed with moderate to profound hearing loss due to Connexin 26 disorder. This is a complex genetic disorder that leads to flawed copies of the gap junction beta 2 (GJB2) genes, which normally instructs a protein, Connexin 26 (CX26). If both parents have the flawed copy of the connexion 26, then there is a one in four chance that a child may be born deaf. This condition disorder is usually not connected to other disabilities (CRG, 2012). David was fitted with hearing aids for both ears

when he was 14 months old. David received his CI at the age of 18 months and was switched on three weeks later. The aided audiogram indicated that David's hearing levels were between the 20-30dB. One year after implantation using the REEL language test, David was aged three and used around 30 words. His hearing was equivalent to that of a 15-17 month old with normal hearing, and this test took place four months prior to MT sessions. David was unable to complete formal testing for speech perception on a daily basis, so hearing levels were determined through his behavioural responses. David received weekly individual language development sessions with a teacher of the deaf. David was around 3yrs old when he attended music therapy session.

*Materials and procedures:*

I assessed the children during MT sessions over a four week period, but time did not permit me to do a pre-music assessment. In this assessment period I noted that the children overall didn't seem confident participating in musical activities, but would participate at low levels when encouraged by their parents and me. Due to the nature of the work, it was difficult to record detailed notes about each individual in the group and because of this I decided to record the sessions and analyse the footage after the program was finished for the day. However I did consult with staff about their language levels and general behaviour. The children's response to the guitar and voice during the assessment period seemed positive. I continued to use both instruments throughout the sessions singing with the guitar as accompaniment and also using unaccompanied voice.

I lead the music therapy sessions and I was the only music therapist working at the EIC during the time of the study. Sometimes one staff member at any given time would assist during the music therapy sessions, or sit beside a child whose parent was not attending. Parents were encouraged to attend the EIC program including the music therapy session with their children. So in the session children were usually accompanied by a parent, and sometimes other children visiting the EIC program

joined the group for an occasional session. The sessions followed a session plan of around 20 minutes, which was sometimes shortened to fit in with other activities happening as part of the weekly EIC program. The EIC staff checked the functionality of each child's CI at the beginning of the day.

The initial goals included promoting participation levels through musical activities such as action songs and call and response songs, and to promote vocalisation and verbalisation. The overall structure of a session included a greeting song, an action song, 2-3 different children's songs, then a transitional song which was used to help the children prepare for their next activity, as well as conclude the music therapy session. Each set of songs was repeated for approximately a 4-6 week period, at which point songs would be re-assessed and changed where necessary to support the goals of the music therapy sessions.

Children's songs that were traditional and some which I composed were used to encourage listening and language development. The songs were sung at a lower more appropriate pitch, than what is indicated in the following scores. The songs were also chosen in consultation with the EIC staff to ensure that I used songs with the most appropriate language levels possible for all children.

One technique that I adopted for use in music therapy sessions was the "Auditory sandwich" (Koch 2000). This was designed to promote language understanding in speech and staff suggested it might be a helpful strategy to continue through into music therapy. I used the three steps of this technique. Firstly I spoke about the new vocabulary or topic and the children listened; secondly I expanded on it by singing about it to make an "auditory impression"; and thirdly I verbally recapped what I had presented. . I sometimes aided stage one of this process by using visual props, although that would normally happen in stage two of the auditory sandwich approach.

There was no formal post MT assessment, however the progress is reported in the summary of the findings section.

Scores of Songs Used in Music Therapy Sessions:

*Hello song (using a tambourine),*

The “hello song” (Garber, 2009) was used in sessions one to eleven to engage the children by using individual names and a tambourine. I encouraged the children to respond through vocalising, verbalising or by hitting the tambourine as a way of saying “hello”.

## Hello Song

M. Garber

**Andante**

Voice

Hel lo hel lo hel lo\_\_\_\_\_ hel lo hel lo hel lo\_\_\_\_\_

3  
hel lo (name) hel lo (name) hel lo (name) hel lo (name) hel lo hel lo hel lo\_\_\_\_\_

*Hello song: Now we are together*

“Now we are together” (Nordoff and Robbins c. 1970) was used to in sessions twelve to eighteen to encourage the children to sing, vocalise/verbalise through the repetition of its call and response structure. I sang in the call phrase alone ‘Now we are together’ (with those who wished to join in) and encouraged the children and parents to join me in singing the response phrase, or the repetition of “Now we are together”. This song also supported the idea of parents modelling the correct use of language for their children, by singing along with the lyrics of the song at the appropriate time

## Now we are together

Nordoff& Robbins

Call Response

Now we are to - ge - ther now we are to - ge - ther we

3 Call Response

want to say Hel - lo we want to say Hel - lo

5 Call Response

Hel - lo Hel - lo Hel - lo Hel - lo

7 Call Response

we can sing Hel - lo we can sing Hel - lo

### *Mary wore a red dress*

I adapted "Mary wore a red dress" (Landeck, c.1950's), for use in a music therapy. The song was used in sessions one to eight to encourage the children to identify what they are wearing. I chose to sing about items of clothing worn by members of the group and I used pictures of clothes as visual props to support the vocabulary.

## Mary Wore A Red Dress

B. Landeck  
adapted by Sophie Buxton

Who is wear - ing a dress to - day

3  
dress to - day dress to - day

5  
who is wear - ing a dress to - day in

7  
mu - - sic time

-Who is wearing trousers

-Who is wearing a T-shirt

-Who is wearing a dress

-Who is wearing shoes  
etc.

## What's that?

The song was written by music therapy colleagues Nordoff & Robbins (1968) specifically for use in music therapy and was used in sessions one to twelve. While it has consistent lyrics asking the question “What’s That?” it encourages the use of improvised lyrics as the therapist sings about each child in the group to draw attention to what they are wearing, holding onto, and looking at. I employed techniques such as pausing, singing slowly, engaging in eye contact, using a ritardando and spontaneously pointing to or touching clothing that was worn by each child to support auditory and vocabulary development.

## What's that?

Nordoff & Robbins

Voice

*Pertly* ♩ = 104

What's that? What's that? That's

3  
(name) dress, hair, that's (name) dress! hair! What's

5  
that? What's that? That's

7  
(name) sweat er, that's (name) sweat er! ger! What's

9  
that? What's that? That's

11  
(name) dress, that's (name) sweat er, that's

13  
(name) hair, that's (name) fin ger, that's

15  
(name) *a tempo* That's

17  
(name)

## Feet, feet, feet

The song “Feet, feet, feet” by an unknown composer, supports vocabulary learning through singing and touch, for example as I sing “feet, feet, feet” the parent or group member taps the child’s foot. This song was used in sessions six through to eleven and was useful to involve parents and encourage them to sing at home with their children. This song encourages body awareness and learning language relating to their bodies. This song was passed on to me aurally and I have been unable to find its origin.

### Feet, feet, feet

Unknown

A

Feet Feet Feet Feet

2

E

Knees Knees Knees Knees

3

A

Tum - my Tum - my Tum - my Tum - my

4

D

Hands Hands Hands Hands

5

C

El - bows El - bows El - bows El - bows

6

Shoul - ders Shoul - ders Shoul - ders Shoul - ders

7

G C

Nose Nose Nose Nose

8

G C

He - - - - ad

## Emotions Song

I wrote this song for use in music therapy to demonstrate the body language and musical qualities associated with the emotions happy, sad, and tired. I chose to portray the meaning of the words through language, facial expressions, tempo changes, dynamic changes and pauses. I used this song in sessions eleven to fourteen.

### Emotions song

Sophie Buxton

If I'm Hap-py Hap-py Hap-py then I Smi-le Smi-le Smile If I'm

Hap - py Hap - py Hap - py If I'm Hap - py then I Smile

#### **C minor**

If I'm Sad Sad Sad  
Then I Frown Frown Frown

If I'm Sad Sad Sad  
If I'm Sad then I Frown

#### **C major**

If I'm Tired Tired Tired  
Then I Sleep Sleep Sleep

If I'm Tired Tired Tired  
If I'm Tired then I go to Sleep

#### **C major**

If I'm Happy Happy Happy  
Then I Smile Smile Smile

If I'm Happy Happy Happy  
If I'm Happy then I Smile

### *How much is that doggie in the window?*

The lyrics in this song “How much is that doggie in the window” (Merrill, 1952) were related to the topic *visiting the pet shop* that was chosen by the therapist and EI team running the programme. I used this song in sessions twelve to seventeen; I also used actions and visual props to support understanding. The song has short and simple repetitive phrases that use rhyme and aim to encourage vocalisation and verbalisation.

## How much is that doggie in the window?

Bob Merrill

How much is that dog - gie in the win - dow? The

5 one with the wag - ge - ly tale. How

9 much is that dog - gie in the win - dow? I

13 do hope that dog - gie's for sale.

## Monkey see, monkey do

The song “Monkey see, monkey do” by an unknown composer, supports vocabulary learning through singing and doing actions to accompany the lyrics. I used this song in sessions twelve to seventeen and demonstrated the actions to the children as well as parents, encouraging them to join in. The song had short verses and repetitive phrases and I used a visual prop (monkey soft toy) to encourage participation.

### Monkey see, monkey do

Unknown

The musical score is written in 4/4 time and consists of eight lines of music. Each line includes a rhythmic instruction (Clap, Tap, Nod, Stamp) and lyrics. The lyrics are repetitive and describe actions performed by a monkey and humans.

**Line 1:** Clap  
oh when we clap clap clap our hands, the mon-key clap clap claps his hands

**Line 2:** 3  
mon-key see and mon-key do, the mon-key does the same as you

**Line 3:** Tap  
when we tap tap tap our toes, the mon-key tap tap taps his toes

**Line 4:** 8  
mon-key see and mon-key do, the mon-key does the same as you

**Line 5:** 10  
Nod  
oh when we nod nod nod our heads, the mon-key nod nod nods his head

**Line 6:** 13  
mon-key see and mon-key do, the mon-key does the same as you

**Line 7:** 15  
Stamp  
oh when we stamp stamp stamp our feet, the mon-key stamp stamp stamps his feet

**Line 8:** 18  
mon-key see and mon-key do, the mon-key does the same as you

## Little Peter Rabbit

I used this song to help develop vocabulary and used actions to support the lyrics of the song. This song also suited the language topic 'Pets' which was part of the EIC program at the time.

### Little Peter Rabbit

Adapted from John Browns Body  
American Folk Song

Unknown  
adapted by Sophie Buxton

1  
Lit - tle Pe - ter Rab - bit's got a fly up - on his nose

3  
Lit - tle Pe - ter Rab - bit's got a fly up - on his nose

5  
Lit - tle Pe - ter Rab - bit's got a fly up - on his nose And he

7  
flipped it And he flopped it But it would - n't fly a - way.

9

11  
Po - or lit - tle Pe - ter Ra - bit

13  
Po - or lit - tle Pe - ter Ra - bit

15  
Po - or lit - tle Pe - ter Ra - bit And he

flipped it And he flopped it But it would - n't fly a - way.

### Data Analysis:

Music therapy sessions were conducted weekly over a five month period during the school term time only. There were a total of eighteen sessions in the five month period, and sessions five to eighteen were recorded on video. All of the meaningful moments were taken from sessions five to eighteen. The students described in this study attended over 50% of the total number of sessions, Lily attended 15 sessions, James 13 and David 12.

The method employed to analyse and identify the important events in the three sources of data is explained below.

#### *The video analysis:*

- I reviewed the fourteen videoed music therapy sessions and identified where interesting moments of musical engagement with the children occurred. These were moments where children showed an auditory response to the music, and/or communication with other members the group, therapist and parents relating to the music. I chose six “meaningful moments” for Lily and David and five for James, or a total of 16 “meaningful moments” for all three children, to analyse in greater depth.
- Each “meaningful moment” encompassed a two minute period of time, which was broken up into 10 second increments where I noted the child’s responses to the music that I produced at that particular moment.
- After choosing the 16 “meaningful moments” I had a total of 32 minutes of video footage with a data point at every 10 seconds and 192 data points in total.

I then reviewed the data points for each meaningful moment and assessed which aspect of the music the child was responding to/ or not responding to. This might be

the sound of the guitar, the beginning of a song, or a musical technique or other aspects. I notated in detail what the child was doing, and what I was doing at each data point. For example I might note that the child “made eye contact with me” or “I played a major chord on the guitar”. From the information noted at each of the data points I wrote a descriptive story connecting one data point (of each two minute interval) to the next. I determined if these responses could tell me anything about what I was doing as a music therapist, and if the children’s responses to the music formed patterns that were related to the techniques I was using.

*The clinical notes:*

A session plan outlining a selection of songs I chose for each session was followed. I wrote clinical notes after each session as part of usual clinical practice, these noted broad observations of the children’s responses to the songs from the session plan. I began the analysis process by reading through the clinical notes and noting specific interactions that occurred in each session, for each child.

I noted the following types of responses,

- vocalisation/verbalisations
- movement in response to the music
- imitation/initiation
- participation
- Responses to particular musical elements e.g. glissando, dynamics, pitch, repetition
- to the sound of the voice or guitar

These were moments where, a child may have participated in the greeting song or action song, initiated singing the words of a song, or vocalised during the music. It was also important to be aware of the children’s participation levels and whether they chose to initiate or imitate responses to the music, chose to remain in the group for the entire session or chose to move away.

*The research journal:*

The research journal captured my experiences of and reflections on working in the centre and interacting with the parents, children and staff. I wrote in the journal periodically throughout the five month period at the EIC. I analysed the journal and included significant observations and communications that related to the children's responses to my music. I read through the journal and highlighted sections that seemed important. This information included;

- Communications with staff and parents about the children
- Reflections about music therapy and how to improve my clinical practice as a music therapist in the early intervention centre
- Reflections on some sessions, how the children responded to the music and how I might improve musical and other interpersonal aspects of the session musically and practically.

I reviewed the three different sources of data (the video analysis, clinical notes and the research journal) and noted data that described "meaningful moments" in more than one data source. Of particular interest were the examples that related to the three children who gave informed consent to participate in the study.

The number of sessions attended by each child is mentioned above. The table below indicates which sessions for each child the MM was taken from. As the focus of this exploratory study was on each child rather than similarities or differences between children, it was decided that the selection of data available was appropriate. Below is a table indicating the "meaningful moment" of each child that is included in the research, this is indicated by 'Yes'. These particular sessions were chosen to show significance responses and to reduce any unnecessary repetition.

Session number	5	6	7	8	9	10	11	12	13	14	15	15B	16	17
Lily	Yes				Yes	Yes					Yes	Yes		
James						Yes	Yes				Yes		Yes	Yes
David		Yes		Yes			Yes		Yes	Yes			Yes	

There are a number of pseudo names that have been included in the findings section. These children Isabella, John, Peter, Sarah, Anna, Simon were all between the ages of two and five years old, however their responses to the music have not been included in this study.

### Findings:

After analysing the video footage of each “meaningful moment”, I wrote about the children’s responses to music and reflective comments. I chose to include information from my clinical notes in this section rather than presenting them separately. I chose to include comments from my reflective journal in the discussion section due to the nature of exploratory research.

### Observations of the work with Lily

#### Session 5

“Mary wore a red dress”

#### *Description from video data*

I am pointing to a pair of shorts and Lily looks towards me, concentrating hard. I look around the group and say "who is wearing trousers today?" Lily turns to look at her mother briefly, smiles and lifts her legs straight into the air holding onto each trouser leg and pulling them away from her legs. I look at Lily as I say "trousers "and smile as I see her pull at her trousers. I reach for my guitar and begin plucking the notes of a tonic chord, while praising another member of the group. Lily sits up very straight in her chair and turns to look at her mother. She looks at me and sings "Who is wearing trousers today, trousers today, trousers today". At the end of the phrase she turns to look at her mother again. After scanning the group I look to Lily as I see her singing. As the song, with its repetitive phrases progresses, I am looking around the group and smiling at individuals including Lily. Lily turns her head towards her mother, who is smiles proudly back at her. Lily then turns back and looks towards me as she sings the phrase "who is wearing trousers today".

*Lily's responses to the music and my reflective comments*

This song supported language development by focusing on vocabulary through music that was considered important and appropriate for the children's general development level. This song encouraged the children to become aware of what they and other members of the group were wearing. A simple question structured the song, and items of clothing were used to encourage the children to associate vocabulary that was suggested by me (i.e. trousers, using a picture of trousers), with their own clothes. This not only focused their awareness on themselves, but also on their fellow group members.

I showed the group a picture of the item of clothing I would sing about first i.e. trousers, sing the song, structured around the question "who is wearing" and after the song was finished I would say "put your hands up if you are wearing trousers?" and then indicate by pointing and talking about members of the group who were wearing trousers.

The simple song structure framed the repeated question, and seemed appealing for Lily as she concentrated well, was proud of her contribution and enjoyed herself. The repetition of lyrics in the song allowed the children time to think about the item of clothing I sang about and its relevance to their own clothes. Because of the repetition parents could learn and join in singing the simple song as they sat next to their child. It also helped the children to anticipate what would happen next, supporting a response i.e. putting up their hand, vocalising or verbalising. Lily held onto her trousers and looked at her mother to communicate her response when asked if she was wearing trousers.

In this session Lily seemed to identify and locate sound when she sat up straight in her chair after she heard me pluck the guitar, turning to look at her mother and then back to me. After Lily heard the question "Who is wearing trousers today?" she looked at her mother, held up her legs and pulled at her own trousers, demonstrating auditory association. She also seemed to demonstrate understanding by singing the phrase "Who is wearing trousers today?" then looking at her mother

and back at me. Lily showed enjoyment by smiling as she held onto her trouser legs and looking towards her mother. Lily looked at her mother and me often throughout the session, especially after responding to the music. This could suggest that she needed assurance that what she indicated or sung was correct, that she wanted us to notice her response, or she may have just really enjoyed sharing the moment with her mother. Lily's mother also looked proudly at her as she sang the lyrics of the song, which seemed to be an important moment where they enjoyed the experience together. The lyrics of the song included a question, and after finishing a phrase, I would talk about the question I had just sung about. In this time parents had time to discuss with their children what they were wearing that day, and encourage them to respond to the question. Although I lead the group and posed questions, communicating with the group, parent's communication with their child was essential to the success of the experience.

There were varying levels of understanding and confidence in the group and I was aware that perhaps asking the children to indicate if they were wearing an item of clothing we had just sung about may have been too complicated. To support understanding of the song's lyrics, I used pictures of the different items as visual props and pointed towards the images as I showed it to the group, repeating the name e.g. "trousers" as I went. I was also aware that the children needed time to understand the song's structure and as the weeks progressed and their understanding improved, the children may have become more confident in their responses. These variables demonstrate the importance and need of parental support and encouragement during the sessions, as well as my own need to remain sensitive to their language development and ensure that I was providing appropriate environment in which this could happen.

## Session 9

“What’s that?”

### *Description from video data*

I say “We will do ‘what’s that?’” and pause before saying “I need someone to come and stand next to me”. Lily looks at me and leans forward in her chair and looks as if she is about to stand up. After Peter comes and stands next to me, Lily sits up straight and still in her chair and looks towards her mother, back to me and at Peter with a curious expression. Lily turns to look behind at a group of people who have entered the room. She then looks at her mother, at me, and back to the unknown group of people with a questioning expression. I thank Peter who I have just sung the song to, as he moves towards his seat and ask “Who wants to stand up next?” as I look around the room. Before I have finished asking the question Lily says quickly but quietly, “My turn!” She then repeats “My turn” in a louder and more confident tone. She looks at her mother as if making sure she was heard. I say “Lily’s turn” and she stands up and urgently walks to stand beside me. Lily turns her head to look at her mother who is making a quick comment to another mother in the group, and seems to wait until they are finished talking before quickly looking back at me. Lily seems to be concentrating hard as she stands very still and looks at me sitting close to her singing “It’s Lily’s dress”. I then pause, look at what Lily is wearing, and sing “its Lily’s sweatshirt”, pause again and touch her teddy bear, as I sing “its Lily’s teddy bear”. Lily looks down at her teddy bear, back at me and focuses as I sing “What’s that, what’s that,” and pause, placing my arm around her waist, then slowing the tempo down I sing “It’s Lily”.

After the song has finished Lily turns her head quickly to look at another group member who says “Yeh” and then returns to her seat urgently, as if not wanting to miss out on what happens next. I ask the group “Who wants to stand up next?” and Lily watches with great interest as Isabelle stands up. I concentrate intently on

Isabelle standing next to me and sing “What’s that?” Lily watches Isabelle and me as she sits still in her chair, holding the teddy with both hands on her lap.

*Lily’s responses to the music and my reflective comments*

Lily seemed to locate sound as she turned to observe a group of unknown people entering the room behind the group. This also seemed apparent when Lily turned to look at her mother when she briefly talked to another mother in the group, then turned back to look at me as if waiting for her to finish. Lily also turned quickly to look at a group member who said “Yeh”. After I had finished singing to her Lily indicated she had understood the question “who wants to come up next” when she said “my turn”, and then repeated “My turn” in a louder and more definite tone.

When I said to the group “I need someone to come and stand next to me” Lily leaned forward in the chair about to stand up. She seemed keen to participate and stand in front of the class to be a “model” for the song, but did not understand quickly enough, or is not yet confident enough to be first to come to me. The repetition in this song creates a sense of predictability which seems to allow time for the children to anticipate when it is time for a new group member to have a turn. When I asked “who wants to stand up next?” for the second time, and after she had observed another group member standing next to me, Lily was quick to respond with “My turn”. Confidence to participate in the music may grow through repetition of the predictable structure and language, strengthening their sense of security within the group. Using repetition also supports the need for children with CI to hear new vocabulary as often as possible to encourage language development.

Lily seemed to be seeking approval from her mother and me as she often looked at us during this song. She looked at her mother, back to me and then at Peter with an interested and questioning expression as he came to stand next to me, and also when the group of unknown people enter the room. She also seems interested in Peter and Isabella as they stand in front of the group.

Although each child was encouraged to initiate their own response, whether it was by raising a hand, standing in front of the group, vocal and/or verbal, it is important to be aware that there may be some children with cochlear implants group that lack confidence or are not interested in initiating their own responses. Lily seemed to concentrate for significant periods of time as she stood still next to me and I sang “What’s that?” and also when she sat down and watched Isabella as I sang to her. I think it is important to observe each child’s response carefully when asking them to come to the front, as some children may lack confidence but can be encouraged to come to the front, while others are happy to remain seated and observe. Having another child stand before the group was visually interesting and I could support the meaning of the language used by looking, or pointing at clothes and objects the child was wearing. This song enabled each child to feel included, and offered them the opportunity to participate at their own level and in their own way.

### Session 10

“Feet, feet, feet” song

#### *Description from video data*

I ask everyone to stand ready to begin the song (the parents are encouraged to sing along and encourage a child by tapping them on the body parts suggested in the song) and ask John to come and stand with me. Everyone in the group stands except Lily, after encouragement from her mother, Lily stands up, placing her teddy on the chair behind her.

I sing “Feet, feet, feet” and tap John’s feet each time I sing feet. Lily looks at her mother who has already started tapping her feet and then over her mother’s shoulder at me. I move to the second note of the scale and sing “Knees, knees, knees” and Lily’s mother taps her knees. I tap John’s tummy and sing “Tummy, tummy, tummy” on the

third note of the scale, and as Lily's mother taps her tummy, she steps to one side of her mother, determined to see what is happening and looks over her mother's shoulder at me. I take John's hands in mine and sing "hands, hands, hands" on the fourth note of the scale. Lily's mother holds her hands and swings them up to her chest height. Lily, with a concentrated expression, holds her arms straight out in front of her. Her mother holds her hands flat against Lily's and they tap their hands together three times. I tap John's elbow gently as I sing "elbows, elbows, elbows" on the fifth note of the scale. I look around the group and tap John's right shoulder and his sister's shoulder at the same time on the sixth note of the scale three times as I sing "shoulders, shoulders, shoulders. Lily continues to hold her arms out in front of her as her mother taps her shoulders three times and then looks over her mother's shoulders towards me.

I tap my own nose as I sing "nose, nose, nose" on the seventh note of the scale and look towards Lily and then back to John, before placing both hands on his head. Lily's mother taps her nose with a long straight finger three times and Lily looks over her mother's shoulder at me once again. I smile as I move my hands down John's body, singing "head" with a downward glissando as I go from "head" on the eighth note of the scale, down to "feet" on the first note of the scale. Lily's mother swings her two hands above Lily's head and then places them gently on each side of her head before sliding her hands down Lily's body in one swoop to her feet as I sing "Head". Lily face breaks into a huge smile she swings side to side, puts her chin down, curls her body inwards. I pause before singing the song again and Lily's mother once again places her hands on Lily's head and slides them down her body without singing. This time Lily falls back in her chair, and looks at her mother with a surprised and annoyed expression then turns away.

I begin the song again and tap John's feet three times. Lily's mum begins tapping her feet again as she sits in her chair and Lily turns around quickly to face her mother again. She taps Lily's knees once and encourages her to stand up, gently pulling her elbows upwards. Lily puts her hands up to her face and covers her eyes, then drops them back onto her lap. Her mother leans forward taps her tummy three

times and moves her head close to Lily's face. Lily looks away as her mother comforts her and takes Lily's hands in hers. Lily's mother swings her arms up to tap her elbows and Lily looks impatiently back at her. She holds her arms up as her mother taps her shoulders. When Lily's mother's places her hands on her head she playfully sides them down her body, tickling her as she goes. Lily smiles and wriggles around in the seat.

*Lily's responses to the music and my reflective comments*

Lily seemed to identify and locate sound when she looked towards me throughout the song. Lily looked towards me as I sang each new word and progressed up the scale. For example she looked at me over her mother's shoulder when I sang "feet, feet, feet" on the first note of the scale, "tummy, tummy, tummy" on the third note of the scale, "shoulders, shoulders, shoulders" on the sixth note of the scale and "nose, nose, nose" on the seventh note of the scale, and on one occasion she stepped to the side of her mother in order to get a better view of John and I. Lily may have been interested in what was happening as I tapped John's body parts throughout the song, or she may have noticed the change of pitch as I moved up the scale, or both. It may have also been possible that she wanted to look at John and I as I sang the song and her mother tapped her body.

The interaction between Lily and her mother seemed very important in this song. She encouraged Lily to stand up at the beginning of the song and also when I repeated the song tapping Lily's body parts, matching the lyrics in the song. Lily showed enjoyment when she smiled as her mother slid her hands down her body as I sang a glissando on the word "head", and also in the repetition of the song when Lily's mother slid her hands down her body as I sang "head" again this time playfully tickling her as she moved to her feet. Lily was surprised when her mother spontaneously repeated the glissando movement at the end of the song the first time, her mother moving her hands from her head to her feet without singing. After this surprise, Lily seemed less interested in participating in the song as I repeated it. Her

reaction suggested that the music with the lyrics may have prepared her for the movement and she could perhaps anticipate what was going to happen next. However when the music and lyrics were both missing, as her mother repeated the movement sliding her hands down her body, she wasn't prepared for it, and responded differently to the physical contact.

It may also have been possible that Lily was not happy to repeat the song and stand up. Perhaps this example demonstrates her developing auditory comprehension as she seemed to associate the lyrics of the song with her body as her mother tapped them. Lily also held up her hands as I sang about the "elbows" and "shoulders" and her mother tapped her elbows and shoulders. Perhaps Lily anticipated what part of her body would be tapped next and used her auditory comprehension.

Lily responded well to her mother's interaction with her during the song, especially during the first glissando from head to foot, when she responded with a huge smile. It was only when the structure and music in the song (i.e. I had finished the song) didn't support the physical action of moving the hands down her body that Lily became surprised and less interested. However as we repeated the song Lily and her mother, through the music, enjoyed that same fun experience at the end of the song when Lily's mother slid her hands down her body with the glissando, tickling her as she went. Lily showed enjoyment, smiling and wriggling around in her seat, forgetting her reluctance to begin the song again. Here the song presented a good example of how music can offer an enjoyable experience for both parent and child, potentially strengthening relationships and supporting the learning environment. This song could have only worked well with the important support of the parents, and their interaction with their child.

## Session 15

### “Now we are together” Song

#### *Description from video data*

Lily looks at me and the guitar closely as she sits forward in her seat. Lily holds her gaze on me as I play the tonic chord four times. Lily concentrates on me as I sing the opening phrase “Now we are together” and when the group sings the answer phrase, including her mother, she turns to look at her when she sings “together”. Lily then looks at me and then briefly at John beside her. I lean forward and look at Lily exaggerating my lip movement as I sing “Hello” for the first call phrase and Lily looks at me and opens her mouth. When the group sings the response “hello”, Lily joins in confidently and also sings “hello”. I repeat the “hello” call and response phrase for the second time, look towards Lily and lean towards the group. Lily looks towards John sitting next to her and sings “hello” as if to greet him in the call phrase and turns to the rest of the group opening her mouth wider for the response “hello” as if to greet them. I sing the call phrase “we want to sing hello” and as I sing “Hello” I look at Lily who is focused on John sitting next to her. I continue looking at Lily and John as I repeat the phrase “We want to sing hello” gradually slowing towards the end of the phrase. Lily sings “hello” at the end of each call and response phrase in a carefree manner. I say to the group “can we have everybody singing” as I encourage a repetition of the song. Lily is looking towards John and turns to me briefly as I talk to the group. I begin singing the song with “Now we are together”. Lily looks at me as I pluck the tonic chord a couple of times and then the opening phrase. She sings clearly “together” at the end of the phrase. I then sing “we want to sing hello” as I look at Lily. Lily is focused on John and her mother attempts to redirect her focus back to me by saying “look at Sophie”. Lily turns quickly to look at me and sings the end of the phrase “to sing hello”. I look at her and say “good girl Lily”. Lily, and John next to her,

seems to be the only children concentrating on the music. I concentrate on engaging Lily and John and sing "Hello" enthusiastically and sing "hello" a further 3 times (to complete two call and response phrases). Lily engages in singing "hello" three out the four times and turns to look at her mother who leans forward to look at her. I sing the call phrase "we want to sing hello" looking at Lily and then turn to the group and sing slower and softer for the response phrase "we can sing hello". Lily sings the "Hello" of the call phrase and then with great willingness and energy the whole response phrase with her mouth wide open.

*Lily's responses to the music and my reflective comments*

This song used a call and response structure that seemed to be effective in engaging Lily as she sang partial words often and a few simple phrases. Lily showed her ability to detect and locate sound when she looked at me at beginning of the song as I plucked the tonic chord three times and sang "now we are together", and then again when we sang the response phrase. When I looked at Lily and exaggerated my lip movement as I sang "hello" for the first call phrase, Lily looked at me and opened her mouth, and when the group joined in to sing the response phrase "hello" Lily sang "hello" again more confidently. When I repeated the song, singing "now we are together" Lily sang "together" in both the call and response phrase, she also sang "hello" at the end of the phrase "we want to sing hello" in both the call and response., She sang "hello" at the end of the call phrase "we can sing hello" and finally singing energetically and opening her mouth wide for the entire response phrase "we can sing hello".

Lily seemed to understand the lyric "hello" as she looked at John and sang "hello" in the call phrase, as if to greet him, and then turned to the group to sing "hello" in the response phrase. Perhaps she could have been looking around the group to observe the other group members and see if they were singing. Lily looked at John often during the song, she looked at him before we repeated the song, briefly after the first phrase "now we are together", and as I sang "we want to sing hello". Lily seemed

to enjoy sharing the experience with John and they both concentrated well when we repeated the song, even after the rest of the group seemed to become restless.

The repetition of the call and response phrases using “hello” seemed to be important for Lily as she sang this word often throughout the song. I think that this song was a very effective greeting song as it also encouraged participation from the adults. The adults demonstrated the call and response skills used in language in a structure they felt comfortable with. Singing as a group in the response phrase seemed to encourage the children to sing. Lily seemed to sing more confidently in the response phrases with the group, than in the call phrases when she sang sometimes sang alone. Perhaps the body of sound created by the group made the children feel more supported, therefore giving them the confidence to join in. Using this call and response structure may also encourage Lily to engage in the to and fro exchange of normal conversation.

The parental support shown by Lily’s mother was really significant as she redirected Lily’s focus from John back to the music. She said “look at Sophie” and this positively encouraged Lily to begin singing partial lyrics from the song again. Parents are important supporters and role models for their children as shown by Lily’s mother at the beginning of the song when she sang “together”, and Lily turned to look at her. Seeing her mother sing seemed to give Lily confidence and encouragement to join in, which she did in the next phrase opening her mouth to sing “hello”. Parents supporting their children in this way are so important in this group environment when it is not always possible to focus your attention on each child in the group at the same time.

Repetition is an essential part of learning language for children with CI and this song provided that important repetition. The parents of cochlear implants children are encouraged to model the appropriate language responses for their children to encourage language development, and this song presented a good opportunity to involve parents in an important and fun way using a call and response structure.

## Session 15B

“How much is that doggie in the window”

### *Description from video footage*

I show the group the soft toy dog and say “he’s like the doggie outside, ‘Jingles’. He’s black and brown”. I start singing without introducing the song. I play the tonic chord and sing “How much is that doggie in the window” loudly and with a strong accompaniment and I look towards Lily who is playing with her hair band. When Lily’s mother hears that I have started the song, she begins singing “How much is that doggie in the window”. Lily looks up at her mother a little surprised and then back at me. She then sings “window”, looks towards her mother, me, and then the window inquisitively. I continue singing loudly with a strong accompaniment and look towards Lily and her mum. Lily sits up straight in her chair enthusiastically and seems to be singing the words of the song. She sings “the one with the waggely” looking out the window, and before she sings “tail” she turns to look at me. I sing “how much” and look at Lily as I sing “is that doggie in the window”. I look around the group who have become restless and face the window. Lily gazes at the floor as she sings “How much is that doggie in the” and when she sings “window” she looks up at me, then out the window inquisitively. I look at Lily as I sing “I do hope that doggie’s for sale”. Lily sings this phrase and then looks at me when she sings “sale”. I say enthusiastically “good singing everybody” as I pause between the verses and look at Lily. I sing the next verse and pause momentarily as I sing “how” look towards Lily, around the group, and then continues singing “is that doggie in the window”. Lily sits in her chair and plays with her head band as she sings some words of the phrase. “How much is the Doggie in the window”. I say “doggie” energetically between the two phrases and sing “the one with the waggely tail”, as I sing “tail” I look at Lily. Lily seems to be concentrating as she sits very still and looks at her head band while the rest of the group is restless and vocalising. Lily sings “the one with the waggely tail” and as she sings “tail” she looks at me. I sing “how much is that doggie in the window” as I look at

Mary. Lily looks at me and subtly moves her head in time to the music, putting her head down as I sing the phrase and then looking up at me at the end of the phrase. I look at Lily and sing “I do hope that doggie’s for sale” in a louder dynamic with a ritardando at the end of the phrase. Directly after singing the phrase I strum two chords, the dominant once, and then the tonic once loudly and with a ritardando. Lily looks at me and then John next to her as she sings “I do hope that doggie’s for sale” and when she sings “sale”, she nods her head in time with music, looks at me and listens to the final two chords of the guitar. When the music stops she looks down at her head band. I put down my guitar and say “good singing Lily”.

#### *Lily’s responses to the music and my reflective comments*

Lily seemed to identify and locate sound when she looked to her mother a little surprised and started singing, or Lily might have suddenly recognised the song as her mother sang it and not have recognised it when other people sang it. She also seemed to associate the lyric I sang “window” from the phrase “How much is that doggie in the window”, with the window in the room as Lily sang “window”, looked at her mother, me and out the window inquisitively. Lily could have been looking at the window or trying to see the dog outside, who was tied up just outside the window, associating the lyrics of the song to the window in the classroom and dog outside. Lily seemed to show an ability to distinguish the music from the noisy group environment around her when she sang “the one with the waggely tail”, demonstrating auditory figure-ground skills. Lily also looked concentrated as I played the last phrase using a ritardando and strumming the final two chords of the song. Perhaps Lily was aware of the tempo change and the different quality of sound produced by the final two strummed chords. Lily also seemed to be aware of the rhythm of the song as she subtly moved her head in time to the music.

Lily sang words and simple phrases throughout the song. She sang the phrases “how much is that doggie in the window”, “The one with the waggely tail”, more than once and “I do hope that doggie’s for sale” once. Lily particularly seemed to enjoy the

phrasing in the song, and often looked up at me before she sang the words “window”, “tail”, “sale” at the end of each phrase. Lily’s mother encouraged Lily to sing, by singing herself as she sat next to her. Her presence in the session showed great support for Lily and encouraged her to verbalise by singing the words of the song. Lily also seemed to concentrate well as I sang this song, even when the group became restless and began vocalising.

This song is helpful for language development as it has a simple, enjoyable melody and uses relevant vocabulary. The structure of the song encourages vocalisation/verbalisation.

Lily seemed to be engaged by this song which focused on language related to dogs. On the day that the session took place a dog was visiting the group and remained tied up outside the window of the classroom during the session. This may have impacted responses related to looking towards the window.

The song was chosen with the above goals and plans that were related to the current “topic” of that time in the centre. The topic included pets, and a visit to the pet shop was planned for the children. The language content in this song was quite complex compared to the other songs I used. The concept of “how much” may have been too complicated for the children to understand but they seemed to really enjoy the words they did understand like “dog”, “window” and perhaps “waggely tail”.

#### Summary of observations noted in the music therapy sessions

During the assessment period Lily seemed to look towards me often, was interested and engaged for short periods of time. Lily seemed to lack confidence to participate, but showed a willingness to be involved.

Lily indicated she was able to identify and locate sound in all MM by looking towards me when I sang and played the guitar, looking towards other members of the group when they vocalised, looked towards her mother when she talked to other parents in the group.

Lily showed interest and enjoyment in music therapy sessions by smiling and engaging in the music. In session five she smiled as she held her trouser leg and looked towards her mother, and in session ten when she was smiling as her mother slid her hands down her body in a musical activity. It seemed that Lily also demonstrated her enjoyment during the sessions by her level of engagement and participation. Lily seemed engaged for long periods of time in session nine as I sang the song 'What's that' to her and other members of the group, and also in session ten when she looked at me throughout the 'Feet, feet, feet' song, repositioning herself to see me when her view was blocked.

Lily seemed very motivated to participate in sessions five and nine during musical activities. Lily often looked towards her mother and me and seemed to be seeking approval as in earlier sessions five and nine. Lily seemed to respond well to the musical activities that involved turn-taking as in session nine or call and response songs as in session fifteen. She was enthusiastic to participate in session nine when she said "my turn", and also in session fifteen she demonstrated increased levels of participation, singing two to three words of a phrase, and the whole phrases.

Lily seemed to respond well to structured activities where she could anticipate what would happen next and this encouraged her participation levels, along with the support from her mother. However unexpected repetitions of a structured activity as in session ten seemed to discourage Lily's participation. The interaction between Lily and her mother during music therapy sessions seemed very important. Her mother encouraged Lily's participation levels by singing herself and helped to keep Lily focused on the music when her attention became distracted. This seemed to contribute to Lily's increased levels of participation demonstrated in session ten and fifteen. Lily seemed to demonstrate auditory association in session five as she pulled at her trousers after I asked 'Who is wearing trousers today', and in session fifteen when she seemed able to associate the lyrics of the song to the window and dog outside the classroom. She also seemed to use auditory figure-ground in session fifteen B when she was still able to concentrate on the music, distinguishing the sound of the guitar from high levels of background noise. Lily also seemed able to identify

the rhythm of the music as in session fifteen when she moved her head from side to side to the rhythm of the music.

## Observations of work with James

### Session 10

"What's that?"

#### *Description from video data*

James is sitting in the second row with his parents. His father lifts him over the first row and hands him to me. James keeps his legs bent and arms close to his body making it obvious that he doesn't want to stand up. I say "here comes James" as I lurch forward quickly to lift him to the ground saying "thank-you James". I kneel down and keep my arm around James's back as he sits very close to me. James seems comfortable as he holds one hand up to his mouth and the other on my back as he kneels on the floor. I bend down turning towards him and sing "What's that, what that?" James looks at me and then turns to face the group, looking at other group members. I bend down further to face him with my arm around him. He keeps his hand up to his mouth sometimes places it in his mouth and leans back into my arm still holding his other arm around my back, and seems to sit still listening intently. I sing "its James's jeans" enthusiastically and loudly, and look down at his jeans taking a corner of the fabric in my fingers and pulling at it slightly. I continue singing "It's James t-shirt" touching his t-shirt as I sit close to him bending down to see his face. James sits still with his arm around me looking out to the group calmly. Taking a small pause and looking out to the group as if asking them, I turn back to James and sing "Its James's nose", James seems comfortable as I place one finger on his nose. I sing "What's that, what's that?", placing my other arm around him and touching his knee gently and then singing "It's James". James looks at me and remains very still as I sing his name. He sits comfortably with his arm around me long after the song has finished. As I lift James up in an attempt to help him stand, he swings his legs up towards my hips and places them firmly around my waist. I say "Thank-you James",

and lift him onto my hip, stand up and say " Nice cuddle for me today thanks". James holds onto me until we are close to his father. I say "thank-you James, there's daddy" as I hand him back to his father.

*James' responses to the music and my reflective comments*

James seemed to identify and detect sound when he looked at me as I sang "what's that, what's that?" He also looked at me when I sang "It's James" and remained very still as if enjoying the sound of his name and associating his name with himself. He seemed to sit still and concentrate on the music even though he made little eye contact as he sat facing outwards to the group. James seemed to enjoy engaging in this song, however needed encouragement from his father to come to the front. This may have been because he sat behind the group, or felt tired and wanted to stay close to his father who was visiting that day. James seemed to be very comfortable with me as I lifted him to the ground, however he may have felt apprehensive about coming to the front and because of that stayed close to me, a person he felt comfortable with.

Session 11

"What's that?"

*Description from video data*

I say enthusiastically, "James would you like to stand up?" as I look at James and hold my arm out towards him. James looks at Sarah and then swings his arms around as his mother encourages him, gently pushing him forward in his seat and talking to him. With some persuasion James stands to come up, a little shyly, and his mother gently pushes him from behind in my direction. James sideway steps towards

me still holding onto his mother with one hand, tentative, but still willing to come up. I say "Good boy" to James who now stands beside me.

I turn towards James and sing energetically "What's that, what's that? It's James's truck", pause and point to his sweatshirt that has a truck on it. James smiles and moves his head sideways back and forth a couple of times playfully, looks towards me and out to the group, he seems happy to stand there. I continue singing "And James's sweatshirt", drawing out the word "sweatshirt". I make eye contact with him as I remain turned towards him.

I sing "And James's" and pause before singing "car" which is also on his sweatshirt. James makes eye contact with me as I sing "And". He holds this eye contact interested, and then looks down at the picture on his sweatshirt. As I lean forward to look more closely at his sweatshirt pointing to it, then I pause and repeat "car" while looking at James who is smiling. I lean back to look at the group and sing "What's that, what's that". James raises his glance towards the group and seems happy as I turn to him, place a hand on his arm and sing "It's James".

#### *James' responses and my reflective comments*

James seemed to identify and detect sound when I sang "It's James' truck" and James smiled, moved his head sideways and back and forth a couple of times. He also made eye contact with me when I sang "And James' sweatshirt". He looked at me interested when I sang "And James'" pausing, and when I repeated "car" he smiled at me. James makes eye contact during the song for brief moments and also looks out to the group. This may suggest that he perhaps feels uncomfortable engaging in eye contact for long periods of time, enjoys sharing the experience with the other members of the group, or is distracted by other members in the group.

James seemed to be lacking in confidence, didn't understand,, or didn't hear the question as I ask him to come to the front. He seemed to seek assurance from his mother when I asked him to come and stand up, staying close to her. With the

important encouragement and support from his mother, he stands up and sideways steps towards me, holding onto his mother. Without this encouragement James may not have stood up. Parents play an essential role in guiding children through experiences when the children lack confidence. Although James was apprehensive at first and did not seem to be enjoying the session, he eventually smiled a number of times during the song and moved his head around in a playful way after I sang a phrase "It's James's truck" to him.

Working with children who have CI, I found that it takes time to build relationships with the children. It also takes time for them to understand what the songs are about, become engaged by them and learn how they can become involved in them. Because language development for children who have CIs begins later than normal hearing children, they are less confident about the world around them. I feel that choosing the appropriate songs in conjunction with staff at an EIC who have extensive knowledge of each child's language development level, and encouraging participation in a fun way helps build their children to build confidence in initiating responses. The children also seemed to be more willing to engage or participate in the music with the loving support of their parents. Although I focused on engaging the children through the music, parent participation was also important and was a goal of the early intervention programme.

### Session 15

"Monkey see, Monkey do"

#### *Description from video data*

I say "what about the song about a monkey". After taking his shoes off and giving them to his mother, James sits down in his chair and looks at me. When I pick up the hand puppet his eyes are drawn to it. He focuses on the puppet as I say "Yeh",

put it on my hand and show the group. James moves his legs together from side to side, sits back in his seat, smiles widely and looks at his mother when I say "It's the monkey song, everyone standing up",

James jumps to his feet, looks around the group and then back to me as I stand up, clap my hands enthusiastically (with the monkey still on my hand) and start singing "Oh when we clap, clap, clap". James stands still and observes what I am doing. I sing "the monkey clap, clap claps his hands" and as I sing "his hands" I crouch down to the level of the children, still holding the monkey. I sing "monkey see and monkey do, the monkey does the same as you" clapping my hands energetically. James looks around the group and observes Lily. He turns to his mother who is sitting beside him and starts clapping when I sing "Monkey do".

I continue to clap my hands and sing "Monkey see and monkey do, the monkey does the same as you". James looks at his mother and steps towards her as he claps his hands becoming more enthusiastic as he goes. He starts clapping twice as fast as the rhythm of the song and sticks his tongue out slightly, smiling. As I say "we are going to tap our toes" he bends down and touches his toes, before the rest of the group, including me. I sing "Oh when we tap, tap, tap our toes, the monkey tap, tap, taps his toes" and tap my toes rhythmically on the floor holding the monkey in my hand and moving the monkey's hands back and forth. James is perched on the edge of his chair and taps his foot three times lifting his toes high in the air and tapping them against the floor. I say "Good tapping" and look around the group.

I sing "Monkey see and monkey do, the monkey does the same as you. As I sing "Monkey see", James moves to stand in front of his mother. He moves past his mother who says "gently" and goes and stands behind his brother behind the group, wrapping both his arms around him and squeezing him tight. He then moves back towards his mother and kneels down beside her. I say "Very good! We are going to nod our heads" as I kneel back on the floor. After a short pause I sing "Oh when we nod,, nod, nod our heads the monkey nod, nod, nods his head". James faces his mother and brother with his back to me as he starts nodding. He looks at his brother and

nods his head back and forth in a playful way. I crawl forward to touch James gently on the back and say "good James". He stops nodding at the end of the phrase "Oh when we nod, nod, nod our heads".

I sing while nodding my head and looking around the group "Monkey see and monkey do, the monkey does the same as you" and say "very good nodding everyone". James turns around to face me and we stand up simultaneously. He smiles and begins stamping his feet before I sing the next phrase "oh when you stamp, stamp, stamp your feet. I sing "oh when you stamp, stamp, stamp your feet, the monkey stamps, stamps, stamps his feet" and stamp my feet to the rhythm of the music. James looks towards me, stamps his feet and seems happy. He then walks between his brother and mother to stamp behind the group. He seem very excited and begins jumping around and doing fast stamping movements. I continue "Monkey see and monkey do, the monkey does the same as you" stamping my feet and looking around the group. When the song finished I said "very good everybody and sit down.

#### *James' responses to the music and my reflective comments*

James seemed to identify and locate sound when he looked at me when I said "What about the monkey song", he moved his legs together from side to side, sat back in his chair, smiled widely and looked at his mother. He also looked at me when I clapped my hands enthusiastically and started singing "Oh when we clap, clap, clap", and stood still and observed me when I sang "the monkey clap, clap, claps his hands". When I sang "monkey see and monkey do the monkey does the same as you", James looked at his mother stepped towards her and clapped his hands becoming faster and more enthusiastic as he went. James seemed to enjoy clapping his hands and clapped them twice as fast, sticking his tongue out and smiling when I said "we are going to tap our toes". James seemed to understand the language of the song by bending down to tap his toes before I began tapping my toes, along with the rest of the group. Although facing his mother and brother, James initiated stopping the nodding movement when I finished singing the phrase "nod, nod, nod your head". He then

stood up quickly at the same time as me and after I said “now, one more stamping your feet”, James enthusiastically began to stamp his feet before the rest of the group and I had started. Although his response seemed to suggest James understood the phrase, it could also be possible that James has anticipated the order in which the actions appear in the song.

The song has a simple and repetitive structure that James could have remembered from previous sessions therefore initiating the actions of tapping his toes and stamping his feet because of his ability to recall the song and its structure. However he did initiate both responses directly after I said what we would be doing next. James’s response to the song indicates to me how important repetition of the lyrics and structure are when encouraging children to participate. The song through these aspects also links the vocabulary related to the body, an action related to that vocabulary and their own bodies, creating a multifaceted sensory experience that was very successful in supporting exposure to vocabulary and encouraging participation for the group.

James seemed to really enjoy this song and showed lots of enthusiastic behaviour as he jumped to his feet, looked around the group and at me as I started singing. He also sat perched on the end of his seat and seemed to enjoy tapping his feet three times lifting them high in the air and tapping them against the floor. He seemed happy as he stamped his feet and very excited as he began jumping around behind the group with his brother five or six times. James also seemed very interested in the monkey that I used as a visual prop. It seemed to quickly engage him as his eyes focused on it as I showed the group.

James seemed to enjoy the music experience with his family. He looked at his mother often especially when I said “it’s the monkey song everyone standing up” and when he turned to his mother and started clapping when I sang “monkey do, the monkey does the same as you”. He also seemed to engage with his brother in a loving and playful way as I sang “monkey see”, James moved to stand behind his brother, wrapping his arms around him and squeezing him tight. This also seemed evident as

he sat facing his mother and brother and started nodding his head in a playful way. James showed enjoyment as he shared the musical experience with his mother and brother and this created a great positive learning experience for James.

### Session 16

“Little Peter Rabbit’s got a fly upon his nose”

#### *Description from video data*

I hold up the rabbit puppet and show it to the group. I say “here is the little rabbit and the fly” and as I say “fly”, I hold a little plastic fly up and move it towards the rabbit’s nose. I say “the fly sits on his nose”. James looks at the rabbit in my hands and follows it with his eyes very interested as I place it on the floor and say “oh the fly fell off”. James continues looking at me and sitting still in his chair as I pick up the guitar. Lily says “where’s mummy? I look towards Lily and say “she’ll be back soon to see you” and James also looks at her. I begin strumming the guitar and say “She’s talking to a teacher in the room there, so she’ll be back soon to see you”. I start plucking the guitar, playing the tonic chord loudly for a two bar introduction and sing “Little Peter rabbit’s got a fly upon his nose”. James sits still with his feet up on the chair and turns to look at me when I start singing. As I sing “little Peter” for the second time James leans forward enthusiastically in his seat and puts his finger on his nose, his feet on the ground and jumps up slightly sitting back in his chair. He then jumps to his feet again energetically, turns to his brother and reaches out to touch his nose with his finger. I sing “little peter rabbit’s got a fly upon his nose” and look around the group. As I sing this phrase James moves to stand in front of his brother bending down eager to see his face, but he hides his face from James and turns to look at his mother sitting behind him. James sits facing his mother who reaches down to place a finger on his nose. James then snuggles in behind his brother, his arms on his chair with his back towards me.

As I sing “flipped it” I hold onto “it” and then pause, and then flip my hand around in front of my nose. James’s mother flips her hand once and then waits for me to play the next chord, after singing “flopped it”, she flops her hand back in the other direction. As I sing “poor little Peter rabbit” I look towards James and then encourage him to sit back on his seat, and his mother also encourages him to sit down by pointing to his seat. James is kneeling and facing his family, he seems to look at David’s mother who says “stop it” to David, and then moves his hips subtly from side to side in time with the music. I continue to look at James, bending towards him as I sing “Poor little Peter rabbit” for the third time and look around the group. His mother also touches the chair with her hand indicating that James should sit down. James looks at Lily ignoring his mother's encouragement to sit down. When I sing “flipped it” and pause, James turns his back to me and faces towards the chair. He puts his arms in the seat of the chair creating an arch with his legs. After I sing “flipped it” he swings his hips to one side energetically and then after I sing “flopped it” (flopping my hand in front of my face) he swings his hips from side to side again. When I sing “but it wouldn't fly away” slowing down dramatically, James sits on edge of his seat, looks intently at me with a hand in his mouth and his eyes open wide.

*James’ responses to the music and my reflective comments*

James seemed to identify and locate sound when he turned to me quickly and I started singing the opening phrase “little Peter rabbit’s got a fly upon his nose”. James seemed to use auditory association skills associating the action of touching his nose with the lyrics in the song as he leaned forward enthusiastically in his chair, puts his finger on his nose, and jumps up in his seat and then attempts to touch his brother’s nose. He seemed to locate the sound when he turned to look at Lily when she said “where’s mummy” and looked at David’s mother when she said “stop it” to David.

Although James sits facing his mother and brother with his back to me, he seems to continue to focus on the music, feeling the rhythm of the song. As he kneels on the ground facing his family, James moves his hips from side to side subtly in time

to the music. He also created an arch with his body, leaning on the chair and moves his hips from side to side energetically in the pauses after I sing “flipped” and “flopped it” in an energetic movement expressing a definite sense of rhythm. At the end of the song James also looks at me intently and concentrated as I sang the last phrase slowing down dramatically and seemingly noticing the change in tempo.

James observed the visual props (the rabbit and fly) with great interest as I held it up and showed the group at the beginning of the song. He followed the rabbit with his eyes from the moment I picked it up to the moment I placed it on the ground. He observes and seems interested in other group members, looking at Lily and Lily’s mother when they talk and also when James ignores his mother’s encouragement and looks at Lily again.

James interacts a lot with his family during the song and seems to really enjoy sharing the experience with them. After he touches his own nose, James turns to his brother and attempts to touch his nose, wanting to include and share the experience with him. He also sits facing his family for an extended period of time, his mother reaching down to him and touching his nose. This shared experience and family interaction seemed very important to James and he perhaps wanted to communicate his understanding of the lyrics as he touched his nose and his brother’s nose, seeking approval as he demonstrated yes I can touch my own nose and my brother’s too. James’s family played an important role supporting and sharing the experience with him as well as encouraging him to adhere to appropriate behaviour outlined by the programme, such as sitting on his seat.

### Session 17

“Monkey do and monkey see”

*Description from video data*

I stand up and say "everybody standing up". I immediately start clapping my hands and singing "Oh when we clap, clap, clap our hands". I look around the group and continue clapping as I bend down and move closer to Lily. James sits in the back of his chair with his legs crossed and has one hand in his mouth. His mother encourages him to stand up, he looks around the group and stands up with his hand still in his mouth as I sing "oh when we clap, clap". James looks at Lily sitting on the floor and sits down on the edge of his seat as I sing "the monkey does the same as you". Clapping my hands I move closer to James and look at him for a couple of beats. James stands up for a second and sits down again in the back of his seat, with his thumb in his mouth, and watches Lily.

I sing "oh when we " and briefly pause. I lift my right toe up in the air ready to tap, and James looks at my foot, at me and back to my foot as I sing "Oh when we tap, tap, tap our toes", then looks towards Lily. I continue singing "The monkey tap, tap taps his toes" and then James turns to his mother and reaches for her hand to help him stand up. James is standing as I sing and move towards Lily "Monkey see and monkey do". As I sing "the monkey does the same as you" he rocks gently from one foot to the other holding onto his mother's hand. I continue to tap my foot as I look around the group and say "good tapping"

I step back and bend over nodding my head as I sing "oh when we nod, nod, nod our heads". At the end of the phrase I look around the group and turn towards James who is moving his feet up and down faster and with urgency. I kneel down and focus on him briefly before looking around at the rest of the group. He looks towards me and vocalises as if to ask "Why have we stopped tapping?". After looking quickly back at me seemingly annoyed, he sits on his seat with his head down holding onto his mother's hand and then looks towards Lily. I demonstrate an exaggerated nodding of the head movement as I sing "Monkey see and monkey do", I look towards James and touch him encouragingly on the knee. I look around the group and sing "the monkey does the same as you" and James begins to nod his head slightly. I say "good nodding" and James begins to nod his head twice as fast.

I stand up and sing looking around the group "Oh when we stamp, stamp, stamp our feet". James stops nodding his head and starts stamping his feet holding onto his mum, the other hand in his mouth. He continues stamping his feet as I sing "The monkey stamp, stamp, stamps, his feet" and then sits down while observing Lily as I sing "monkey see and monkey do". He continues to observe Lily as I sing "the monkey does the same as you", and after I have finished singing.

*James' responses to the music and my reflective comments*

James seemed to identify and locate when I sang "oh when we" and paused briefly. He looked at my foot, at me, and back to my foot held high in the air ready to tap. He seemed keen to begin tapping his feet after I sang "Oh when we", when he turned to his mother and reached for her hand to help him stand and began tapping his own feet, perhaps suggesting auditory association. He seemed to express the rhythm of the music by rocking gently from one foot to the other as he held his mother's hand. He may have understood the phrase "Oh when we nod, nod, nod our heads", as he moved his feet suddenly faster excited and vocalised as if to say "why have we stopped tapping our feet" and then looked back at me seemingly annoyed. This may have also been the case when James began nodding his head twice as fast after I said "good nodding". James may have been responding to positive praise when he increased the speed at which he nodded his head, or been annoyed that we were about to stop nodding our heads.

James seemed to be momentarily encouraged to stand up at the beginning of the song as I looked at him, then moved towards him singing the song because he briefly stood up. He also responded to his mother's important encouragement to stand up at the beginning of the song. James' mother provided great support for him when James reached for her hand and she helped him to stand up as I sang "The monkey tap, tap taps his toes", and also she held onto his hand as he rocked from one foot to the other as I sang "the monkey does the same as you".

James observed Lily a lot in this session and looked at her throughout the song. How Lily behaved during the song may have influenced James as he looked at Lily sitting on the floor and then sat down on the edge of his seat as I sang “the monkey does the same as you”. He also sat down and observed Lily as I sang the final two phrases of the song.

#### Summary of observations noted in the music therapy sessions

During the assessment period James seemed to be happy to attend MT sessions and although he was initially very shy, showed an interest in what was happening in the group. James needed encouragement to participate in action songs, and at times when he chose not to participate, appeared to listen and watch what I was doing.

James showed an ability to identify and locate sound in all MM in this study. He looked at me when I sang his name in session ten, and also in session eleven when he smiled as I sang about the clothes he was wearing. He also turned quickly towards me when I began singing in session sixteen. James showed great enjoyment interacting with his family; his father attended sessions occasionally, but more often his mother and younger brother.

James showed communicative intent and enjoyment during sessions when he smiled at me, especially when I used his name. In session ten he made limited eye contact, but showed he was comfortable participating when he sat on my knee. In session eleven he made brief moments of eye contact with me as well as looking out at other group members.

James demonstrated increased levels of participation in activities and increased enjoyment sharing the experience with his family as MT sessions progressed. In sessions ten he seemed to lack confidence to come to the front of the group as he remained sitting on my knee when I sang “What’s that?” and also in session eleven when he held onto his mother’s hand and looked to her for

reassurance. As the sessions progressed he seemed to show increased levels of participation, especially in the action songs. In session fifteen when he initiated clapped his hands and stamping his feet while looking at his mother. He seemed to be excited about sharing his musical experience with his mother and brother, and after stamping his feet he gave his brother a hug and nodded his head playfully while facing them. As James' level of participation in the musical activities increased, his level of interaction with his family also increased. This family support was paramount to the increased level of engagement and participation.

James seemed to identify the rhythm of the music in later sessions as in session sixteen when he swung his hips from side to side to the rhythm of the music and in session seventeen rocking his body back and forth, from foot to foot in time to the music. He also seemed to be aware of tempo changes; looking at me when I slowed down at the conclusion of a song in session sixteen. In later sessions James seemed to show an increased level of socialisation. In session sixteen he looked towards Lily and her mother for an extended period, sitting on the ground after Lily had, and continuing to observe her and in session seventeen he observed Lily intently for the duration of the "Little Peter Rabbits' got a fly upon his nose" song.

## Observations of the work with David

### Session 6

“Mary wore a red dress”

#### *Description from video data*

David is sitting still in his chair and holding his hands together. I say "What's next", and look around the group. David looks at me as I touch the picture of trousers I am showing the group and say "Who is wearing trousers today?" I say "Peter's got trousers on" as I hold the guitar in one hand and the picture of trousers in the other, looking towards Peter. David follows the picture of trousers with his eyes as I place it on the floor and leans forward in his seat, his eyes still on the picture. I pluck the first chord of the song and realise that it is quite out of tune. David sits up straight and holds onto his seat with both hands rocking back and forth, while looking at me and the guitar as I pluck the tonic cord a couple of times. He smiles slightly when I continue playing, smile and say "I might just sing through this, oh no I won't". As I start tuning the guitar and plucking the strings David leans forward in his seat and falls off it intentionally, landing on his knees. I tune my guitar and pluck the strings looking down at the guitar. David gets up and sits himself back in his seat holding his hands together.

After tuning I pluck a two bar introduction and sing "Who is wearing trousers today" and David smiles as I begin singing. He puts his hands behind his back, pushes his hips forward in the seat and raises his feet. His mother leans forward and touches David's trousers. David momentarily looks back at me and then turns around and stares at his mother for a few seconds.

David sits on the front of his seat, holds his hands together and looks up above me for a few seconds as I sing, "trousers today, trousers today", and I repeated the

phrase as I look around the group. David's mother moves her hand through his hair and David moves his head down again quickly to look at me. When I sing "music time" and slow down, David holds his glance on me for a few seconds. He continues to look at me and the picture of trousers as I pick it up to show the group. I say "Put your hands up if you are wearing trousers". David smiles and leans forward in his chair. David's mother models the response by putting up her hand as she sits behind him out of David's view. She then raises David's arm and tries to encourage him to raise his hand. He responds by pulling his arm away from her hold. David sits back in his chair and turns to look at other group members who have put their hands up.

*David's responses to the music and my reflective comments*

David seemed to show the ability to identify and locate sound when he looked towards me as I plucked the first few chords of the song and smiled as I began singing the song. He seemed to concentrate of the music as he looked above me, concentrating as I sang "Trousers today" and also as he looked towards me for a few moments when I sang "music time" with a slight ritardando.

This song encouraged the children to identify what they were wearing. Some children in the group children such as David may have had difficulty understanding the language that was used. However with the use of the visual props the children, with time, may have developed a simple understanding or idea about what we were singing about. There were varying levels of language offered through this song, from singing about items of clothing (one word) to answering a more complex question like, "who is wearing trousers today?" I felt that with this song, perhaps I had challenged the children too much by asking them the question "Who is wearing trousers today" after the song was finished. This question was also in the song lyrics and I repeated the question to reinforce the language by saying it, singing it and saying it again. I felt that the lyrics of the song offered enough repetition of vocabulary to be effective; however I was encouraged by the staff to talk about the items of clothing before I sang about them. I found it difficult to balance the idea of

talking about the vocabulary before I sang about it, and then singing the song with the vocabulary in it. However with children such as David in the group I think that talking, using the visual prop (such as a picture) and then singing about it gave him many opportunities to hear the important repeated vocabulary. David in fact seemed to respond really well to the visual props by looking at pictures as I held them up to show the group and he would concentrate and follow them around with his eyes for extended periods of time.

David seemed to enjoy observing me and other children in the group. He looked at other children in the group when they put their hands up. However, when I initiated eye contact with him he looked at me but avoided eye contact and either preferred I didn't look at him, or chose to look at something else. David seemed to engage well with visual props more confidently than engaging in eye contact with me and other group members.

Children with CIs seemed to respond well to the structure and the repetition in the song. The repetition gave the children time to assimilate and respond to the question in the song's lyrics as it was repeated many times. After singing the question in the song, I would ask the children the same question and they could either indicate if they were wearing an item of clothing through pointing to it, touching it, or raising their hands. Often responses were modelled by the parents; however some children may not have shown a true understanding of the question. Asking the group to answer a question may have been too advanced for some children's language development, but a good way to enlist the help of parents by modelling the response to the question in a positive way.

Working with children who have CIs I was always cautious about demonstrating vocabulary by physically touching the children. I think it is important to really get to know the children in the group to understand what they will be comfortable with. Working with David I was always conscious that he didn't always respond well to my direct eye contact and because of this I was always thoughtful about how I approached him physically. The act of physically encouraging a child to

participate in something can be difficult to assess. I noticed that in this session David seemed to be disturbed by his mother's physical encouragement during the song when he turned to stare at his mother after she had touched his trousers, pulled his arm away as his mother encouraged him to raise his hand and moved his head down quickly after his mother had touched his hair while sitting behind him. This may have been because David's mother was sitting behind him out of view when she modelled a response, or physically touched him. He may have been surprised by her touch especially if he was unable to understand the language that was being used in the song.

### Session 8

"Hello" (with tambourine)

#### *Description from video data*

David sits between his mother's legs and snuggles into her. His mother holds her arms around him as he wriggles around and lifts him up to place him on her knee. I sing "hello, hello, hello...hello, hello, hello". I hit the tambourine with a steady pulse and look towards Peter and David. I hold the tambourine in front of Peter so he can hit it, and sing "Hello Peter". David anxiously focuses on the tambourine and looks toward Peter sitting beside him as he hits the tambourine. It is David's turn next and he sits on his mother's lap as I hold the tambourine in front of him. I sing "hello David", look at him and pause, holding the tambourine still. David continues to look intensely at the tambourine for a few seconds as I wait for him to respond. I sing "hello David" again and pause. David stares at the tambourine as I hold it in front of him and holds his mother's hands, pushing firmly down on them. As David's mother begins to move her hand closer to the tambourine and holds her hand above the tambourine ready to hit it, he pushes his mother's hands away. I move the tambourine towards Isabella who is sitting next to David, and holding it in front of her

I sing "Hello Isabelle". David continues to focus on the tambourine and then turns around. Facing his mother, he puts his arms around her neck. He then leans forward over his mother's knee, sits back up, looks at his mother and points to the whiteboard behind her. David's mother shakes her head as if to say no. I say "are you going to hit it Sarah?" and I take Sarah's hand gently assisting her to hit the tambourine. I hold the tambourine in front of Ell and sing "hello". Then I greet the mothers of the children, first holding the tambourine out for Ell's mum to hit, and then David's mother as David lies over lap. I then shake the tambourine faster and louder. David lies forwards over his mum's knees and she holds him around the waist. I sing the final "hello, hello, hello" and slow towards the end of the phrase shaking the tambourine louder and faster.

*David's responses to the music and my reflective comments*

David seemed restless before the session started as he wriggled around on his mother's knee. He seemed anxious when the tambourine was close to him and chose not to hit the tambourine. He focused intensely on the instrument as I held it in front of him, pushing down on his mother's hands, and looked anxiously at Peter and Sarah who sat beside him as they hit the tambourine. David seemed to be observing members of the group as the tambourine was held in front of them, however he may have just been focusing on the tambourine. He may have responded to the tambourine in this way because the sound was unpleasant for him due to the way sound is processed in the CI.

In this two minute excerpt it is difficult to determine if David was using his auditory skills to focus on the music as he was moving around and seemed restless. David stayed physically close to his mother, wriggling on her knee at the beginning and during the session, turned around to put his arms around her neck and sat up and lay down across her lap repeatedly and seemed to seek comfort from her.

Apart from focusing on the tambourine visually, David showed no obvious response to the sounds made by the tambourine, my singing, or the vocalisations, verbalisations of other group members. In this example it was difficult for his mother to encourage him to focus on what was happening as he seemed uncomfortable with, or was not interested in the tambourine when it was held in front of him or hit by other group members throughout the song. He seemed to however indicate what he wanted to do by pointing to it, for example when he pointed at the whiteboard.

Children with CIs sometimes avoid an activity when they feel anxious about it and David seems to be doing this, as he points to the whiteboard, wanting to move away from the group. Asking David to respond to a communication when he is not sure what is going on could have been threatening and therefore he may have chosen to avoid involvement where possible. His anxiety levels may have been related to the tambourine and offering him another instrument could have helped to assess if his response was to the instrument or his mood at the time.

### Session 11

“What’s that?”

#### *Description from video data*

A member of the group stands next to me as I sing kneeling on the ground next to her, "What's that, what's that, it's Sally's..." I laugh as I have said the wrong name and correct myself "It's Anna's sweatshirt" and I take her left wrist in mine as she points her finger and moves towards my eyes. David sits on his chair, one leg folded under the other. He leans towards his mother almost lying down in his small chair. He looks up at his mother and then rests his head on her leg. I sing "And Sophie's glasses" as I lean my head back. Anna leans on my shoulder as she tries to touch my glasses. When I sing this phrase, David lifts his head, rests it on his mother's arm and looks

towards Anna and I. Anna holds her arm around my shoulder and giggles. I turn to her and sing "And Anna's pink pants..." and then correct myself, "trousers" and David continues to look towards us.

When I sing "and Anna's hair", he lifts his head from his mother's leg and looks towards his mother. I look towards Anna and sing "What's that' what's that" and pause before singing "it's Anna", she is smiling and holds her hand on my shoulder. David places his head back on his mother's leg and looks down towards the ground behind me as I sing her name. I say "thank-you Anna" and David lifts his head and looks up towards his mother who looks at Anna and smiles. I say "sit down now" gently and point to her empty seat.

I look towards David and say "Who wants to stand up next?" then pause and say "David would you like to stand up". After looking at his mother David puts his head on his mother's leg and looks down towards the floor. He continues looking down and does not shift his glance as I ask him if he wants to stand up. After waiting for a response I look at David and say "Not today, not today. After seeing that Peter wants to stand up I say "Peter...come and stand up" and he and walks towards me.

I sing "What's that, what's that, it's Peter's hair", touch his head gently and then pause before singing "And Peter's eyes" pointing to his eyes. David continues looking at the floor but when I sing "And Peter's eyes" he lifts his head slightly, continuing to rest on his mother's leg and looks towards Peter standing next to me. Peter begins rubbing his eyes and I say "have you got itchy eyes?" and bend forward to look at his face. I say again "Have you got itchy eyes?" then I sing "and Peter's shoes". David rolls his head towards his chest while still resting on mum's leg and then once again lifts his head to look at Simon on other side of group. I sing "What's that, what's that" and pause to sing "It's Peter". As I sit turned towards Peter next to me, and when I sing "What's that" for the first time in the refrain at the end of the song, David glances at me and looks towards Peter while still resting on his mother's leg and playing with his foot dangling off the chair. After looking at his mother David puts his head on his mother's leg and looks down towards the floor.

*David's responses to the music and my reflective comments*

David seemed to identify and locate sound when he lifted his head off his mother's leg and looked towards Anna and then me as I sang "And Anna's glasses" unaccompanied. He also lifted his head and looked towards his mother when I sang "its Anna's hair". David seemed to locate the sound when he lifted his head after looking at the floor when I sang "It's Peter's eyes" and looked towards Peter. Also when I sang "What's that" to Peter at the end of the song, David looks towards me and Peter, and may have located sound when he looked down towards the ground behind me as I sang Anna's name.

David seemed to rely on the physical contact with his mother throughout the session. He rested his head on his mother's leg for the majority of the session and occasionally lifted it to look at other group members. He may also have been tired as he rested his head on his mother's leg. He looked up at his mother and rested his head on her leg before I sang "and Sophie's glasses" and lifted his head, rested it on his mother's arm and looked towards Anna and I. When I approached him to ask if he would like to stand up and be the model for the song, he looked at his mother leaned on her leg and looked at the floor for an extended period of time. It was only when I began singing to the next member of the group that he looked up and broke his glance. He didn't seem to enjoy the attention, or felt anxious as I had looked directly at him and asked a question. Perhaps he couldn't understand what I was asking him and/or was saying no to coming to the front by looking at the floor?

When I sang about other members of the group, David seemed to show interest in what was happening around him and looked towards other group members on occasion. David looked towards me, Anna, Peter and Simon. However I am not sure if he was responding to the visual activity that was happening as I pointed to or touched the other group members that stood next to me, or if he responded to the singing of "What's that", or the fact that I sang the names of the other group members.

This song gave the opportunity for children to participate by coming to stand in front of the group and by observing, watching or listening as I sang to different members of the group. The song seemed to engage David visually and through the different inflection of the sung voice. A lot of visual activity happened during the song as the different members of the group stood up and sat down. I feel this was beneficial for David as he could become visually engaged. Due to David's responses in this session I felt it was important to ask other staff members who helped to maintain the correct functioning of the device, if his CI was working correctly.

### Session 13

"Now we are together"

#### *Description from video data*

I say "it's time to start and we want parents to sing along". David is sitting up in his chair and looks around the group towards a little girl named Isabelle who is vocalising. I am kneeling on the floor and start plucking the tonic chord gently for one bar and David smiles, looking towards me. He leans over and places his head gently on his mother's leg. I stop playing and say "so this is the hello song, so if everyone could repeat after me" and pluck the tonic chord gently and moderately loudly once more. David looks towards me as I play the tonic chord again and pause.

I look towards David, pluck the first two bars of the introduction energetically and sing the first phrase "now we are together". David continues to look towards me as I pluck the first bar of the introduction, then he turns his head into his mother's leg. When I pluck the second bar of the intro at a moderate tempo, energetically he then sits up straight in his chair and looks at me smiling.

David smiles widely, looks at me and places his head once more on his mother's lap. His mother lifts the leg that David is leaning on and touches his

forehead. David then turns his head into his mother's lap, and then looks at Isabelle again. David continues to lean his head on his mother's lap and turns his head back towards me momentarily. I sing the next phrase "We want to sing hello" strongly and loudly, then look back towards David, who makes eye contact briefly as I sing the call phrase "hello" enthusiastically.

David looks across the group at Isabelle another group member, his head still on his mother's lap. The group sings the first "hello" (response) loudly and enthusiastically and David looks towards me. He continues to look at me as I sing the second call "hello" energetically and then lifts his head and shakes it back and forth a couple of times during the "hello" response.

I look towards David first as I sing "We want to sing hello" in a strong and jovial voice for the call phrase and then look around the group. David looks towards me as I sing this call phrase. He lifts his head, moving it around until he places his head back on his mother's lap again. He looks back to me as I sing loudly and energetically at the end of the response phrase "We want to sing hello".

Isabelle waves and vocalises loudly and David looks quickly in the direction of Isabelle and I continue to pluck the tonic chord gently accompanying the conversation as I turn to her and say "hello Isabelle, hello Isabelle", and David moves his head around on his mother's leg. I continue to pluck the chords gently and David looks at me, and then at Lily as I say "Lily".

#### *David's responses to the music and my reflective comments*

In this session David seemed to be responding to the different sounds of the guitar, my voice and the vocalisations made by other group members and seems to identify and locate these sounds. He looked towards me and smiled as I began playing the tonic chord gently for one bar, and then again when I began plucking the tonic chord again and paused. David looked towards me when I played the first bar of the introduction and during the second bar he sat up straight in his chair, and looked at

me smiling. He also smiled widely, looked at me and placed his head on his mother's lap. David made eye contact with me as I sang the call phrase "hello" enthusiastically and continued to look at me until after I sang the call phrase "hello" again, lifted his head and shook it back and forth a couple of times. David also looked at me when I sang the call phrase "we want to sing hello" and then looked back at me as I sang the response phrase for this phrase loudly and energetically. He also looked at me when I said "Lily" and then looked at Lily showing auditory association and looked quickly towards Isabelle when she vocalised loudly.

David seemed to respond when I sang the word "hello" and at the end of the phrase "We want to sing hello". This may suggest he associated the word "hello" with the greeting hello and was trying to communicate a hello to us by looking towards, or simply wanted to look at others and move his head around.

David appeared to be concentrating and often looked towards me as I played the guitar and sung in this session. He demonstrated enjoyment by smiling and looking at me after hearing the guitar sound. He also looked at other group members such as Lily and Isabelle and seemed interested in what they were doing. David seemed to seek comfort from his mother and stay physically close to her throughout the session. He leaned on his mother's leg and stayed physically close to her throughout the session.

#### Session 14

"Now we are together"

#### *Description from video data*

I pluck the tonic chord once, strum it once, then pluck the dominant chord once to check whether the guitar is in tune and prepare the group for the beginning of the session and greeting song. David has turned around to face his mother; their faces

are very close together and they seemed to be touching noses. When I play the second chord once David turns his head around surprised and sits still for a moment, looking towards the rest of the group. I look around the room and say "we are going to need lots of help from the parents today with the hello song". I move around on my legs and then pluck the tonic chord again.

I pluck a two bar introduction moderately loudly while looking around the group. David looks at me and then turns away quickly. He looks back at me momentarily, smiles and then drops his head backwards, arching his back as if he is trying to see his mum for a few seconds. I sing the call phrase "Now we are together" and hold my hand out in the direction of the group, indicating that it is their turn to sing. David lifts his head back at the same time as I sing "now we are together", and makes brief eye contact. I sing the response phrase "now we are together" with the group and David sits still, looking down momentarily.

He continues to sit quietly in his seat and lifts his legs straight out into the air. I sing "We" unaccompanied and start playing the guitar as I sing "want to say hello". David looks at me quickly as I sing the word "hello" at the end of the call phrase". I sing the response phrase softly, allowing the parents to hear one another singing the answer phrase. David looks at me quickly again and then away, dropping his head back as I sing the call phrase "Hello". David lifts his head again and quickly looks back at me curiously, then turns to look at his mother when the group sings "hello".

I sing the second call phrase "Hello" and lean forward towards the group while David looks at a staff member waving to the group. In the group response phrase "hello" I play the guitar without singing and look enthusiastically around the group encouraging them to sing. David looks back to his mother as I sing the call phrase "we want to sing hello". I sing the response phrase softer and in a slower tempo, slowing down dramatically as I sing the last couple of words, exaggerating the word hello and plucking the last chord strongly. David looks back at me quickly as I sing the final "Hello" at the end of the phrase and then back to his mother.

*David's responses to the music and my reflective comments*

In this session David seemed to identify and locate sound, responding to the different sounds produced by the guitar, voice, as well as the tempo changes initiated by me. He turned to look at me when I plucked a chord on the guitar at the beginning of the session and when I played two bars of introduction moderately loud. He also looked towards me when I started singing the first phrase, and as I repeated the phrase (response phrase) "Now we are together", similarly for the "hello" phrase, and at the end of the phrase "We want to sing hello". When I sang the final "We want to sing hello", exaggerating the word "hello" by drawing it out and slowing down, David looked quickly back at me. David seemed to show enjoyment in this song through smiling and looking towards me and may have been interested in the different sounds of the guitar and voice, as well as the use of simple language, and especially, repetition of the lyric "Hello". He could also have showed interest in the different qualities of the sound, perhaps recognising sounds that were new to him?

David appeared to be confident as he looked towards me often and engaged in eye contact briefly as I sang "now we are together" in this session. He often looked towards me, other group members as well as his mother. This could suggest that he was curious and interested in what was happening around him visually and aurally. It could also suggest that he felt more confident or less anxious perhaps because he knew the music well or had experienced more music therapy sessions (as this was session number 14), and may have felt more secure knowing what would happen during the session. He may have just felt happy that day because of what happened before the session that morning.

Session 16

"Little Peter Rabbit's got a fly upon his nose"

*Description from video data*

David is leaning on his mother's leg as she touches David on the nose as I sing "Little Peter rabbit's got a fly upon his nose" for the first and second time. When she touches him for the third time as I sing this phrase David pushes her hand away. His mother holds David's hand away gently and places her finger on his nose. David then throws his hand up in the air in the direction of his mother and she holds his arms and says "stop it". I sing "he flipped it and he flopped it" and strum the dominant chord once on "flipped, and... flopped...but". David's mother flips her hand around in front of her nose as I sing "flipped it and flopped it". David pushes her hand away with his head leaning forward into her lap and hits her twice more with his hand. When I sing "wouldn't fly away" I begin strumming the tonic chord for the first time and look towards David. David's mother pushes his hand away twice and David continues to try and hit her a few times. I continue strumming the chords strongly and loudly as I sing "Poor little peter rabbit, poor little peter rabbit" and look towards David. David stops hitting his mother and sits back in his seat remaining still when I sing "poor little peter rabbit" for the first time. when I sing "Poor little peter rabbit" for the second time David leans forward in his chair and places his head on his mother's knee and looks towards me.

The third time I sing "poor little rabbit" I play in a slightly faster tempo and look around the group. As I sing this phrase David moves his head around on his mother's knee remains still and looks at the floor. I pause on "flipped it", lifting my hand up to my face to flip it around and demonstrate the actions in the song as I look towards David. I sing unaccompanied "it and he flopped it but it" and continue strumming the guitar slowing down slightly and playing loudly on "wouldn't fly away". When I sing "flipped it and he flopped it" and until the end of the song David remains looking at me. After I sing "away' at the end of the last phrase David lifts his head slightly and places it back on his mother's knee. I say "Yeh, poor little Peter rabbit", I put my guitar on the floor and pick up another soft toy. David rolls his head forward and off his mother's knee, falling forward towards the floor.

### *David's responses to the music and my reflective comments*

In this session David seemed to identify the sound of the guitar as I strummed it strongly and loudly singing "poor little Peter rabbit" twice, and as I looked at David he stopped hitting his mother and sat in the back of his chair remaining still for the first time in the session. He also looked towards me as I sang "Poor little Peter rabbit" again twice and remained focused on me as I sang "flipped it and flopped it" until the end of the song.

At the beginning of the song when I sang "little Peter rabbits got a fly upon his nose" David's mother touched David's nose each time I sang "nose". The third time I sang "nose" David pushed his mother's hand away. When she holds his hand away to touch his nose, he throws his hand into the air in the direction of his mother. Maybe this indicated that perhaps David didn't want to be touched on his nose or that he didn't understand what a nose was and why his mother was touching his nose. David and his mother seemed to be distracted from the music as David hit his mother after I sang "flipped it and flopped it" a number of times and then again as I sang "wouldn't fly away". Perhaps again David was anxious or annoyed as his mother did the action of flopping her hands around, and didn't understand what was happening around him.

### Summary of observations noted in the music therapy sessions

During the assessment David found it difficult to remain in his seat and would sometimes move away from the group. He sometimes appeared very tired and would sit on his mother's knee or very close to her and didn't seem to engage in the music.

David showed that he was able to identify and locate sound in all six MM. This was demonstrated when he looked towards me as I started playing the guitar or singing in session six, eleven, thirteen, fourteen and sixteen, and when he looked

towards another group member vocalising in session thirteen. Other responses he demonstrated to the guitar were sitting up straight, sitting still after moving a lot, and looking towards me when I initiated slowing down at the end of a phrase.

David showed a limited communicative intent and often remained physically close to his mother in all sessions. In session six David seemed to indicate that he was uncomfortable making eye contact. He looked towards me, above me and at a visual prop card which I held, however seemed to avoid direct eye contact. He concentrated on the visual prop I held and intently following it around the room. In session eleven David also remained physically close to his mother and seemed to show anxiety when I directed a question to him. He responded to the question by looking towards his mother, and then at the floor for an extended period of time.

In session eight David seemed to show high levels of anxiety as he focused on the tambourine, and remained physically close to his mother throughout the session. His response may have demonstrated sensitivity to the high frequencies, or bell like sound made from the tambourine, or a fear of the instrument and/or hitting it as I held it out to him, or he may have disliked the unwanted attention from me.

In earlier sessions six and eleven, David didn't seem to enjoy engaging in eye contact and showing little communicative intent, however in sessions thirteen and fourteen he showed slightly increased levels of eye contact and engagement with the music. David also showed an increased level of enjoyment in these sessions looking towards me and smiling when I started playing the guitar. This also coincided with different responses to the sound of the guitar, voice and vocalisations made by other group members during the two sessions. This may have been because he was more confident attending the group, felt more comfortable with my attention, or that he enjoyed the simple language of the hello song used.

David seemed to enjoy the use of visual props in session six when he looked towards me as I held a picture of an item of clothing and at other group members as they raised their hands in response to a question. This also seemed evident Also in

session eleven when he seemed to look intently at other members of the group who participated in the activity.

David appeared uncomfortable when his mother gave him physical encouragement to participate. This seemed evident in David's response to his mother in session six, when she lifted his hand in an attempt to encourage him and he pushed her hand away. In the same session, David stared at his mother after she touched his trousers and in session sixteen David pushed his mother's hand away after she touched his nose. These responses could have been because he was not able to understand why she was touching him, or that he simply didn't want to be touched. Although he sometimes responded negatively to physical encouragement, he seemed to enjoy being physically close to his mother during the sessions. He would sit on her knee and rest his head on her leg often as in session eleven.

After attending the MT sessions for four months, at aged three years, two months, David showed a concerning language regression. He used fewer words, was less vocal, and showed a decreasing communicative intent. Concerns were discussed at this stage about his level of communicative intent and ability to hear effectively with the CI. David demonstrated slightly increased levels of communication and enjoyment during his MT sessions, but did not show a great interest in others. He largely participated by listening, focusing on visual props that I used, looking at his mother and occasionally at me. David sometimes seemed anxious during MT sessions especially in response to the tambourine and when I attempted to communicate with him, asking a question, or making eye contact with him. I questioned the value of group MT sessions with David and thought that individual sessions may have been more appropriate for him.

## Discussion

The findings in this study demonstrate the complexities of researching one's music therapy clinical practice with this population. The music therapy did appear to increase the children's level of participation. Having a consistent programme of music which was carefully planned, and using strategies such as the 'auditory sandwich' made the programme more accessible to them and possibly increased their motivation to be actively involved. It also appears that music therapy can make meaningful contributions to communication, socialisation and relationship building. The children appeared to enjoy the sessions and were more confident interacting with other group members.

### *Reflections –Participation*

Encouraging the children to participate through music is an important aim of an EIC program (Mulcahy 2009, Archer 1995), and the staff were keen for me to focus on this in music therapy sessions. I felt that in order for children to participate, the appropriate music and parental support was needed. It was also important to create an environment where the children felt included and that the responses they offered through vocalisation, verbalisation and actions were accepted and valued by parents and staff. It also seemed that as each child's level of understanding improved the children were more likely to participate, and became more confident with their responses. However for some children with CI who have limited comprehension levels and communication difficulties and who are not sure what is happening, may feel anxious and avoid participation when encouraged by parents. Moreover participation and engagement seem to be connected to understanding as I seemed to have longer periods of engagement with the children who had greater levels of understanding. For example, I experienced longer periods of engagement with Lily who was able to sing words and phrases from songs, than with David, who produced vocalisations in only one session. This could be described by saying there were longer meaningful moments with Lily than, James and David. The children in this study who

had a good level of understanding also seemed more likely to engage in longer periods of eye contact than children with lower levels of understanding.

When encouraging children to participate through physical touch, it is important to be mindful about how to approach children sensitively, for example, being aware of touching around the head and the cochlear device itself. Bearing in mind that each child is at a different stage in their language development, approaching children from behind when they are unable to see you, hear you or understand the language you use, may cause anxiety for some children. An indication that a child may be less open to physical contact may be by observing their level of eye contact. If they are not engaging in eye contact with you then perhaps they may not respond well to physical contact.

Choosing repertoire that was appropriate for children with CI as part the EIC program involved careful consideration. Choices were made in consultation with the EI team, and related to the learning topic at any given time which was decided by the team. One of the most difficult considerations was how to choose a song to suit everyone's language level. Lily, James and David showed varying levels of participation and understanding, therefore I viewed music as an opportunity for the children to build on the language levels determined by EIC staff and extend it where possible. The children's level of enjoyment during the sessions helped me to assess the appropriateness of the song selection.

I incorporated visual cues that were used with the selected songs to support understanding especially when the children were learning new vocabulary. I used songs such as "What's that?" (Nordoff & Robbins, 1968), where each child stood in front of the class and enabling me to provide visual cues for them and their peers as I sang about their clothing. Using exaggerated facial expressions in a song like "The emotions song" seemed to capture the children's visual attention as research suggest (Perigoe, 1999). The children often seemed to follow the visual cues with their eyes as I moved it around room.

It was difficult to engage all the children all of the time, because of their varying language levels. Examples of repertoire that seemed particularly effective were greeting songs. The greeting songs gave the children a chance to become aware of each other and enjoy simple language based around the word “hello”, which seemed to be understood by most, if not all of the group. The greeting song “now we are together” which was structured by a call and response phrase, worked well encouraging participation from parents who in turn supported the children’s responses. The call and response song helped to build skills in conversation, whereby parents modelled responses for their children. It also seemed to encourage children to sing, the body of the sound created by the group perhaps making the children feel more secure and giving them the confidence to join in. It was also important for me to repeat the repertoire for at least a four week period to allow time for the children to learn new material and ongoing assessment of the repertoire was also important.

Although this research suggests that it is difficult to determine auditory development, what appears significant is the value of music therapy in promoting social and emotional development. Social and emotional aspects such as family relationships, participation, vocalisation, singing and self-confidence in a group context can be supported through music therapy. Further music therapy research in a group setting for children who have cochlear implants could therefore focus on how promoting social and emotional development supports communication and auditory development. Family relationships are also essential to language development for children, and further research learning how music therapy can support family relationships of children who have cochlear implants in an EIC setting could be investigated. Research relating to the views of staff and families about music therapy at an EIC could help music therapist understand how their therapeutic skills can be used to support social and emotional development with children who have CI in a classroom setting.

*The Contribution of Music Therapy to Communication, Participation, Socialisation and Relationship Building*

In retrospect, it is clear that two of the children were in the low normal range of auditory and expressive language skills during the music therapy programme, and it would therefore have been difficult to detect observable change in them, and especially to attribute it singularly to music therapy. For example, Lily and James had access to the full range of the LING speech sounds, and were both just within the normal range. With these particular students it might have been better to focus more specifically on the type of timbral musical sounds they were able to access, and what music and/or instruments they might enjoy the most and their levels of musical appreciation. David seemed to have difficulties with his language development and communication, and it seems from the description of the sessions that he may have received less benefit from the group music therapy sessions.

For two of the children in this exploratory study gained/made change in enjoyment levels, communication, participation, socialisation and relationship building. David showed slightly increased levels of enjoyment and communication. All three children were able to identify and locate sound demonstrated by their responses of looking towards sounds made by the guitar and voice, other members of the group and incidental sounds of the classroom environment. The children also demonstrated varying levels of enjoyment that increased over time and seemed linked to their communication and participation levels. Research also suggests that MT can increase enjoyment levels (Gfeller, et al., 2000).

The three children showed varying levels of communication with me and other members of the group. Lily seemed to be comfortable making eye contact with members of the group in all sessions. James initially showed brief moments of eye contact that increased over time. David appeared to avoid direct eye contact altogether and seemed to respond more in earlier sessions to visual cues such as cue cards and soft toys. After experiencing more MT sessions James and David showed

increased levels of eye contact and Lily seemed more self-confident and able to verbalise her communication.

Lily and James showed increased levels of participation over time. For James, initiating actions in the action songs and showing longer periods of engagement in later sessions seemed to suggest his interest and willingness to participate had increased over time. Lily demonstrated increased participation in later sessions through enthusiastically singing words and phrases of a song. It has been suggested by Darrow & Cohen, 1991 that MT can help promote singing. Consistent with what Mulcahy, 2009, has reported the supportive encouragement provided by parents through singing and action songs seemed very important for James and Lily. Lily particularly showed increased levels of singing supported by her mother who enthusiastically encouraged her to continue to sing and/or re-direct her attention back to the music. The predictable structure of the session which was repeated on a weekly basis seemed give the children a sense of security and the confidence to participate.

James and Lily's behaviour also seemed to suggest increased levels of socialisation, as they observed and acknowledged other group members for longer periods of time during later sessions. MT as a group experience seemed to help build relationships with friends and family.

Lily and James seemed to demonstrate a connection to the rhythm of the music as research suggest (Gfeller & Lansing, 1991), their interpretation of rhythm seemed similar to that of a NH child. They demonstrated this by moving their bodies to the beat of the music and responding to speed changes in the music. Lily also seemed to demonstrate auditory association relating the lyrics of the song to what was happening around her.

### *Limitations and strengths –Exploratory*

While the observations made in this study suggest possibilities for music to aid the development of audition and language through communication, participation, socialisation and relationship building; it is difficult in a group music therapy session to determine what specific aspects of the EIC program helped each child's language levels to progress. Also, identifying the meaning of children's responses and describing their responses to auditory stimulation is complex. Determining each child's ability to locate sound seemed possible when the children looked towards me when I began playing or singing. This may also have been because visual cues aided the children's responses helping them to locate the sound. Further, as noted above, the two of the children might have been expected to have good skills in locating sound even before they began music therapy. Therefore it became very difficult to establish responses indicating that music therapy alone was linked to individual language development.

The findings did show consistency of responses from the children in some areas. For example Lily and James also showed consistent responses to detecting and locating sound and as did David. This may have occurred because what I was offering the group as a music therapist was consistent i.e. it was stimulating consistent responses. As there are some consistent auditory responses in the initial stages of auditory development, it would be interesting to investigate if music therapy work using auditory training in individual sessions would show clearer indications of auditory development. However, music therapy as I practice it is also helpful for social and emotional development as well as aspects such as language development.

This was the first research experience for the music therapist who was also working within a new client population. With the experience gained in this area, the music therapist would use different approaches in her work for example, using different techniques for analysing and recording responses, and offering individual sessions where responses could be more closely analysed.

### *Practical Suggestions for MT Practice*

The music therapy sessions took place in the classroom where all activities happened as part of the EIC program. It was sometimes difficult to reduce background noises during the session as visitors to the program, other professionals and staff members also used this space. Although all attempts were made by families and staff to reduce noise levels where possible, it would have been more effective to use a space that was specific to music. This is sometimes an unrealistic request; however it is really important for children with CI as they have difficulty identifying sound when there are loud levels of background noise (Gfeller, 1998; Romanik, 2008).

In regular early intervention settings, children are sometimes encouraged to play instruments themselves, often simultaneously. These types of activities need to be very carefully managed when working with children with CI. Even the music therapist's use of an accompanying instrument should be considered. Gfeller et al., (2008) writes that instrument accompaniment can seem like background noise, especially when accompaniments are louder and larger. This can make lyrics difficult for children to distinguish from background noise and raises the question of whether to use accompanied or unaccompanied voice. I considered these factors and tried to ensure the guitar provided a strong rhythmical structure. Although the guitar is a string instrument, which studies indicate was not a preferred instrument family for CI recipients (Gfeller, 2002c), it has a lower register than a violin. It seemed that the children responded positively to the guitar and I used guitar as well as unaccompanied voice for all of the sessions.

Collating a resource of recorded songs and song sheets we had used in the MT session for parents was well received by parents. This gave parents support and encouragement to repeat the songs at home together, practicing language material in a different way.

### *Suggestions in Future Research*

After analysing the three forms of data I noted that for many of the children the clinical notes alone did not present enough information for me to describe the responses of each individual in enough detail. Because of this I introduced the use of video footage in the fourth session, and this enabled me to write the clinical notes for each child after each session more affectively. Analysing video footage requires extensive periods of time; however time restrictions meant the notes for each session remained concise. Working as part of overall program it is perhaps typical that there will be limited time to complete clinical notes directly following the session and more likely to take place once the program has finished for the day. This highlights the value of using video footage during the session, and allows time to concentrate on building relationships with children and parents before and after the session. After analysing the video footage I noticed that sometimes due to noise levels in the group I was unable to differentiate vocalisations and verbalisations, and it may have been helpful to ask parents to report back to me any responses they noticed during each session. To improve the efficiency of clinical note taking, I could have used a check box system to record responses to the music. It also may have been helpful to include more detail about incidental events that could have influenced children's responses to the music such as, visitors attending the group, parents having to leave their child during the session, and any other incidental events that took place leading up to the session. This background noise must also have impacted significantly on the children's ability to interpret sounds.

To determine the effect that music therapy could have on auditory development in future, perhaps it would be more suitable for the children to be given individual music therapy sessions and a comparison made with a control group. However it would still be possible to do group MT and compare it to a control group. There would be pros and cons of group versus individual sessions. A randomised control study in which children are assigned to 'music therapy' versus 'standard treatment' or 'other treatment' groups would enable causal relationships to be identified.

This was an exploratory study investigating the use of MT in an EIC for children with CI. Further research in this area could employ more systematic research methods to further examine the implications of using MT to promote auditory development. Also because this study is exploratory no verification of the video analysis was made, in future a control might be used in formal qualitative or randomised clinical studies.

Video data is useful for music therapy research and, in addition to qualitative description, can be examined for quantitative evidence of behavioural change. For example responses to the music like eye contact could be timed; the number of utterances or words spoken could be recorded, and a predetermined check list could be used to notate behaviours. Sessions selected for analysis could be chosen at regular intervals, and transcribed to indicate specific behaviours and words spoken by the participants, including other important observations. Responses such as eye contact, could be categorised in groups such as eye contact with music therapist, eye contact with parent and eye contact with other group members, these could also be timed and counted in each session. Verbalisations and vocalisations could be categorised as meaningful utterances, appropriate verbal responses and appropriate non-verbal responses. Responses recorded in this way would show a clear progression of progress and/or behaviour.

### Summary and Conclusion

In this research I set out to find out how music therapy can help promote language development, but realised from the findings that trying to understand this is more complicated than I initially thought. The findings demonstrate that young children exhibit many complicated and subtle behaviours that are difficult to make sense of and relate just to language development. Nevertheless numerous ways in which music therapy can support auditory development have been articulated, and clear examples of children listening and responding to music have been included.

The research describes one music therapist's practice, and findings are therefore not possible to generalise. However, other music therapists, music therapy students, early childhood teachers, and teachers of the deaf might find the description helpful. Further the findings and the questions that have been generated can guide future research.

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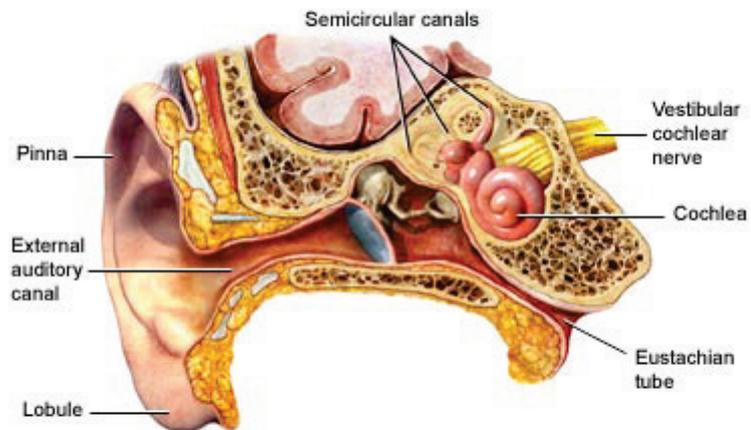
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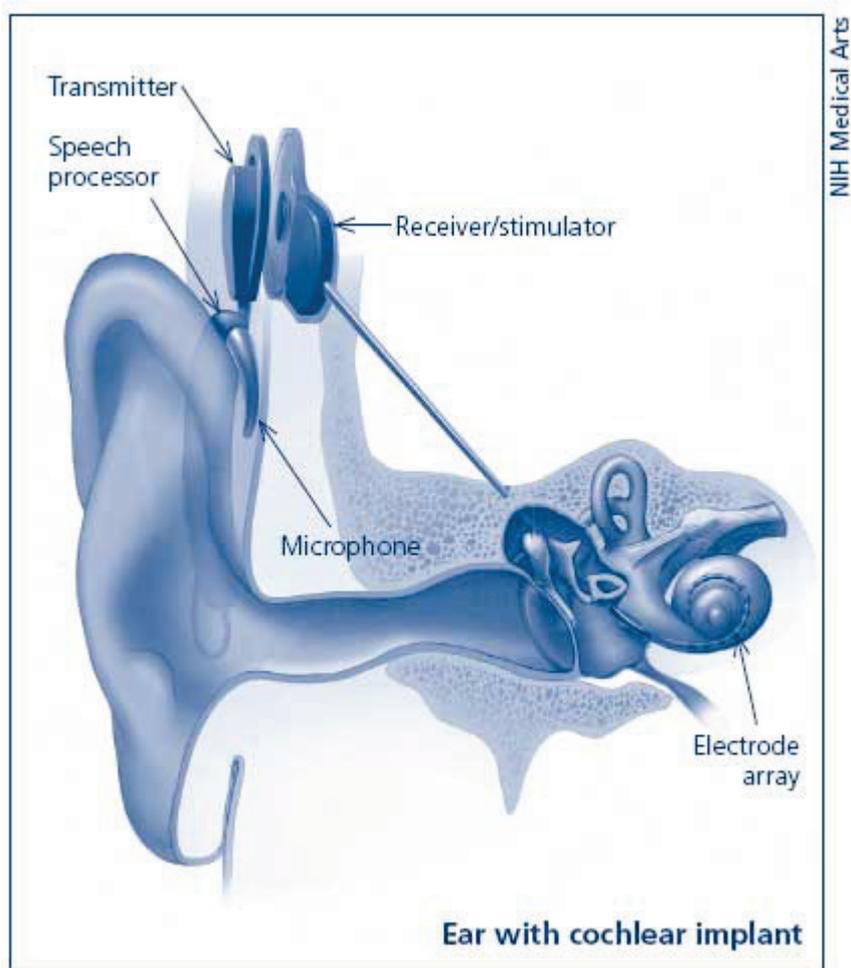
## Appendix A:



 ADAM.

The ear consists of external, middle, and inner structures. The eardrum and the three tiny bones conduct sound from the eardrum to the cochlea (Medlineplus, 2011)

## Appendix B:



## Appendix C:



Mt Cook Campus, P.O. Box 2332, Wellington.

Music Therapy Dept., Conservatorium of Music, Tel: 04 801 5799 x 6410/6979

**Music therapy in an Early Intervention Programme for hearing impaired children who have cochlear implants**

INFORMATION SHEET FOR PARENTS AND CHILDREN

My name is Sophie Buxton (student music therapist) and I would like to do some research based on my work at the .....as part of my Masters of Music Therapy. I would like to describe how music therapy might be used with pre-school children with hearing impairment, to improve auditory and language skills. The information that I find out from the research will be helpful for music therapists and others who work with Deaf and/or hearing impaired children in New Zealand and abroad. The results of the research will help to improve services for Deaf and/or hearing impaired children.

## **Project description and invitation**

All six children from the Tuesday morning music therapy session who use cochlear implants are invited to take part in the research project. I would like to focus on 3-4 children from the group who use cochlear implants. I will include the first four children who agree to take part in the research. The remainder of the group will not be included. I will tell all parents if their child will be part of the research or not. Including all six children with cochlear implants would create too much data for a Masters level project, in the time frame that is available for completing this research. The children will not be asked to attend more music therapy sessions as I will use notes and information gathered from the sessions the children have already attended.

The research uses existing data which includes video footage, clinical notes, and a reflective journal that was gathered during my time at the centre. This data belongs to ..... they have given permission for me to use this data for research purposes.

The video, my music therapy clinical notes, and my diary were all part of my clinical practice as a student music therapist. In that context notes were taken immediately after the session and the video was viewed later as a way to confirm and/or add to brief clinical notes for each student. I then reflected on my work and recorded new ideas in my diary. I now intend to analyse this data in more depth to determine how music therapy contributes to the development of auditory language and speech development. Considerable attention will be paid to the music that was produced and the children's responses to that music.

The names of all the children who choose to take part in the research, and the centre will remain confidential. Any other identifying marks, including video footage will not be used in any publications and presentations of the research. The music therapy and deaf communities are small and it is possible that even when real names are not used children and/or the centre will be identifiable. All possible steps will be taken to minimise the possibility of participants being identified but you need to be aware there is a risk that your child might be identifiable.

Original data will be stored at the..... I will ask permission to take copies of video, clinical notes, and reflective journal data to my home for the period while I am working on my research, where they will be locked away securely. Following the study the copied data will be sent to the New Zealand School of music and stored securely in the New Zealand School of Music, at Massey University for five years. My supervisor will ensure the data is destroyed using the university's document storage disposal process.

At the completion of the research a summary of the findings will be presented to the principal of the school. The parents are also welcome to receive a summary of the results of the research from the principal of the school.

### **Participant's Rights**

*You are under no obligation to accept this invitation. If you decide to participate, you have the right to withdraw from the study;*

*ask any questions about the study at any time during participation;*

*provide information on the understanding that your name will not be used unless you give permission to the researcher;*

*be given access to a summary of the project findings when it is concluded.*

This project has been reviewed and approved by the Massey University Human Ethics Committee: Southern A, Application 09/71. If you have any concerns about the conduct of this research, please contact Professor Julie Boddy, Chair, Massey University Human Ethics Committee: Southern A, telephone 06 350 5799 x 2541, email [humanethicsoutha@massey.ac.nz](mailto:humanethicsoutha@massey.ac.nz).

I would be pleased to provide further information if required. Email me at [sophie\\_buxton@yahoo.co.nz](mailto:sophie_buxton@yahoo.co.nz), or call me (03) 9809110. Alternatively you can contact my supervisor, Daphne Rickson, at the New Zealand School of Music, ph 04 801 5799 x6979, email [Daphne.Rickson@nzsm.ac.nz](mailto:Daphne.Rickson@nzsm.ac.nz).

If you the parent/caregiver agree to give informed consent for your child to be

Involved in the research project, **please sign the following consent form.**

Yours faithfully

Sophie Buxton

## Appendix D



Mt Cook Campus, P.O. Box 2332, Wellington.

Music Therapy Dept., Conservatorium of Music, Tel: 04 801 5799 x 6410/6979

### **Consent Form for Parents of Children**

I have read the Information Sheet about the study entitled 'Music therapy in an early intervention programme for hearing impaired children who have cochlear implants' and have had the details of the study explained to me.

My questions have been answered to my satisfaction, and I understand that I may ask further questions at any time.

I agree for data relating to my child to be used for the research project.

**Signature:**

**Date:**

.....

**Full Name –  
printed**

.....