

Song learning within group music therapy in combination with Picture Communication Symbols
(PCS) for children diagnosed with Autism Spectrum Disorder (ASD)

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Abstract

An increasing number of research studies have highlighted various links between Autism Spectrum Disorder (ASD) and learning through visual, aural and kinesthetic aids. This study explored the process of song learning using Music Therapy techniques in combination with Picture Communications Symbols (PCS). Music therapy sessions were conducted with two groups of children diagnosed with ASD at Unica School for Autism. For the first 3 sessions Group A's sessions were conducted making use of music therapy in combination with PCS (referred to as MTPS), whilst Group B only received music therapy techniques (referred to as MT). For session 4 to 6 Group A's sessions were conducted making use of music therapy techniques (MT) whilst Group B received music therapy techniques in combination with PCS techniques (MTPS). The two groups' processes were compared with each other in terms of how the participants from both groups learned a new song. A crossover comparative case study method was employed and final themes were identified and linked to relevant literature. This study suggests that both Music Therapy and PCS offered a different learning experience for both groups. When reinforced in combination with each other, a multi-sensory learning experience occurred which offered the participants the tools to be spontaneous, self-expressive and socially and musically flexible thus breaking away from the ritualistic and typical experience of ASD. Both techniques provided the participants with non-verbal and comprehensible cues which promoted and reinforced the recollection of both the songs.

Keywords:

Autism Spectrum disorder, aided Augmentative and Alternative Communication, music therapy, song learning, Picture Communication Symbols, PCS

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Chapter 1: Introduction

1.1 Background and context

When working in a school setting with learners diagnosed along the Autistic Spectrum, it is often valuable for music therapists to operate in a multi-disciplinary framework (Karkou & Sanderson, 2006:73–4). I believe it is helpful to take into consideration how such learners are taught to communicate at school and home, and to consider the use of music as an additional communicative and therapeutic tool. Music therapy employs music as a therapeutic medium through which alternate forms of communication and self-expression are facilitated (Raglio *et al.*, 2011:135–136). Music is an act of communication that can be employed non-verbally. It is suggested that one is able to interact musically since infancy based on mother-infant communication theory. Thus the use of music as a communicative tool is ideal for those with communicative and social impairments (Schögler, 1998:40).

A picture communication set used with learners diagnosed with Autism Spectrum Disorder (ASD) is the Picture Communication Symbols, referred to as PCS. This system employs the use of line drawings (pictures) as the primary communicative medium. PCS is an aided alternative and augmentative communicative (AAC) set that was designed to assist children with speech and verbal impairment. Pictorial symbols are a two-dimensional system such as line drawings. For the research study, PCS were implemented. PCS consists of a core collection of 4500 clear and comprehensible line drawings. PCS is the most widely used AAC method in South Africa because it allows symbols to be printed and labelled in a child's first language. This is a crucial aspect to be considered in a multilingual context such as South Africa (Bornman & Tönsing, 2014:222–223).

The data collection took place at the Unica School for autism. The learners at the school range in age from three to eighteen years old. The school is situated in Menlo Park, Pretoria. Unica currently caters for 107 learners with ASD. Unica School for autism granted permission for the research study to be conducted at their school (refer to appendix L).

The aim of the research study is to explore and compare the process of learning a new song in a group music therapy setting with learners with ASD, in which two groups were exposed to music therapy techniques (referred to as MT), as well as to the combination of music therapy techniques

and PCS (referred to as MTPS). The aim is to compare the similarities and differences of the song learning process of the two groups, as well as to explore the possibility of integrating PCS into music therapy sessions as an additional communicative aid.

Chapter 2: Literature review

2.1 An introduction: Picture Communication Symbols (PCS) and Autism Spectrum Disorder (ASD)

Autism Spectrum Disorder (ASD) refers to a broad set of diagnoses given to people who display certain combinations of atypical communication, social interaction and restricted repetitive behavioral patterns and interests in activities (Baird *et al.*, 2003:488). Mild to major affective swings frequently occur in autism. These affective swings may arise from sensory and other challenges. Mild to major motor disturbances affect posture and the ability to write and speak, as well as the ability to convey emotions through facial expression. Complications can occur such as movement disturbances that may vary from time to time (Picard, 2009:3575). The diagnostic criteria for ASD in the Diagnostic and Statistical Manual 5 (DSM 5) (2013:50–5) are as follows:

1. Persistent difficulty in the use of verbal and non-verbal communication in a social context, as well as the ability to change communication to match the context or needs of the listener. This also includes the ability to follow rules for conversation and storytelling such as taking turns speaking. The deficit results in difficulty in effectively communicating, participating socially and achieving academically.
2. Repetitive and restrictive patterns of behavior, interests or activities occur, currently or historically, in at least two of the following:
 - 2.1 Stereotyped or repetitive movement, use of objects or speech;
 - 2.2 Insistence of sameness, inflexible to routines, ritualistic patterns;
 - 2.3 Highly restricted or fixated behavioral patterns or interests that are abnormal in intensity;
 - 2.4 Hyper- or hypo reactivity to sensory input or abnormal intensity in unusual interest in sensory aspects of the environment.

The above mentioned symptoms could cause clinically significant impairment in the daily functionality of the person, and affect his/her ability to function socially, occupationally and in other important areas in his/her personal and social life (Passer *et al.*, 2009:831-4).

Clients with communication difficulties require an alternative and universal means of communicating. Therefore, new methods and techniques have been developed and employed to

suit most client's needs. For this research study I will be focusing on Picture Communication Symbols (PCS). As stated earlier, PCS is an alternate communication system developed for non-verbal clients with physical and mental disabilities. For the purposes of this research study, PCS will be discussed in the context of children diagnosed with ASD. PCS is an aided augmentative and alternative communication (referred to as AAC) method. AAC systems can either be aided or unaided. Unaided AAC consists of basic communication aids that do not require any physical devices or visual pictures. This method consists of non-verbal gestures such as nodding yes or no to a question, pointing, writing a message or use of signing or signing dialect. Aided AAC requires the use of fundamental equipment and devices such as communication boards or language boards, pictures and objects to assist the client in communicating. Aided AAC can also make use of electronic devices such as iPad™s. Most individuals with ASD utilize a combination of aided and unaided AAC. In addition to these options, other forms of communicating such as eye gaze, vocalizations, gestures and facial expressions are used. The client is encouraged to utilize all the AAC systems available to promote effective and efficient communication. A multi-modal approach is needed to create a flexible and responsive communicative system for the client in various environments and situations (Gadberry, 2012:151).

PCS, an aided AAC method, consists of the use of symbols and pictures to facilitate communication. PCS consists of a collection of 4500 comprehensible line drawings. Additionally to this core collection of symbols, line drawings also consist of thousands of additional symbols in additional libraries. The symbols can be printed with written labels in different languages, which means that a child can have symbols printed specifically in his/her home language. There are numerous labels designed to fit in an African context; for example, words such as *koeksisters*, *pap*, *kwaito*. PCS has been proven to be effective in the classroom by assisting in teaching material set out according to themes. By facilitating the line drawing method, pupil's receptive language skills are stimulated and extended. Both visual and aural cues are provided, thus offering them a means of expression as they point to the line drawings (Bornman & Tönsing, 2014:223).

2.2 Music as a learning medium

As discussed above, PCS is used for both academic learning and social adjustment purposes, specifically with children diagnosed with ASD. In this next section music and its role in learning and social interaction will be discussed.

Rouse (2013:227) explains that there is a strong connection between learning when using multiple sensory modes (such as movement or singing), and the affective brain domain. The affective domain of the brain is described by Pierre and Oughton (2007:1) as “the product of the brain that produces the sense of feelings and emotions that are complex but internally consistent qualities of character and conscience”. These attributes of thought dominated by affective qualities include attitude, self-awareness, biases, ethics, self-esteem and emotional intelligence. These are qualities which are often limited or impaired with children diagnosed with ASD. Rouse (2013:227) explains that, by including high-quality music and/or movement in the learning environment, learners are able to experience the biological, cultural and psychological value of specific concepts. This approach broadens the learning process, and children are more likely to gain a deeper understanding of the topic, and transfer is more likely. From a neurological perspective, both hemispheres of the brain are being stimulated throughout the learning process when including multi-sensory learning methods. By including music and movement, neurological pathways are being created which could have enduring effects that will remind learners of specific concepts or ideas beyond schooling years, i.e. singing the alphabet song when needing to think alphabetically. Music and movement go hand in hand and are used in a multi-sensory manner in music therapy (Rouse, 2013:227).

Kilgour, Jakobson and Cuddy (2000:700) conducted a research study on whether formal music training acts as a facilitator for better recall of spoken and sung lyrics. The research study investigated how 78 undergraduates (half of whom had music training), recalled spoken or sung lyrics. The recall of sung lyrics was far more superior to spoken lyrics in both groups. The overall conclusion was that the participants with formal music training outperformed the participants without music training in all conditions when the lyrics were recalled. This study suggests that training in music could enhance memory of verbal material.

Simpson and Keen (2010:165) investigated how engaging children diagnosed with ASD using taught graphic symbols embedded in an interactive song could be used as a communicative tool, as well as increase the motivation levels of completing tasks. The participants were taught a song where animal names had been embedded, and then asked to match the names with graphical symbols. After they were taught the song, participants were required to correctly select the symbol corresponding to the animal named in the song by touching the symbol on the Interactive Whiteboard. The results suggested that the interactive song facilitated the receptive labelling task

for the participants, and the results remained the same in the tasks that followed. The study concluded that the results were too general and it was suggested that further studies need to be conducted in different contexts in a sense that the study consisted of only three children and time constraints played an important role in the research. Two of the participants did not reach criteria of all five symbols by the time the intervention ceased. The sessions were also delivered in concentrated periods once a week. A more dispersed timeframe for intervention sessions could have enhanced the participants performance and increased the number of symbols acquired.

Taking into consideration the above mentioned studies, it is suggested that music demonstrates the potential to improve and promote learning.

2.3 Music therapy as a therapeutic medium for children diagnosed with ASD

There is substantial literature available on research studies focusing on music therapy as an intervention for children diagnosed with ASD. A study conducted by Raglio *et al.* (2011:123) draws on theories of intersubjectivity, with specific reference to mother-infant interaction, affect attunement and regulation, metallization and vitality affects. Within this theoretical framework, the study focuses on an improvisational music therapy approach with a seven year-old boy diagnosed with ASD. The Music Therapy Coding Scheme (MTCS) was the instrument employed to assess and analyses the client-therapist relationship within the context of clinical improvisation. Sessions one, ten and twenty were video recorded and analyzed with reference to clinical, relational and music-therapeutic aspects of the case study. The results report observations related to the patient's non-verbal behaviors. In particular, physical contact, eye contact with each other, attuned movement and approach to the other increased. The behavior of approach to others and to the instruments also showed development, albeit not remarkably. It is of relevance to consider that these behaviors improved, indicating a higher level of relationship, emphasized by increased physical contact with the music therapist, and an increase in the patient's physical movements and eye contact with the music therapist. The patient's attuned movement, observed in the twentieth session during sonorous-musical production, shows his high level of emotional involvement and his meaningful body participation in the interaction. Taking the diagnosis of ASD into consideration, this relational development in the context of clinical improvisation is noteworthy. The study revealed a gradual development and increase of linking consecutive series. This showed an increase in the interactive moments that enriched the relationship during

the music therapy process.

It is important to acknowledge that the above-described communicative affordance of clinical improvisation diverges from typical features of autistic communication (Raglio *et al.*, 2011:135–136). This study, thus, suggests that music therapy offers an alternate communication system, as well as a potential for improved relational and communication experiences, both of which are vital to the process of learning.

A meta-analysis conducted by James *et al.* (2014:222) summarized the conclusions for 12 studies which researched music therapy for individuals diagnosed with ASD. The studies were categorized in terms of: (a) participant characteristics; (b) dependent variables; (c) procedures; (d) results; and (e) certainty of evidence. There were a total of 147 participants varying from the ages three to thirty-eight that participated in the 12 studies. Dependent variables included: (a) decreasing undesirable behavior; (b) promoting social interaction; (c) improving independent functioning; (d) enhancing understanding of emotions; and (e) increasing communication. Specific songs with lyrics related to the targeted skills were used in the music therapy sessions as well as musical improvisations. The outcomes of the studies were classified as positive, negative or mixed. The results were positive for 58% of the studies and 42% were mixed. There was no negative outcome. The conclusion was made that there were certainly noteworthy gains for the treatment condition, in comparison to the control group suggesting an improvement in all dependent variables for all the participants. Certainty of evidence, however, was rated as inconclusive for 58% of the studies (James *et al.*, 2014:222).

Schögler (1998:40) conducted a study that explores music being a non-verbal communicative tool. The study examined how musicians interact with each other musically and creatively thus making music an act of communication. The study focused primarily on the manner in which jazz musician's co-ordinate and communicate musical ideas with each other whilst improvising. For many years music therapists have been employing similar techniques as a means of interacting with clients in a non-verbal manner. An interest in studying these interactions in musical terms were explored. Methods applied to assess these type of musical interactions included the mother-infant communication theory. The mother-infant communication theory suggests that infants can precisely co-ordinate their responses to the intuitive expressive patterns produced by their mothers. In this research study the behaviors of communication and the generative power of musical communication was explored by analyzing the behaviors of both infants towards their

mothers, and improvising jazz musicians.

Schögler (1998:41) explains the importance of a shared pulse. A shared pulse between the jazz musicians or an infant and the mother functions as a fundamental basis for both kinds of cooperative expressive performance. By recognizing temporarily organized behavioral patterns in another person, it is suggested that one's own behavior will become synchronized with others behavioral patterns thus creating a shared pulse. Mother-infant studies suggests that we are born with a natural orientation towards rhythmically coordinated interpersonal interactions. These coordinations allow us to communicate with the world and those around us. It provides us with the tools to socially interact with others.

Schögler (1998:47) maintains that, when jazz musicians accentuate certain notes, they are able to exchange musical ideas non-verbally, and express the direction they wish the music to go within the set musical framework. This is referred to as the 'accent structure' or the 'rhythmical contour' and can be viewed as an expression of musical goals. If a musician shares a similar musical goal, they may indicate it by mimicking or imitating the accented structure of the other musician.

Existing literature suggests that music therapy can play a meaningful role in the therapeutic treatment of children diagnosed with ASD. It is, however, suggested that further research is needed on the generality and tools of music therapy in terms of which ones specifically are responsible for behavioral and social change.

2.4 The use of PCS for children diagnosed with ASD

Tönsing (2015:5–8) conducted a study whose aim was to test the efficacy in which the use of a speech generated device (devices such as iPadTMs, computer programs etc. – referred to as SGD), is compared with a communication board by children with limited speech within a shared story reading context. The aim was specifically focused on the production of a multi-graphic symbol combination (agent-action and attribute-entity combinations). In addition, the study also explored the preferences of the children regarding the two systems as well as the perspectives and preferences of the intervention of the team members. The outcomes of the research study were that all four participants showed an increase in the production of two-symbol combination

skills in using both the interventions. No difference for any of the participants was found between the two interventions. The results concluded that children with speech impairments can be taught multiple-symbol combination skills using both systems, and it will be equally effective. The preference acceptance indicated that all four of the participants preferred the SGD during shared story reading (Tönsing, 2015:5–9). The above mentioned study does not necessarily involve children with ASD; however, speech and language impairment is a common symptom of ASD, therefore I find it useful to mention in the literature. This leads me to the next study where ASD and PCS are specifically examined.

Preis (2006:195) conducted a study specifically addressing the language processing impairment of children diagnosed with ASD. This included the auditory processing of verbal information resulting into poor task performance with children diagnosed with autism. The aim of the study was to systematically compare the presence and absence of pictures as an additional aid when giving verbal instructions. All participants were diagnosed with ASD. None of the participants had prior experience in using a picture communication system for the primary purpose of following instructions. The participants only had experienced the use of pictorial communication as an aid in an educational environment such as labelling of rooms or objects, or organization of schedules. All participants portrayed significantly delayed skills in following verbal instructions for their chronological age. At least 48 errors were made during the pre-intervention commands assessment. The results of the study suggests that visual support, specifically PCS, are effective in the promotion and improvement of developing skills in following verbal instructions and directions for children with ASD. However, the study also suggests that the acquisition of verbal commands in either quantity or efficiency of learning were not significantly affected. It is suggested that although PCS did not facilitate more rapid skill acquisition for the instructions and directions, once the participant familiarized and learned the commands, the participants were able to effectively generalize their acquired skills when given the visual prompt of the picture symbols (Preis, 2006:194–195,206). The study suggests that the use of picture symbols can be effective and helpful for children who do not have any prior experience in an AAC system with communication and language process impairments (which is a common symptom of ASD). However, there is still the issue of internalization of the commands that is instead being generalization by the user. This leads me to the next study conducted on iconicity of PCS and children with ASD.

Iconicity in pictorial representations refers to how some pictures are able to inform the viewer

about a specific object or event in the world, i.e. how the picture is being contextualized by the viewer. In order for contextualization to take place, the viewer must have the ability to understand the visual representation corresponding with the elements of reality, even if it is absent at the time of viewing the picture. Iconicity plays an important role in the communication and contextualization skills of a child with ASD. Pictures provide an alternative form of functional communicating in the absence of spoken language (Hartley & Allen, 2015:570). Hartley and Allen (2015: 570–579) conducted a study in which they investigate the ability of children with ASD and language-matched typically developing children to contextualize symbolic information communicated by using pictures in a search task that did not involve work learning. The children completed trials with color photographs, black and white line drawings, and abstract color pictures. The result was that no difference between the groups was found in terms of the influence by visual familiarity. However, both groups made significantly less errors in the process of retrievals of objects in the most-iconic photograph trails. The performance was universally predicted by receptive language. The final conclusion of the study was that both children with ASD and typically developing children are capable of contextualizing pictures and use them as an adaptive guide to learning and behavior in reality. However, the development of their receptive language and the pictorial iconicity plays a significant role and can improve their contextualization skills (Hartley & Allen, 2015:570–579).

Due to the limited documented evidence for PCS used with children diagnosed with ASD, further research is required to further examine its application in multi-disciplinary teams in the milieu of children diagnosed with ASD with symptoms other than speech impairments. Speech impairments are common symptoms of ASD, and therefore studies that focused on speech impairments were discussed as well. It is also clear that more research has been conducted from the perspective of language and speech pathology than the AAC and ASD field specifically.

2.5 Conclusion

It is evident that music in an educational setting as well as music therapy in clinical settings can be useful for improving and promoting communication, social interaction and learning skills of children diagnosed with ASD. There are limited research concerning the collaboration between music therapy and augmentative methods of communication such as PCS in the field of ASD. It

is hoped that this case study will contribute to further research and discussion in this regard. Similar to most of the criteria in the literature available on the use of PCS, the study made use of a small sample thus making the outcome applicable to a specific context which is the Unica School's augmentative methods.

Chapter 3: Methodology

3.1 Research paradigm

A qualitative methodology was employed as it allows one to explore a phenomenon, and the observer is given the opportunity to describe his/her personal subjective experiences and views. Semi-structured methods of analysis are used, such as participant observations. Emerging concepts are in the form of themes. The analysis proceeds by extracting themes or generalizations from organizing the collected data to present a coherent and consistent picture of the process and/or outcome of the research conducted. A qualitative methodology was used for collecting and analyzing data for the current study (Kneale, 1999:24–5, Terre Blanche & Durrheim, 1999:42).

The research paradigm employed is interpretive. By using an interpretative approach towards the research problem, the subjective role of being both the participating observer as well as researcher, has been guided through ongoing supervision. The epistemology of interpretive research is based on the internal realities of my own subjective experiences as well as the researching supervisor's during the data collection process (Terre Blanche & Durrheim, 1999:6).

A self-reflexive and critical stance to minimize any form of bias was implemented. Sufficient supervision and peer debriefing was used when categorizing data collected during the process, in order to increase the trustworthiness of the study. The researching supervisor assisted by challenging perceptions and hastily-made interpretations (Ansdell & Pavlicevic, 2001:140).

3.2 Research questions

How does music therapy in combination with Picture Communication Symbols (PCS) contribute towards the learning of a new song for children diagnosed with Autism Spectrum Disorder (ASD)?

Sub-questions:

1. What are the observed similarities and differences in the song learning process between the two groups in which music therapy techniques are employed and where music therapy

techniques and PCS are used in combination?

2. How does PCS contribute to the learning of a song in group music therapy sessions with learners with ASD?
3. How do music therapy and PCS function in combination with one another in the learning of a new song with learners with ASD?

3.3 Research design

Music therapy sessions were conducted with two groups of children diagnosed with ASD at the Unica School for Autism. For the first three sessions, Group A's sessions made use of music therapy in combination with PCS (hereafter referred to as MTPS), whilst Group B only received music therapy techniques (hereafter referred to as MT). For session four to six Group A's sessions made use of music therapy techniques (MT) whilst Group B received music therapy techniques in combination with PCS techniques (MTPS). The two groups' processes have been compared. A crossover comparative case study method was employed. Gibbs (2008:77–8) explains that one can examine the higher order codes with specific intentions such as looking for patterns, finding comparisons, finding explanations and building models around these findings. For this research study, the differences as well as the similarities within the codes are explored. This method also allows one to explain why and how there are variations and why not. Comparisons as well as the similarities can be identified between different people, objects, scenes, or events. Tables are a common and convenient way to compare and recognize similarities in data. The proposed study can be described as process-centered. A process-centered study attempts to study a process rather than the outcome. The research question and sub-questions are open ended questions, thus placing the emphasis and aim of the study on the process of song learning with different communicative mediums, and not on the outcome of the sessions at the very end of the data collection process. The sessions are conducted by the candidate, as clinician-researcher (Ansdell & Pavlicevic, 2001:135).

Exploratory research is used primarily to make preliminary investigations into relatively unknown areas of a specific field which, in this case, is the use of PCS in combination with music therapy in song learning. This means that an open and reflexive approach to the research study being conducted must be employed, in an attempt to offer new insights into the phenomena (Terre Blanche & Durrheim, 1999:39–40).

3.4 Sample

For this study, I used purposive sampling. Purposive sampling is a non-probability sampling technique that allows the researcher to choose the participants, the placement and the scenarios of the study based on his/her own judgment, and according to the needs of the study (Matthews & Ross, 2010:18). Purposive sampling approaches are, in general, associated with small, in-depth studies that aim at gathering qualitative data, exploring and interpreting the experiences and perceptions of the participants (Matthews & Ross, 2010:18). This is an appropriate sampling technique to use in this research because the study is small and was conducted at only one site. The outcome of the study cannot be generalized, rather themes emerging from the analysis articulate the findings of this single case study.

Children of both genders diagnosed with ASD were selected. The participants were selected on the basis of their level of functioning as well as their verbal abilities. The participants were those who are described as the higher functioning students in their academic classes by the teachers. To ensure that all participants are familiar with line drawings, a speech and language therapist at Unica conducted and confirmed symbol assessments for each participant. This guarantees that the participants selected are familiar with the selected line drawings (PCS), which are also used at the school. Additionally, participants needed to a) vocalize sound or be able to use spoken language, and b) be able to understand English. The participants' ages varied from ages 10 to 15 years, as the learners at the school are selected to their academic classes according to their intellectual functioning levels and not on biological ages, thus making the age range of the participants broad. Each session consisted of a maximum of 6 participants per group. The groups were divided based on the participants' school teachers' opinions, as they are able to divide the groups evenly in terms of level of functioning and verbalization skills. PCS are used on a daily bases within the academic classes at the school. The school also has the additional services of a music therapist to provide music therapy should the parents request it. The speech therapist at Unica assisted in the preparation of the communication board with the line drawings of the songs being learned. Inputs were also given by the speech therapist on the vocabulary used in the song to ensure it suited the intellectual abilities of the participants. The music therapist at Unica assisted in assessing and approving the structure of the songs being learned to ensure it is comprehensible for the participants.

3.5 Data collection

There were 6 sessions in total for each group: 3 sessions per week were conducted over two consecutive weeks. The duration of each session was more or less 20 minutes. Due to school constraints, the sessions were only 20 minutes long in order to avoid it interfering with the academic classes. Each session started with a greeting song during which interactive singing was facilitated, and each child was being greeted. After the greeting song a short drumming activity took place during which the participants had the opportunity to improvise and take part in turn-taking music making. Thereafter the specific songs chosen for this study were taught using music therapy techniques and music therapy in combination with PCS. The data collection focused on the songs that were taught. The sessions concluded with a greeting song.

The data collection focused on the song learning component of each session. Group A had PCS included for sessions 1 to 3 and only used music therapy techniques for session 4 to 6. Group B consisted of music therapy techniques only from session 1 to 3 and made use of the combination of PCS and music therapy for sessions 4 to 6. This structure for the study assists in the process of comparing the song learning process of both MTPS and MT groups respectively. The two songs that were taught have the same melodic and chord structures. Both songs have the same chorus section that was repeated multiple times. The verses have different words and themes which were taught using line drawings (MTPS) or music therapy methods (MT-only).

During the process, the researcher assumed the dual role of participant observer. Interactive and in-depth descriptions of my experiences of the sessions are described and analyzed (Terre Blanche & Durrheim, 1999:29-33). This research method includes a sense of self-observation and reflexivity. The participating observer is required to take part in a variety of activities such as participation, reflection or documentation. This means that the researcher is required to maintain a balance between participation and also observation during the process of the research study. The researcher must be involved enough to fully understand the process and actions taking place, but also remain detached in order to be able to reflect on the phenomenon under investigation (Matthews, 2010:257-8; Willig, 2001:27-8).

Two methods of data collection were used. Data source A was video recordings of sessions and

data source B were session notes. For data source A, each session was video recorded. Sparrman (2005:241–2) discusses the importance of acknowledging that video-based methodologies create specific ways of viewing and understanding the world, and that making use of video recorded footage as a method of data capturing will influence research studies. The presence of a video camera during a session can be beneficial in many ways but can also create discomfort for the participants. Sparrman (2005:242–4) discusses how video recording can be connected to the performance element in music. The participants can presume the presence of an audience at the other end of the camera while disregarding the audience present in the room. Another disadvantage of using video recordings as a way of collecting data is that the observer can miss out on emotional cues. Very soft sounds or voices may not easily be heard due to background noises. Not all processes or participants may be visible in the recorded material, due to children being scattered around the room (Sparrman, 2005:242–4). However, it is important to keep in mind the purpose of using video recorded footage as a method of capturing data for a research study. In this research study, it does not have an aesthetic purpose and there is no intention of pleasing an ‘audience’, but instead the focus of videoing is to assist in answering research questions. By using this method of data capturing the researcher has the opportunity to have an overall view and to attend to the atmosphere of a situation at the same time. Another advantage of using videotaped sessions is that it provides opportunities for the researcher to refer back to the sessions. With video recordings, any details missed during the session(s) can be viewed again (Sparrman, 2005:241–9).

Data source B was session notes. Terre Blanche and Durrheim (1999:138) suggest that session notes should be assessed as soon as possible after each session because the longer the researcher puts it off, the less he/she will remember the finer details of what happened during the sessions. Terre Blanche and Durrheim (1999:138–9) explain that there are two sorts of note taking in research: the first type is where the researcher describes as fully as possible what happened in the session, and what the participants said or did. It is important to take note of as many verbatim quotes as possible, as it will be helpful in conveying the ‘flavor’ of the session; the second type of note taking is concerned with the unfolding analysis. These notes are primarily for the researcher to elaborate ideas developing about the topic under scrutiny. These notes are the researcher’s own reflections on theoretical, methodological and ethical issues, and also help recording points of uncertainty that need clarification.

3.6 Data preparation

Excerpts of the recorded footage were selected with the assistance of supervision in terms of their usefulness in relation to answering the research questions. Thick descriptions of the excerpts were written. The session notes did not require additional preparation. The supervising therapist also acted as a second coder who completed a checklist of the proceedings of the sessions (see Appendix C and D) to ensure that each session was conducted in the same manner.

3.7 Data analysis

Qualitative research is used often in the health and wellness field because it offers the researcher rich and compelling insight into the real experiences and perspectives of the participants. Grounded theory can be used in qualitative research studies. Boyatzis (1998:141-59) developed and specified guidelines in a key text which focuses around “coding and thematic development” of thematic analysis. Thematic analysis is a method designed specifically to identify, analyze and report patterns or themes in data. It is minimally organized and describes data in rich detail. Frequently it goes further than this. Thematic analysis interprets various aspects of a research topic (Boyatzis, 1998:141-59).

A constructionist thematic analysis approach is employed as there is no concrete agreement on thematic analysis methodology (Charmaz 2003:93). This means that throughout the process of the study, themes emerge from the data and are not limited to a specific theoretical framework (Braun & Clarke, 2006:85). A thematic analysis conducted within a constructionist framework seeks to theorize the sociocultural context and the structural conditions of the data. The first step in thematic analysis is the process of coding the collected data. Coding is a technical term for analytically labelling collected data. The aim of coding is to break up the data into different sections that are meaningful and applicable to the research question and sub-questions. This step is very important as it is a way of organizing and labelling data that emerge, and reduces the danger of the researcher shaping the outcome of the data in a set shape that will fit the researcher’s bias idea of the results of the study. Comparative methods are used while coding data in order to establish analytical distinctions. Similarities and differences are found in order for the next step to take place in the data analysis (Charmaz, 2003:93). The next step is the categorization of the coded data. Categorizing can be defined as a higher level of organization of

the data collected. It places the coded data into an exclusive 'meaning box' and allows a detailed definition and logical comparison process of the data collected to start taking place (Ansdell & Pavlicevic, 2001:150–3). The most challenging part of employing thematic analysis is to draw the richness of the themes from the raw data, but also to avoid reducing the insights to a trivial level for the sake of consistency of judgment of the data (Joffe & Yardley, 2004:67–8).

Chapter 4: Ethical considerations and credibility

The primary goal of planning and conducting ethical research is to protect the rights and welfare of the participants in the research study. According to Terre Blanche and Durrheim (1999:67–8) three ethical principles must be taken into consideration. The first is autonomy: this refers to the researcher being required to respect the autonomy of all persons participating in the study. This is honored by the researcher who complies with the ethical guidelines of voluntary participation and informed consent. Before commencement of the study, permission was obtained from the Department of Education (see Appendix N) and the Unica School for Autism (see Appendix L), as well as from the Research Ethics Committee at the University of Pretoria (see Appendix M). Upon approval from the relevant authorities, informed consent was obtained from the parents/guardians of the participants (see Appendix I). Assent letters appropriate and comprehensible for the participants (see Appendix J) were also explained and assent forms were obtained individually (see Appendix K).

The second ethical principle to consider is that of non-maleficence. This means that the research must not do any harm to the participants of the study whatsoever. The researcher honored non-maleficence by treating the participants with respect and dignity, and putting the safety of the participants first at all times during the research. All risks must be explained clearly and formally in the consent forms.

The third ethical principle is that of beneficence. This refers to the researcher designing a study that will be beneficial not only to the researcher, but potentially to the participant as well (if not directly, then indirectly through contributing to knowledge in the field). Confidentiality must be assured within the consent forms for the participants, and therefore no identifiable information will be published in any form during dissemination of results. The consent forms must specify how the data will be captured, stored, processed and released (Terre Blanche & Durrheim, 1999:67–8).

Terre Blanche and Durrheim (1999:69–70) explain the importance of competency, meaning that the researcher must be competent to carry out the research being conducted. Regarding this ethical guideline, I am an HPCSA registered student receiving training in the field of music therapy, and work under supervision.

A further ethical consideration is the dual role I play as the researcher and therapist in the study conducted. Ansdell and Pavlicevic (2001:103–4) explain that each role creates different priorities at different times during the research process. This can either enhance or interfere with the research process. The researcher's role is to place emphasis on the collection of the data and contribute to the specific study field in which the research falls; and the therapist's role is to put emphasis on the client's wellbeing in whichever form it takes place during the research study. Aigen (1993:16) suggests that this dual role can enhance the research process. Aigen suggests that both qualities of the roles, such as intuition, insight, emotional reactions and intellectual judgment can be helpful to 'knowing' and 'sensing' what is necessary to be emphasized during the research process, data collecting and analysis. He suggests that these qualities can assist the researcher in practicing sensitivity and subtlety throughout the research study.

The research paradigm in this study is interpretive. An important aspect of an interpretive approach is triangulation (Terre Blanche & Durrheim, 1999:430). Triangulation refers to collecting data or material in many different ways, and from as many different and diverse sources as possible (Terre Blanche & Durrheim, 1999:430–1). Triangulation assists in exploring the different layers and perspectives of meaning, in order to gain a richer understanding of the phenomenon. It is important to work with the data in context. The analysis of the data collected was supervised throughout the completion of the study, thus employing more than one way of collecting data (Terre Blanche & Durrheim, 1999:127–8). In order to conduct the research in a credible and reliable way, I was supervised by a trained music therapist throughout the research process. This contributed towards conducting the study in a critically reflexive manner.

The findings obtained from this research study will be made available in the form of a mini-dissertation in partial fulfilment of the requirements for a Master's degree in music therapy at the University of Pretoria. A copy of the dissertation will be given to Unica School. The data collected will be archived for 15 years at the Music Department at the University of Pretoria. Formal consent will be required should the data be sought after for any further research purposes.

Chapter 5: Data analysis

5.1 Introduction

As previously stated, the aim of the research study is to explore and compare the process of learning a new song in a group music therapy setting with learners with Autism Spectrum Disorder (ASD). The research study comprised two groups (group A and group B) with participants who matched the above mentioned sampling criteria. Each group had six sessions in total, of which group A's first three sessions consisted of a song learning process using music therapy techniques in combination with PCS. Group B's first three sessions consisted of a song learning process using only music therapy techniques. In sessions 4 – 6 the groups swapped, thus making group A's song learning process. Session 4 – 6 focused on the use of music therapy techniques only; group B's sessions 4 – 6 focused on music therapy techniques in combination with PCS as an aid. Each session had exactly the same structure, comprising a greeting song, followed by a drumming activity. The drumming activity was preceded by the song learning component, which is the focus of the analysis for this study. Each session was concluded with a greeting song.

The song learning process had the following format: the same song was taught to both groups in the first three sessions. Sessions 4 – 6 consisted of a song similar to the first song: the melody remained exactly the same, but the lyrics and theme of the song changed. Video footage as well as session notes were the main data capturing method. The data analysis will be discussed in detail in the following section.

5.2 Transcription of recorded footage

The first step of the data analysis process was to transcribe the recorded footage into detailed descriptions of all aspects that took place during the song learning activity. The benefits of using video recorded material as a data collection method is that it afforded the opportunity to refer back to the sessions multiple times thus, ensuring that thick descriptions and transcriptions were as accurate and detailed as possible (Sparrman, 2005:241–4). Note that only the song learning activity in the sessions were transcribed, as per the aim and research questions governing the

study.

The transcription will refer to 'MTPS' to indicate the sessions in which music therapy was used in combination with PCS. The transcription referred to as 'MT-only' will indicate sessions which employed music therapy techniques only.

The following example (Appendix O: A, Line 1 – 4) is the transcribed video footage of Group A (MTPS) in session 1 with PCS as an aid:

Figure 5.2.1: Transcribed thick descriptions group A (MTPS)

| | |
|-----------------------------|--|
| A | Under the water |
| 18-Apr-16 | Session 1 Group A (MTPS) |
| Time (minutes into session) | Transcribed sessions |
| 9:20 | |
| Line 1 | I show the board with the picture symbols to the participants |
| Line 2 | Tshepo and Jack lean forward in their seats to look closer at the symbols to see the PCS better, they seem very focused on the board |
| Line 3 | The first symbol I point to is the symbol of the word "under" |
| Line 4 | I ask the participants what word the picture symbol represents |

The following example (Appendix P: B, Line 1-4) is the transcribed video footage of group B (MT-only):

Figure 5.3.2 Transcribed thick descriptions group B session 1 without PCS

| | |
|-------------------|--|
| B | Under the water |
| 18-Apr-16 | Session 1 Group B (MT-only) |
| Drumming activity | |
| 11:07 | |
| Line 1 | I explain that we are going to sing a song about the sea |

| | |
|--------|--|
| Line 2 | Lisa and Tom comment about the sea by saying it is very far and that one can build sandcastles in the sand when they go to the sea |
| Line 3 | I softly strum the guitar |
| Line 4 | The tempo is moderately slow |

5.3 Coding of transcriptions

The following step in thematic analysis is transcribing the data into codes. Coding is a technical term for analytically labelling the collected data. It breaks the data up into different sections that are meaningful and applicable to the research question and sub-questions (Charmaz, 2003:93). Once the transcribing of the video footage was complete for all twelve sessions, the next step was to organise each transcribed line into segments. The following examples (Appendix O: A, Line 1 – 4) illustrates the coding step:

Figure 5.3.1: Transcriptions and codes

| | | |
|-----------------------------|--|---|
| A | Under the water | |
| 18-Apr-16 | Session 1 Group A (MTPS) | |
| Time (minutes into session) | Thick description | Code |
| 9:20 | | |
| Line 1 | I show the board with the picture symbols to the participants | |
| Line 2 | Tshepo and Jack lean forward in their seats to look closer at the symbols to see the PCS better, they seem very focused on the board | A2a) Participants interested in PCS A2b) Participants focused on PCS |
| Line 3 | The first symbol I point to is the symbol of the word "under" | A3a) Therapist direct attention to PCS |
| Line 4 | I ask the participants what word the picture symbol represents | A4a) Therapist ask participants question about PCS |

Figure 5.3.2 (Appendix P: B, Line 1-4): Transcriptions and code

| | | |
|-----------------------------|--|---|
| B | Under the water | |
| 18-Apr-16 | Session 1 Group B (MT-only) | |
| Time (minutes into session) | Thick description | Code |
| 11:07 | | |
| Line 1 | I explain that we are going to sing a song about the sea | |
| Line 2 | Lisa and Tom comment about the sea by saying it is very far and that one can build sandcastles in the sand when they go to the sea | B2a) Two individuals associated with real life memories |
| Line 3 | I softly strum the guitar | B3a) Therapist strums guitar softly |
| Line 4 | The tempo is moderately slow | B4a) Therapist strums guitar slowly |

5.4 Coding segments into higher order codes

The next step was to organise the coded segments into higher order codes. This process is a higher level of organisation of the data collected. This process allowed a logical comparison of the collected data to take place (Ansdell & Pavlicevic, 2001:150–3). Examples (Appendix AD table 1: Line A16a) illustrate the further organizing of the codes:

Figure 5.4.1: Higher order codes for MTPS sessions (See Appendix AF table1)

| |
|--|
| <u>Tempo</u> |
| A21a) Participants sing softly and slowly |
| A27a) Participants sing softly and slowly |
| C47a) Indiv participant strums guitar slowly, loudly and clearly |
| C48a) Participants spontaneously sing song slowly and loudly |

C51b) Indiv strums at a slow and uneven tempo
C70a) Indiv participant strums guitar moderately loud and slowly paced

Figure 5.4.2: Higher order codes for MT-only sessions (See Appendix AF table 1)

| Tempo |
|---|
| G20a) The music is moderately slow D77a) Indiv participant strums fast paced D85b) Indiv participant strums loud and at a presto tempo |
| D93a) Indiv participant strums guitar slowly and gentle D94a) Indiv participant strums guitar fast and lively D96a) Indiv participant fastens tempo |

The higher codes were further organised into categories as illustrated in the table below:

Figure 5.4.3: Organised higher order codes (See Appendix AF table 1)

| MTPS Sessions | | MT-only Sessions | | | |
|--|---|--|--|---|---|
| Characteristics of the music | | | | | |
| Tempo | Tempo | Rhythm | Rhythm | Dynamics | Dynamics |
| A21a) Participants sing softly and slowly | G20a) The music is moderately slow | C50b) Indiv participant struggle to keep steady beat | D43a) Indiv participant says words rhythmical | A16a) Participants sing softly | B18a) Participants sing with therapist softly |
| A27a) Participants sing softly and slowly | D77a) Indiv participant strums fast paced | C51b) Slow uneven tempo strumming | D46b) participants says words rhythmically | A21a) Participants sing softly and slowly | B21a) Participants sing softly |
| C47a) Indiv participant strums guitar slowly, loudly and clearly | D85b) Indiv participant strums loud and at a presto tempo | C53a) Indiv participant strums guitar in a steady beat | D96b) Indiv participant plays scattered rhythm | A27a) Participants sing softly and slowly | B32a) Participants sing/mumble words softly |

| | | | | | |
|--|---|---|---|---|--|
| C48a) Participants spontaneously sing song slowly and loudly | D93a) Indiv participant strums guitar slowly and gentle | C58a) Indiv participant strums guitar softly, gentle and rhythmical | K22a) Indiv strums guitar rhythmically moderately fast and lively | A32a) Participants sing softly with therapist | B48b) Participants sing louder and pronounce words clearer |
| C51b) Indiv strums at a slow and uneven tempo | D94a) Indiv participant strums guitar fast and lively | C70c) Indiv keeps steady beat | | A37a) Participants sing softly | B63c) Two participants sing very softly |
| C70a) Indiv participant strums guitar moderately loud and slowly paced | D96a) Indiv participant fastens tempo | C84c) Indiv participant taps rhythm of song on his lap vigorously | | A57a) Participants sing moderately loud | B75a) Participants sing emphasize words loudly |

5.5 Extracting of final themes

The final step was to organize the higher order codes into themes which form the basis for the final discussion and conclusion of the research study. This was the most challenging part of the thematic analysis, since it was essential that the identified themes capture the essence of the data. This process allowed me to draw the richness of the collected data and organize them into themes (Joffe & Yardley, 2004:67–8). Figure 4.5.1 provides a summary of emerging categories and themes.

Figure 5.5.1: Final themes

| <u>Recollection</u> | <u>Music as song learning aid</u> | <u>PCS as song learning aid</u> | <u>Learning outcomes</u> | <u>Inter-personal engagement</u> |
|------------------------|-------------------------------------|---------------------------------|--------------------------|----------------------------------|
| Recollection of song | Cross-modal interpretation of music | PCS identification | Focused attention | Therapist's interactive role |
| Recollection of lyrics | Therapist's musical role | | Rehearsal of song | Part quality of participation |
| Recollection of melody | Characteristics of the music | | Seeing and doing | |
| | Vocal participation | | Word concept formulation | |

| | | | | |
|--|---------------|--|---------------------------------|--|
| | Pronunciation | | Learning process in sessions | |
|--|---------------|--|---------------------------------|--|

Chapter 6: Discussion

The aim of the research study was to explore the use of PCS and music therapy in combination, in learning a new song for children diagnosed with ASD. The similarities and differences in the song learning process using MTPS and MT-only were analyzed as per the previous chapter. In this chapter I will discuss the findings of this study. I will discuss each of the five themes individually by exploring the higher order codes from which they were derived. Each theme will be discussed in terms of the research question and sub-questions, and also linked to the literature review discussed earlier in the study. These findings form the final stage of analysis as I now begin to expand on the themes.

6.1. Theme 1: Recollection

6.1.1 Recollection of lyrics

The first theme to emerge from the data was the recollection of the song throughout the learning process. It seems that overall the participants remembered the lyrics better in the MT-only sessions than the participants in the MTPS sessions. There were more occurrences within the sessions where the participants remembered the lyrics by memory (see Appendix AB table 1: MT-only, Line *B94a*) *Indiv participant remembers verse words*; MTPS, Line *G32f*) *Participants remembers chorus lyrics and melody with ease*). However, during the chorus section the participants in the MT-only sessions seemed to forget the order of the animals being greeted in the song (see Appendix AB table 2: MT-only, Line *D112b*) *Indiv forgets order of animals being greeted, shouts out wrong animal*). The data indicates that PCS provided a non-verbal visual reminder of the order of the animals for lyric recall during the chorus section, thus making it easier for the participants to remember the order of the animals being greeted. The data further suggests that forgetting the order of the animals or the names of the animals being greeted did not occur during the MTPS sessions (see Appendix AB table 2: MTPS). As discussed in the literature review on page 12 earlier, Kilgour, Jakobson and Cuddy (2000:700) conducted a study to determine whether formal music training facilitates better recall of spoken or sung lyrics. The results indicated that the sung lyrics were recalled more frequently than spoken lyrics, suggesting that training in music could enhance verbal memory. In this research study the participants had no

formal musical training; however, through singing and rehearsing the lyrics by singing instead of speaking it facilitated the recall of words.

Returning to the current study, the data suggests that the music itself acted as a facilitator for the memorizing of lyrics more efficiently during MT-only sessions than MTPS sessions. However the PCS acted as non-verbal and visual lyrical reminders, which assisted with the recollection of the order of the animals being greeted. Tucker (2007:4–5) explains that music educators must make use of different organized teaching models to enhance learning. One of the fitting models to consider for this study is the organized model of sequential learning. Sequential learning is the process of sequencing effective instructions, modeling and gestures, asking questions, feedback systems and verbal imagery (Tucker, 2007:4–5). In this study sequential learning took place as various learning styles were employed. The learning material was systematically explained, modelled and visually and aurally presented using both music and PCS in combination. Both music and PCS in combination provided the song learning process with the above mentioned tools. It is suggested that combining the above methods contributed towards the better recall of sung lyrics, in which both music and PCS acted as learning facilitators.

Uncertainty of lyrics occurred mostly during the first two sessions in both groups, suggesting that it was part of the learning process of a new song (See appendix AB table 3: MTPS, Line *A48d*) *Participants unsure about the words*; MT-only, Line *B32b*) *Participants unsure of chorus words*). The data indicates a higher level of recollection of musically emphasized words in MT-only sessions, which might be due to emphasizing of key lyrics being accentuated through various musical techniques (see Appendix AB table 1: MT-only, Line *B35c*) *Participants remember emphasized words in verse most*). PCS provided visual cues as a learning tool, and the facilitation of various emphasized musical elements facilitated better sequential recall of the lyrics. As explained in the literature review earlier on page 14-15, Schögler (1998:47) argues that jazz musicians make use of accentuated notes in order to exchange musical ideas non-verbally. This is referred to as the ‘accent structure’. By accentuating certain notes, they are able to express the direction they wish for the music to go within the set musical framework. If the other musicians share a similar musical goal, they can indicate it by mimicking or imitating the accentuated structure of the music. In this research study, the therapist accentuated the key lyrics in the songs using her voice. She also accentuated the pulse on which these words were sung through the

guitar accompaniment. In addition, the therapist physically rocked her upper body to these accentuated pulse of the music. In return, the participants mimicked or imitated her physical movements as well as her singing of accentuating the key lyrics. It is suggested that this could have contributed to better recollection of the sung lyrics, as a musical goal was shared between the therapist and the participants.

When the groups swapped song learning techniques, the recollection of some of the first song taught in the MTPS sessions' lyrics were remembered better by the MT group during the learning of the second song, which was taught using only MT techniques (see Appendix AB table 3: MTPS Line *H45c*) *Indiv participant immediately remember words of previous song*). As explained earlier in the literature review on page 16, Preis (2006:194) conducted a study which specifically addressed the language processing impairment of children diagnosed with ASD. It was suggested that children with autism show more strength in visual perception, memory and spatial relationships than with auditory stimulus. It is suggested that a child with autism tends to memorize visual information and complete tasks easier when visual spacial judgement is involved. The current study might suggest that, with the PCS providing visual cues in combination of the aural cues music offers, the participants were able to recognize the similarities between the old and the new song, thus transferring previous learned knowledge to a new concept.

6.1.2 Recollection of melody

The MT-only group seem to recollect the song's melody better than the MTPS group, as there are more occurrences in the data indicating it (see Appendix AC table 1: MT-only, Line *B114a*) *Participants remembers melody*). The melody, which remained the same throughout both songs, provided flow to the sequential learning of lyrics, which may assist learners with ASD to learn in new ways. Symptoms of ASD include repetitive behavioral patterns in activities and with objects (DSM5 2013:50–5). The melody remained the same throughout both song learning processes; thus, it is suggested that the participants were comforted by having some form of sameness, and that the melodic structure could have assisted in creating a safe, familiar space for the participants to learn creatively and spontaneously. Keeping the session structures consistent may also have contributed to this outcome.

6.1.3 Recollection of song form

Participants in the MT-only sessions, in contrast to the participants in the MTPS sessions, remembered the song form with ease (see Appendix AA table 1: MT-only, Line *G40d*) *Indiv remembers song form*). In many occasions the song form was completely forgotten, and the individual participants would direct attention to the incorrect PCS because he/she is uncertain of the song form. In contrast to that, there was no indication in the data of the song form ever being forgotten during the sessions where only music therapy techniques were employed, as shown in the following coded data (see to Appendix AA table1: MTPS, Line *J59a*) *Indiv forgets repeat of the verse section*; MTPS, Line *E114a*) *Pointing indiv does not go back to verse section*). As mentioned above, and as described by Schögler (1998:40–1), music is a non-verbal communicative tool. The music itself provided non-verbal cues that offered the participants a concrete framework in which the form of the song was easily remembered. The music and the song itself provided the form of the song. PCS also provides non-verbal cues presented visually. Used in combination, MT and PCS provided a multi-sensory learning experience, as both visual and auditory learning techniques were employed. This learning experience can be referred back to Rouse's (2013:227) explanation of "multi-sensory learning". A multi-sensory learning experience can provide a broader learning process and a deeper understanding of a topic can be obtained throughout the learning process.

6.2 Theme 2: Music as learning aid

6.2.1 Facilitating cross modal learning

The analyzed data suggests that cross-modal interpretation of the music took place during the song learning process. Throughout the sessions, and in both groups, there were various physical interpretations of the music. There were many energetic and rhythmical-physical movements such as swinging of arms and legs, and hand gestures related to the music. The data suggests that the interpretations of the music through movement took place primarily during the second and third session for the MTPS sessions. There are very few occasions where this interpretation through physical movement took place during the first MTPS session for both groups (see

Appendix AD table 1: Line MT-only, *B63a) Indiv makes arm movements matching the pulse of the music*; MTPS, Line *C36a) Indiv participant claps hands to the pulse of the music*). The MT-only sessions seem to have more occasions in every session for both groups, where participants interpreted the music, matching the pulse or the theme of the song, by physically moving their bodies (see Appendix AD table 1). This suggests that the music provided the participants with an alternative manner to be expressive and engage spontaneously and playfully within a group context. The participants could partake in a different manner because the music was used flexibly in terms of adapting different modalities to the learning experience, which in this case was movement.

As reported in the literature review on page 12, Rouse (2013:227) argues that there is a strong connection between learning and the affective brain domain when making use of multiple sensory modes, which includes movement or singing. Pierre and Oughton (2007:1) define the affective domain of the brain as “the product of the brain that produce the sense of feelings and emotions that are complex but internally consistent qualities of character and conscience”. These qualities include attitude, self-awareness, self-esteem and emotional intelligence: all these qualities are limited or impaired with children diagnosed with ASD. In the case of this research study, the physical movements included spontaneous swinging of arms and legs or hopping in their chairs to the pulse of the music. As stated previously, when used in combination, PCS and MT also afforded cross-modal learning in the form of visual and aural cues, which facilitated recall of song lyrics by both groups, a deeper understanding of the song and transfer (see Appendix AD table 1: MTPS, Line *C36a) Indiv participant claps hands to the pulse of the music*; MT-only, Line *B77a) Participant emphasize syllables of word by swinging arms to the pulse of the music*). This also contributes to the approach of the therapist, which is explained in the following sub-heading.

6.2.2 Therapist’s role in facilitating the music

The therapist used music in a flexible manner for both MT and MTPS groups. Both groups responded in a similar fashion, such as adjusting their quality of singing and playing. There were, however, differences between the groups. The data revealed that the therapist used the basic elements of music such as tempo, dynamics and rhythm in a more flexible, creative, and

interactive manner during the MT-only sessions. They also clearly indicate that the tempo, dynamics, characteristics of the guitar strumming and overall quality of participation of the therapist shifted during the MT-only sessions (see Appendix AE table 1: MT-only, Line *B3a) Therapist strums guitar softly*; MTPS, Line *E131a) Therapist strums guitar moderately fast and lively* MT-only, Line *B39a) Therapist increase tempo of guitar strumming*; MT-only, Line *B4a) Therapist strums guitar slowly*). Playful, engaging, spontaneous and unpredictable music techniques were included, in order to enhance the song learning process, especially since the visual cues of PCS were not present in these sessions. Whilst the therapist applied the same techniques in the MTPS sessions, the data indicates this on fewer occasions than during MT-only sessions (see Appendix AE table 1).

Throughout the sessions, the therapist used non-verbal musical, as well as aural cues, as a means of communicating with the participants. When used in combination, they served as a multi-modal approach that was needed to create a flexible and responsive communicative system for the participants during the song learning process. However, the results indicate that the use of PCS as a visual cue might have restricted the flexibility of the therapist's musical engagement and the music itself, because the participants practiced joint attention by having to read PCS and adjust to the sudden musical shifts at the same time. This suggests that the music shifted less in the MTPS session because more preparation had to be done by the therapist to prepare the participants for sudden music shifts.

Chawarska *et al.* (2015:534–544) maintain that attention is driven by a condition-independent tuning into the dynamics of a social scene and context-specific constructs. ASD is commonly characterized by a limited tuning into social scenes and also by a selection of atypical targets for processing these social scenes. It is suggested that children diagnosed with ASD tend to react in such situations by not necessarily paying attention to key distinctions between social or non-social stimuli, but rather by selection of particular aspects of a social or non-social scene that is observed to be most relevant to the task at hand. In the context of the current research study, the participants struggled to multi-task during the MTPS sessions, when asked to strum the guitar additionally whilst singing and reading the PCS, but none reports of struggling with joint attention when strumming the guitar and singing the songs from memory during the MT-only sessions were observed in the collected data. This might suggest that the participants were able to select the

most relevant task during the song learning process, which was singing the lyrics of the songs. The MT-only sessions had less visual and aural and kinesthetic stimuli that were expected to be completed at the same time than the MTPS sessions thus making it easier for the participants to observe and pay attention to the most relevant tasks at hand.

6.2.3 Participants' and therapist's musical participation and interactive roles

The therapist used techniques of the Creative Music Therapy model called mirroring, matching and reflecting. The Creative Music Therapy model founded by Paul Nordoff and Clive Robbins focuses on the non-verbal aspects of clinical improvisation. This approach is applicable for both individual and group music therapy, and can be described as the process whereby a therapist and a client improvise together to address a variety of clinical goals. Clinical improvisation is the basis for assessment, treatment plans and ongoing evaluation. (Wigram *et al.*, 2002: 126 – 9). The data indicated that variations in participants' tempo and dynamics were in relation to changes in tempo and dynamics introduced by the therapist (see Appendix AF table 1: MTPS, Line A21a) *Participants sing softly and slowly*; MTPS, Line C53a) *Indiv participant strums guitar in a steady beat*; MT-only, Line D77a) *Indiv participant strums fast paced*; MT-only, Line B21a) *Participants sing softly*). The therapist adjusted and intervened during the song learning process by mirroring and matching the participants singing and playing, in order to musically interact with them. The therapist intervened often by shifting the tempo and dynamics to a different tone quality. It was however all on the participants' terms and with what suited them musically best. Pavlicevic (1991:3–4) explains that the common pulse between the therapist and participants has various possibilities for meeting the rhythmic component of each other's playing. This can be defined as mirroring and matching. Mirroring refers to the one partner reflecting the other partners playing by strictly imitating the rhythm within a common pulse, meter and tempo variations. This means that partner A does exactly what partner B does, at the same time. Matching refers to one partner corresponding the other when some, but not all, of the rhythmic components are mirrored exactly. Matching can be thought as partial mirroring. Reflecting occurs when the pulse and tempo variations are shared but the meter and rhythmic pattern is not necessarily common to both players. The participant's tempo and dynamics seem more flexible and energetic in the MT-only sessions (see Appendix AF table 1). This does not suggest that the participants were not flexible in terms of tempo and dynamics of their singing, and playing during the MTPS sessions but the data suggests a higher occurrence during MT-only sessions (see Appendix AF table 1). The

quality of the participants singing varied from loud to very soft and they were able to adjust the tempo and dynamics of their singing with ease during musical interventions.

The therapist's interactive role played a significant part in the song learning process. The therapist's body language was engaging, and used as a non-verbal tool to assist in the song learning activity. The therapist's non-verbal interactions consisted of strumming the guitar, and by doing so she provided non-verbal musical cues or supporting an individual or the group musically by meeting and matching their singing. Non-verbal interaction between the therapist and the participants took place in both MT-only and MTPS sessions (see Appendix AN table 1: MTPS, Line *C49a*) *Therapist support indiv participant musically*; MT, Line *B33a*) *Therapist attempts to shift energy of the music*). There was more non-verbal modelling of strumming of the guitar or pointing to the correct PCS during the MTPS sessions than during the MT-only sessions (see appendix AN table 2: MTPS, Line *E56a*) *Therapist assist indiv participant by modelling pointing to PCS*; MT, Line *D65a*) *Therapist models strumming of guitar*). Schögler (1998:40) explains that musicians use music as a non-verbal communicative tool to interact and co-ordinate musical ideas amongst each other. Music therapists' make use of clinical techniques as a means to communicate and interact with clients non-verbally, as discussed in the literature review on page 14. The music itself was inviting, and provided the framework for the participants to engage spontaneously and to be self-expressive. The PCS also provided non-verbal cues, specifically when the therapist pointed or modelled the pointing to the appropriate PCS. The PCS provided a very clear and structured sequence of the lyrics being sung, by making use of visual imagery to which the therapist's role of pointing and modelling the pointing to the PCS assisted in facilitating a multi-sensory learning experience.

The therapist's verbal interaction was reinforced during both the MT-only and MTPS sessions. The verbal interactions included giving verbal cues of when to start singing, or verbally predicting the lyrics. Only during the MT-only sessions did the therapist verbally reminded the participants of the lyrics (see Appendix AN table 2: MT, Line *B109a*) *Therapist verbally prepare participants of next sung lyrics*). The therapist also engaged in verbal affirmation and acknowledgement of an individual or the group's musical offerings and efforts by means of verbal praise during both MT-only and MTPS sessions (see Appendix AN table 2: MTPS, Line *J48a*) *Therapist verbally thanks volunteer indiv*; MT, Line *D64a*) *Therapist verbally acknowledges indiv participants imitation of a*

dinosaur). The therapist also verbally invited participants to sing, and strum the guitar during both MT-only and MTPS sessions. During the MTPS sessions, the therapist verbally invited individual participants to point the PCS on the communication board to the rest of the group (see Appendix AN table 3: MT, Line C91a) *Therapist invite indiv participant to point to PCS*). Overall the therapist seems to have verbally invited participants to sing on more occasions during the MT-only sessions. There also seem to be a lot more verbal praise and affirmation from the therapist during the MT-only sessions (see Appendix AN table 2: Therapist's verbal interaction). During both the MT-only and MTPS sessions the therapist also asked song-related question to the participants (see Appendix AN table 6).

The participants portrayed a very good sense of rhythm during the MTPS. Pointing to the PCS was combined with the rhythmic aspects of the song, supported by the therapist on guitar (see Appendix AF table 1: MTPS, Line J90a) *Pointing indiv match group singing rhythmically when pointing PCS*; MTPS, Line E59b) *Indiv responds to music by rhythmical tapping of the finger on the PCS*). Overall both groups during both songs verbally spoke the lyrics instead of singing along with the accompaniment. The quality of the speaking of the lyrics matched the rhythm of the music (see Appendix AG table 1: MT-only, Line D46b) *Participants say words rhythmically*; MTPS, Line C27a) *Speaking of lyrics instead of singing*). It is suggested that the rhythmical elements of the music provided a framework in which the pointing to PCS and speaking of the lyrics were organized and performed in a rhythmical fashion.

6.2.4 Qualities of pronunciation and vocal participation

On many occasions during the sessions, both groups mumbled the lyrics. The MTPS sessions seem to demonstrate this less than MT-only sessions (see Appendix AP table 1: MT, Line B19a) *Mumbling of words*; MTPS, Line A22a) *Mumbling of words*). This might suggest that, due to the absence of PCS, the participants seem less sure of the lyrics because they were solely dependent on memorizing the lyrics during the MT-only sessions. This could also suggest that the participants were still in the process of learning the lyrics and the uncertainty of the lyrics is what kept them from singing more confidently. It would seem that the participants were able to recognize and remember the lyrics more easily in the MTPS sessions, as the visual cues served

as an immediate reminder of the lyrics. The data suggests that there were more occasions during the MT-only sessions where the participants pronounced the lyrics very clearly (see Appendix AP table 1: MT-only, Line *B48b*) *Participants sing louder and pronounce words clearer*). The data also suggests that there were occasions where the singing and pronunciation of the lyrics are clear in the MTPS sessions, albeit with less prevalence. The therapist's sung pronunciation of the words also played a role. The therapist made a point of pronouncing the lyrics very clearly, and some of the words were specifically emphasized to assist in the learning process of the song for the MT-only sessions (see Appendix AP table 1: MT-only, Line *B40c*) *Therapist pronounce words clearly*).

The data indicates that there was more vocal (singing) participation, from both groups during the MT-only sessions. Specific singing qualities emerged with both MTPS and MT-only groups. Overall, the participants' singing could be described as varying from monotonic and low in energy to energetic and playful in both MTPS sessions and MT-only sessions. The data indicates that during the MT-only sessions the singing qualities shifted and varied from low energy and monotonic singing to energetic and playful on more occasions than the MTPS sessions (see Appendix AG table 1: MTPS, Line *A62b*) *Participants sing with monotonic tone quality*; MTPS, Line *C14a*) *Participants sing loudly and lively*; MT-only, Line *B19b*) *Low energy participation and singing*; MT-only, Line *B74a*) *Participants sing with enthusiasm and high energy*). The monotonic and low energy singing, limited in varied emotional expression, can be linked to the common symptoms of ASD, which include difficulties in conveying emotions through facial expressions or spoken or sung language (DSM 5:50-5). There were occasions in both groups during which the participant's quality of singing was expressive, lively and melodic. In a study conducted by Raglio *et al.*, (2011:135-6) in the literature review on page 13-14, music therapy sessions with a child with autism resulted in an increase in physical contact, approach to others, eye contact and attuned movement through musical participation. The child's emotional involvement and communicative body language within the interactions increased over twenty sessions.

In this research study, the participants seem to be more self-expressive through their singing. The quality of their singing along with the accompanied physical movements increased and grew more meaningful throughout the sessions. Raglio *et al.* (2011:135-136), in the literature review on page 13-14, came to the conclusion that music can improve relational and communicative experiences

for children diagnosed with ASD, which could also be observed in the data. The participant's quality of singing shifted from monotonic and flat qualities (as expected from a child with ASD) (DSM 5:50–5) to melodically and expressive qualities. There were also very few occasions where lyrics were spoken instead of sung during both MTPS and MT-only sessions. The results suggest that the participants were able to express some form of emotions through singing by shifting their overall quality of singing. Referring back to Pierre and Oughton (2007:1) in the literature review on page 12, a deeper learning experience might have taken place. The affective brain domain were linked with a multi-sensory learning experience, which Pierre and Oughton (2007:1) explained to be “the product of the brain that produces the sense of feelings and emotions that are complex but internally consists of the qualities of character and conscience”. This suggests that a multi-sensory learning experience of MT and PCS, used in combination, accessed the parts within the participants and allowed them to be self-expressive and musically flexible.

6.3 Theme 3: Picture symbols as learning aid

6.3.1 PCS recognition and iconicity

The next theme to be discussed is a reflection on what PCS contributed towards the learning process during the MTPS sessions only. The data suggests that both groups were able to recognize each PCS with ease throughout the learning process, and that they were very dependent on the PCS for recall of the lyrics during the rehearsals of the song (see Appendix AH table 1: MTPS, Line A9a) *Participants recognize PCS with ease*; MTPS, Line A86a) *Participants dependent on PCS*; MTPS, Line L2b) *Participants immediately recognize PCS with ease*). Both songs seemed to employ PCS that were highly iconic, which might have contributed to the recollection of the lyrics with ease and immediacy. Hartley and Allen (2015:570) explains in the literature review on page 17 the function of pictures that are high in iconicity when working with a child diagnosed with ASD. Iconicity in a pictorial representation refers to how a picture is able to inform the viewer about a specific object or subject. This means that the viewer is contextualizing the pictures. For the contextualization to take place, the viewer must be able to understand the visual representation corresponding with the elements of reality, even if it is absent at the time of the viewing of the picture. Iconicity plays an important role in the communication and contextualization's skills of a child with ASD. In this study, the pictures were carefully selected to ensure that the participants would be able to contextualize it as best as possible. The participants

recognized the PCS with ease, as indicated in the data, and they were able to contextualize it with ease, as well as they were able to make their own association to it (see Appendix AH table 1: MTPS, Line *A5b*) *Participant associates PCS with own meaning*; MTPS, Line *J15a*) *Indiv associated own meaning with intended PCS*). In both groups there were a few instances where participants assigned their own personal meanings and associations to the picture symbols. These associations were expressed verbally or by physical movements such as imitations of the animals being greeted, or an action such as swimming, as shown in the coded data (see Appendix AH table 1: MTPS, Line *C8a*) *Indiv associates own PCS meaning with movement*).

Whilst the therapist facilitated the reading of PCS by pointing to the symbols, there were occasions when the participants were invited to read the PCS themselves while simultaneously singing the song (see Appendix AH table 3: MTPS, Line *L51a*) *Therapist verbally invite participants to read PCS by themselves*). This was accomplished with ease. Individuals were invited to point to the PCS and had no trouble assisting each other by non-verbally modelling the pointing method to a participant who did not completely grasp the task. Overall, the participants in both groups managed to point to the correct PCS at the right time during the song (see Appendix AH table 2: MTPS Group A, Line *C97a*) *Indiv participant directs attention to PCS*; MTPS Group B, Line *H107a*) *Indiv participant directs attention to PCS*). There were few occasions where individual participants pointed to the incorrect PCS at the incorrect time (see Appendix AH table 4: MTPS, Line *C101a*) *Indiv participant points incorrect PCS*; MTPS, Line *E48a*) *Indiv participant direct attention to incorrect PCS*). The therapist's main role comprised pointing to the PCS, non-verbally modelling the pointing to the correct and appropriate PCS, as well as verbally inviting the individual participants to point out the appropriate PCS for the rest of the group (see Appendix AH table 3: MTPS, Line *C29b*) *Therapist direct attention to PCS*). Gadburry (2012:151) explains in the literature review on page 11 that PCS is an alternative means of communicating for clients with language or communicative impairments. Here this form of AAC was used as a visual, non-verbal cue for remembering song lyrics. The use of a communication board and the organization of the PCS on the board made it comprehensible for the participants to eventually read the PCS by themselves, as well as point to the appropriate PCS during the song learning process. This implies that the communication board, as well as the PCS, could also be a tool for structuring and providing a set framework for participants with communicative impairments. PCS provided additional and comprehensible non-verbal and visual cues, which contributed towards having a full and meaningful learning experience. The participants experienced a multi-sensory learning

process with visual aids they were very well familiar with and could relate to with ease.

6.4 Theme 4: Learning outcomes

6.4.1 Focused attention

The next theme that emerged was the learning outcomes of the song learning process, the first of which is focused attention. The data indicates that, throughout the MTPS sessions, participants focused their attention on the PCS communication board during the rehearsals of the song (see Appendix AI table 1: MTPS, Line *A2b*) *Participants focused on PCS*). The data also suggests that there was less focus on the music itself during MTPS sessions (see Appendix AI table 1). MT-only sessions seemed to facilitate an increased focus during the song learning process, especially through music modelling by the therapist, as well as her use of the guitar (see Appendix AI table 1: MTPS, Line *B76e*) *Participants focus on therapist and music*).

As explained above, the PCS provided a non-verbal and visual means of communicating and learning to which the participants had to pay attention to in order to take part in the activity. Preis (2006:194) in the literature review on page 16, conducted a study in which it is suggested that visuospatial processing is superior to auditory processing skills for individuals with autism. It is important to recognize that the auditory processing being referred to in that study consisted of verbal instructions using spoken language. In this research study, the use of music and the learning of a song were implemented, in which specific music therapy techniques were employed. As indicated in the MT-only sessions (see Appendix AI table 1), music served as a learning reinforcement as the basic elements of music itself such as tempo, dynamics, and melody were used in a flexible and creative manner that kept the participants focused. It created multiple opportunities to repeat the song without it being too repetitive, because the music was able to change and shift, thus making every repeat of the song different than the previous one. Because the music was shifting and changing unpredictably, the participants' attention remained on the music during the MT-only sessions. Both techniques served to keep the participants interested and engaged in different ways throughout the song learning process, as there seem to be few occasions where the participants lost focus on the activity and the therapist, due to other distractions in the room (see Appendix AI table 3: MTPS, Line *H77d*) *Participants distracted by*

objects in the room; MT, Line B44a) Indiv seems distracted by other objects in the room). On two occasions during the MTPS sessions, individual participants seem to struggle multi-tasking when invited to strum the guitar and sing whilst still being dependent on the communication board and having to read the PCS all at the same time (see Appendix AI table 2: MTPS, Line C50a) Indiv participant struggle to multi-task reading PCS, sing and strum guitar).

6.4.2 Imitations and associations with PCS and music

Throughout the learning process, the participants in both groups made physical and vocal imitations. In the MTPS sessions there were a lot of participants in both groups making physical imitations of the picture symbols itself (see Appendix AK table 1: MTPS, Line C103a) *Indiv participant imitated PCS by waving movement*). For example, for the picture symbol for the word “me” the picture would consist of a stick figure pointing to itself using its thumb. On many occasions, physical imitations were made where for example a participant will also point to him/herself using his/her thumb when the word “me” is sung during the song (see Appendix AK table 1: MTPS, Line C37a) *Indiv participant imitates PCS by pointing to himself*). Other examples of imitation of picture symbols is where the participants imitated the animals being greeted, for example using one’s arm to imitate that of an elephant’s trunk (see Appendix AK table 2: Line, H136a) *Indiv participant imitate the trunk of an elephant*). There were occasions during the MTPS sessions where vocal imitations of the animals being greeted in the PCS were made. For example, when Mr. Elephant was greeted, the participants made trumpeting vocal sounds thus imitating the trumpeting of an elephant (see Appendix AK table 2: MTPS, Line H58b) *Indiv imitate vocal sound of animal being greeted*). Both groups participated in pretend play by imitating the therapist’s guitar strumming or rocking back, and forth of their upper bodies matching the pulse of the music (see Appendix AK table 1: MTPS, Line E135a) *Participants imitate physical body movement of therapist; MT, Line B80a) Two participants imitate therapist’s movement*). The MT-only sessions had more of these occurrences than the MTPS sessions. As mentioned earlier in the discussion, music can function as a learning medium, especially when multi-sensory modes are being employed, which in this case was the music itself and the movements and imitation the participants made up by the participants themselves during the MT-only sessions. These participants were able to associate with the lyrics, and expressed it through physical movements and imitation. Multi-sensory learning also took place during the MTPS sessions. Both music and

the high iconic images were used as the main learning mediums, and the participants were able to contextualize the lyrics and express it through imitations of the picture symbols itself (as explained by Rouse (2013:227) on page 12 in the literature review). During the first MT-only sessions, both groups' participants made associations of memories or real life event to the lyrics of both songs. For example, the theme of the first song was about animals under the sea. An individual made a personal association with the theme of the song by talking about the beach that was far away, and that one can build castles in the sand (see Appendix AL table 1: MT, Line *B2a*) *Two individuals associated with real life memories*). Then, there were also many associations made that correlated with the intended meaning of the song lyrics during the MT-only sessions through physical movements and vocal sounds. For example: when singing about a fish swimming in the sea, an individual participant imitates the movement of a fish swimming using his/her hands; when singing of a grizzly bear, an individual participant makes growling vocal sounds as shown in the data (see Appendix AL table 1: Line, *G32e*) *Indiv imitate movement and vocal sound of animal*).

6.4.3 Facial expressions and eye-contact

The participants' facial expressions and body language was a learning outcome of the song learning process, as well as the amount of meaningful eye contact they made with the therapist and each other throughout the song learning process. During both MT-only and MTPS sessions, the participant's facial expressions were blunted in affect, specifically during the first two sessions (see Appendix AM table 1: MTPS, Line *A14c*) *Blunted facial expressions*; MT, Line *B8c*) *Participants blunted facial expressions*). The data also indicated that both groups in both sessions' facial expressions shifted to smiles. The MT-only sessions seem to have much more evidence of participant's facial expressions shifting to smiling as well as laughing. The participants giggle and laugh on various occasions during the song learning process in the MT-only sessions (see Appendix AM table 1: MT, Line *D161c*) *Participants smile and laugh*). Both MT-only and MTPS groups presented relaxed, eager and excited body language throughout the song learning process. There were few occasions in which the participants responded in a robotic manner; however the overall body language of both groups and all the sessions seem interested and engaging (see Appendix AM table 2). The MT-only sessions seem to have a larger amount of meaningful eye contact made between the participants and the therapist, or amongst the

participants. Meaningful eye contact was made between the therapist and the participants and the participants self in the MTPS sessions as well, however was less in comparison with the MT-only sessions (see Appendix AM table 2). This may be due to the focused attention on the PCS and communication board the participants were reading as they were singing, thus making eye contact with others difficult to do. The most common symptoms of ASD are impairment or limited ability to convey emotions through facial expression. The overall expression of emotions, whether it is through body language or eye contact, is impaired as well (as stated in the literature review on page 10 (DSM 5, 2013:50-5)). The data results suggest that, through the use of music and PCS in a multi-disciplinary manner, the participants in both groups conveyed some form of self-expression through meaningful eye contact with the therapist and other participants, body language or facial expressions shifting from blunted to smiling expressions of emotions.

6.5 Theme 5: Inter-personal engagement

6.5.1 Group participation

Throughout the song learning process, the quality of the participants' participation and overall level of emotional engagement seem to play a role in the experience of the song learning process. Overall, both MT-only and MTPS sessions quality of singing, guitar strumming and social engagement were energetic and executed with confidence. However, the data suggests that these occurrences were more common during the MT-only sessions than the MTPS sessions. The guitar strumming of the participants in the MT-only sessions seemed to shift and alternate more often; the participants strummed the guitar with more force and energetically on more occasions than during the MTPS sessions (see Appendix AO table 1). The participant's singing quality was executed with more confidence during the MT-only sessions (see Appendix AO table 1: MT, Line *H27a*) *Participants sing loudly and with confidence*). The overall quality of participation such as singing, strumming of guitar and physical movements (such as hopping in chairs or waving of arms) were executed more energetically during the MT-only sessions. The overall quality of participation varied between energetic to lower energy participation within all the sessions in both MT-only and MTPS sessions (see Appendix AO table 1). This suggests that both groups (MT-only and MTPS) were engaging throughout the song learning process, but on different occasions throughout the song learning process.

6.5.2 Musical flexibility

In both the MT-only and MTPS sessions, the participants were musically flexible, i.e. they responded in excitement to unpredictable tempo and dynamic shifts, and were also able to adjust their own singing or playing to the unpredictable changes. However, the analyzed data suggests that during the MT-only sessions the participants were musically flexible on more occasions than the MTPS sessions (see Appendix AO table 2: MTPS, Line *E83a*) *Participants musically adjust tempo and dynamics of singing*; MT, Line *B104b*) *Participants adjust to tempo and dynamic shift with ease*). The participants adjusted to sudden change in tempo and dynamics with ease, and the unpredictable shifts were received as playful and exciting. A person diagnosed with ASD portrays restrictive and repetitive behavioral patterns. The DSM 5 (2013:50-5) clearly explains some of the common symptoms of ASD are insistence of sameness, inflexibility to routine and ritualistic patterns. The participants were able to break away from the routine patterns of the song in terms of tempo and dynamics, and responded in excitement and self-expression through energetic physical movements and expressive quality of singing (see Appendix AO table 2: MTPS, Line *C102c*) *Indiv sing and moves with high energy*; MT, Line *G48a*) *Indiv imitate vocal sound of animal with high energy and playfulness*). Geist *et al.*, (2008:311-313) explain that music therapy techniques allow one to adapt the elements of music such as tempo, rhythm, harmony and melody to promote effective communicative strategies in a therapeutic setting. Music alone can be seen as a useful tool to provide a structure that accentuates the meaning of language in the context of an interactive, enjoyable and motivating stimulus. It is suggested that the music itself provided the structure and patterns that the participants needed in order for them to feel safe and comfortable, to be musically flexible, and to cope with unpredictable dynamic and tempo shifts in the music. The participants were contained by the music itself, but the music also provided the opportunities for them to be self-expressive and to break free from routine, as Geist *et al.*, (2008:311-313) explain.

The overall level of engagement in terms of singing, high energy physical movements and laughter throughout the MT-only sessions seems to occur more than in the MTPS sessions (see Appendix AO table 2: Energy levels). There were acts of spontaneity in both MT-only and MTPS sessions (see Appendix AO table 1: MTPS, Line *A49b*) *Participants spontaneously sing intended*

PCS; MT, Line B24b) *Indiv participant spontaneously sings*). These acts of spontaneity refer to individuals who spontaneously start singing by themselves or spontaneously shouts out answers to questions.

6.6 Conclusion

Clients with communication difficulties require alternative and universal means of communicating. For this research study, PCS and MT were employed in combination to provide these alternative manners of communicating for the participants. The PCS comprised visual and non-verbal gesture such as pointing to PCS on a communication board (Gadburry, 2012:151) to facilitate verbal learning. Music therapy techniques comprised aural, kinesthetic and non-verbal techniques to facilitate verbal learning. The data suggests that the two approaches used in combination provide a rich learning experience for participants as indicated in the following table 5.6.1:

Figure 6.6.1

| Themes and categories | Differences | Similarities |
|-------------------------------|--|--|
| Theme 1: Recollection | | |
| Recollection of lyrics | Better recollection of lyrics in MT-only sessions than MTPS sessions. | Overall good recollection of lyrics making use of both MT and PCS. |
| | MT-only sessions forgot the order of animals being greeted in the chorus section where PCS provided visual cues. In contrast to this the order of the animals being greeted were remembered with every rehearsal of the song during MTPS sessions. | Both music and PCS offered non-verbal reminders of the lyrics and different learning methods used to enhance the recollection of lyrics. |
| | Lyrics were recollected better during the MT sessions due to key words being emphasized by the therapist using various musical techniques. | Both groups were uncertain of the lyrics during the first two sessions in both MT-only and MTPS sessions. |

| | | |
|--|--|---|
| | PCS provided visual cues as a learning tool, and the facilitation of various emphasized musical elements facilitated better sequential recall of the lyrics. | Both PCS and Music Therapy techniques facilitated a better recollection of lyrics making use of own teaching methods in different ways. |
| | MTPS sessions' lyrics were remembered better by the MT group during the learning of the second song which was taught using only MT techniques. | The current study might suggest that with the PCS providing visual cues in combination of the audible cues music offers, the participants were able to recollect the lyrics in various contexts. |
| Recollection of melody | The MT-only group seem to recollect the song's melody better than the MTPS group, as there were more occurrences indicated in the data of the better recollection. | The melodies remained the same for both songs, suggesting that it contributed towards the client-therapist relationship, as it provided the participants with something concrete and familiar to work with. The PCS system offered the same familiarity, as the participants make use of the system daily. |
| Recollection of song form | The song form were remembered very well in the MT-only sessions, whilst the song form in the MTPS sessions were forgotten on various occasions. | Both music and PCS offered non-verbal cues. Used in combination, both provided a kinaesthetic learning experience, as both visual and auditory learning techniques were employed. The use of both techniques provided a multi-sensory learning experience. |
| <u>Theme 2: Music as a learning aid</u> | | |
| Cross-modal learning | Fewer physical interpretations of music, (such as swinging of arms and hand gestures) were made in the MTPS sessions than MT-only sessions. | Both MT-only and MTPS sessions had interpretations of the music made through physically moving bodies to match the pulse of the music |
| | The therapist made more physical interpretations of the music during the MT-only sessions than in the MTPS sessions. | Therapist makes use of non-verbal cues using musical elements in a flexible manner, with visual cues additionally by implementing music therapy techniques in combination of pointing the PCS, thus resulting in a cross-modal learning experience to take place through audible, visual and kinaesthetic aids. |

| | | |
|---|--|--|
| Therapist's musical role | The therapist's dynamics and tempo shifts on more occasions in the MT-only sessions than in the MTPS sessions | |
| Therapist and participant musical participation | The participant's tempo and dynamics were more flexible, shifted and had a more energetic quality to it during the MT-only sessions than in the MTPS sessions. | |
| Qualities of pronunciation and vocal participation | Mumbling of lyrics occurred more during the MT-only sessions than the MTPS sessions. | Both MT-only and MTPS sessions have occurrences of lyrics being mumbled by participants. |
| | The lyrics were pronounced more clearly on more occasions during the MT-only sessions than the MTPS sessions. | Singing qualities vary from monotonic and low energy to playful and energetic, in both MT-only sessions and MTPS sessions. |
| | The therapist vocally emphasized keywords and pronounced the lyrics much more clearly in the MT-only sessions than the MTPS sessions. | Participants' singing was self-expressive in both MT-only sessions and MTPS sessions. |
| | More vocal (singing) participation during MT-only sessions than MTPS sessions. | Expressive singing, accompanied with physical movement, occurs during both MT-only and MTPS sessions. |
| | More occasions of varying singing qualities occur during MT-only sessions than MTPS sessions. | Multi-sensory learning experience, using music flexible in combination with PCS, provides deeper learning and allows self-expression |
| | More occasions of varying singing qualities occur during MT-only sessions than MTPS sessions. | |
| Theme 3: Picture symbols as learning aid | | |

| | | |
|--------------------------------------|---|---|
| PCS recognition and iconicity | Participants recognize PCS with ease. | Participants made their own personal meanings and associations with the PCS, which were expressed through physical movements and imitations of the PCS itself as well as through the music, by shifting and adjusting their quality of singing. |
| | The PCS used for the songs were highly iconic. | PCS served as a non-verbal and visual cue, which provided a multi-sensory learning experience in combination with the non-verbal audible cues the music offered. |
| | Participants were dependent on the PCS for recollecting the lyrics. | |
| | The iconicity of the PCS assisted with the recollection of the lyrics. | |
| | In the MT-only sessions the participants were solely dependent on the memorization of lyrics. In MTPS sessions the participants had PCS as visual learning aids to assist. | |
| | Participants read PCS by themselves. | |
| | Individual participants pointed to the correct PCS most of the time. | |
| | Few occasions occurred in which the incorrect PCS were pointed out at the incorrect time by individual participants. | |
| Theme 4: Learning outcomes | | |
| Focussed attention | In many occurrences there was focussed attention on the music itself and therapists' guitar playing during the MT-only sessions. The most focussed attention during the MTPS sessions was towards the PCS on communication board. | The PCS served as visual aids, and musical elements such as tempo and dynamics served as audible aids, which both assisted in the learning outcome of recollection of the lyrics in their individual ways |

| | | |
|---|--|--|
| | Participants struggled to multi-task the strumming of the guitar, singing and reading of PCS, whilst fewer occasions of struggling to multi-task singing and strumming the guitar only occurred during the MT-only sessions. | Imitations of therapist physical rocking of upper body and guitar playing occurred during both the MT-only sessions and the MTPS sessions. |
| Imitations and associations with PCS and music | Vocal imitations of animals in the songs took place spontaneously only during MTPS sessions. | Music and PCS in combination served as a multi-sensory learning experience, as the participants engaged in expression of their own associations of the songs through movement and vocalizations in both the MT-only sessions and the MTPS session. |
| | | Blunted facial expressions were observed on many occasions during both the MT-only sessions and the MTPS sessions. |
| | | Facial expressions shifted to smiling in both MT-only sessions and MTPS sessions. |
| Facial expressions and eye-contact | Participants laughing with joy only occurred during MT-only sessions. | Relaxed and interested body language was observed during both the MT-only sessions and MTPS sessions. |
| | More meaningful eye-contact was made with the therapist and others during the MT-only sessions than the MTPS sessions. | Meaningful eye-contact with the therapist and others occurred in both MT-only sessions and MTPS sessions. |
| | Less eye-contact was made with the therapist and others during the MTPS sessions due to reading PCS on the communication board. | |
| | The combination of both music and PCS provided a framework in which participants could be self-expressive using eye contact, facial expressions and body language. | |
| Theme 5: Inter-personal engagement | | |

| | | |
|----------------------------|--|---|
| Group participation | More occasions where observed in which the quality of the participants guitar strumming shifted to more energetic and vigorous strumming during the MT-only sessions than the MTPS sessions. | The quality of the participants guitar strumming shifted to energetic and vigorous quality of strumming during both MT-only sessions and MTPS sessions. |
| | Participants sang with more confidence during the MT-only sessions than in the MTPS sessions. | Confident singing qualities were observed during both MT-only sessions and MTPS sessions. |
| | High energy movements occur on more occasions during the MT-only sessions than in the MTPS sessions. | High energy movements occur on many occasions during both MT-only sessions and MTPS sessions. |
| | | The music itself, as well as PCS, kept the participants socially and inter-personally engaged throughout the song learning process. |
| | | Sudden musical shifts were received as playful and exciting during both the MT-only sessions and the MTPS sessions. |
| Musical flexibility | | Participants were musically able to break away from routines and ritualistic patterns during both MT-only sessions and MTPS sessions. |
| | | The music, as well as the PCS and the communication board, provided structure and a concrete framework which contained the participants very well throughout the song learning process |
| | | Participants responded and behaved spontaneous on numerous occasions during both MT-only sessions and MTPS sessions. |
| | | The therapist provided non-verbal cues by means of body language, guitar accompaniment, modelling, pointing to PCS, and by using musical elements such as dynamics and tempo in a flexible manner |

| | | |
|--|--|--|
| <p>Therapist's interactive role</p> | <p>The therapist made use of non-verbal modelling by means of guitar accompaniment and used her body language to interact with the participants during the MT-only sessions. During the MTPS sessions, the therapist interacted with the participants by means of non-verbal modelling by pointing to the appropriate PCS, whilst making use of the guitar accompaniment additionally.</p> | <p>Verbal interaction and verbal cues were reinforced during both MT-only sessions and MTPS sessions.</p> |
| | <p>The therapist verbally invited participants to sing on more occasions during the MT-only sessions than the MTPS sessions.</p> | <p>Therapist gives verbal affirmation for the participant's musical offerings in both MT-only sessions and MTPS sessions.</p> |
| | <p>The therapist verbally invited participants to point the PCS and read the PCS by themselves.</p> | <p>The therapist verbally invited participants to strum the guitar on many occasions during both MT-only sessions and MTPS sessions.</p> |
| | | <p>The therapist verbally invited participants to sing during both MT-only and MTPS sessions on numerous occasions.</p> |
| | | <p>Therapist asked song-related questions during both MT-only sessions and MTPS sessions.</p> |

Chapter 7: Conclusion and limitations

The present study set out to explore the use of PCS and Music Therapy in combination in learning a new song for children diagnosed with ASD. The similarities and differences in the song learning process during the MTPS and MT-only sessions concluded that both therapeutic mediums offered multi-modal learning experience in different and unique ways. The results suggest that both music and PCS served as non-verbal musical and visual cues for the participants to effectively learn a new song. The results were concluded based on the analyzed data, and were thereafter linked to appropriate and available literature.

The conclusion suggests that the combination of PCS and Music Therapy in learning a song offered opportunities for the participants to recall sung lyrics using different learning methods, engage in instrumental play like strumming the guitar, be self-expressive, engage in spontaneous behavior, be musically flexible, and participate in a group activity with their peers. The music itself, as well as the Music Therapy techniques the music therapist employed throughout the sessions, served as non-verbal cues, which were socially engaging, kept the participants focused at the task at hand, and also provided a concrete framework in which the participants could be self-expressive and musically flexible. The PCS served as a non-verbal cue, which provided the participants with comprehensible and familiar tools, in order to recollect the lyrics using visual aids. Both mediums used in combination served as cross-modal learning experience as supported by literature.

The present study found that, overall, the participants had a better recollection of the lyrics during the MT-only sessions than the MTPS sessions. As seen in the data, this might suggest that engagement such as higher occurrences of meaningful-eye contact, physical limitations and own associations made with the content of the songs (which were higher in the MT-only sessions) played a role. The participants did not have the visual cues the PCS provided, thus they had to rely more on the therapist to remind them of the lyrics, and also rely on memorization of the lyrics. During the MTPS sessions the recollection of lyrics were also high; however, the recollection was lower than during the MT-only sessions. In these sessions the participants had very few struggles remembering the chorus section's lyrics where animals are being greeted in a certain order, because they had the visual cues in front of them; on the other hand, in the MT-only sessions they seem to forget the order of the animals being greeted. When music therapy techniques were employed in combination with PCS as visual cues, the participants seem to make less eye-

contact; fewer shifts in their quality singing occurred, and overall group participation was less, as the participants were solely focused on reading the PCS on the communication board.

The therapist also played a role in the conducted study. During the MTPS sessions, the therapist directed attention to the communication board most of the time, which was less engaging with the participants, as she herself was looking and focusing on the communication board and ensuring the participants read the correct PCS at the appropriate time during the songs. During the second and third sessions the participants were more familiar with the lyrics, as in session one and the therapist could invite individual participants to point to the PCS, or strum the guitar, or the group could read the PCS by themselves, thus allowing more opportunity to social engagement.

It is noteworthy that the participants in MTPS sessions forgot the form of the songs. They would often forget to repeat a verse or stop pointing to the appropriate PCS, as they would seem to think the song ended in the middle of the song. In contrast to the MTPS sessions, this never occurred during the MT-only sessions. This might suggest that the music itself provided a well-structured form, which provided a natural flow to the song. The therapist's non-verbal and physical cues (such as facial expressions and body language) provided the participants with sufficient insight to remember the song form. This also might have played a role which resulted in a better recollection of the song form.

Recommendations for future research include i) further exploration of the cross-modal learning potential of the use of melody in song learning in combination with PCS, ii) varying more elements of the song learning process i.e. different melody for different songs, iii) increasing the the number of sessions, iv) conducting similar studies in different contexts.

A limitation of the current study is that the sample for this research study was small and the study was only conducted at only one site. This limits generalizability. It is also important to consider that, due to the nature of ASD, it must be understood that six therapy sessions were not sufficient enough to build a concrete client-therapist relationship with the participants; however, it is important to keep in mind that the focus of the study was to observe the process of learning a new song with different aids assisting this specific client group.

From the findings of the current study, it can be concluded that both Music Therapy and PCS

offered a different learning experience for both groups. When used in combination, whether it was reinforced simultaneously or separate within a session, a multi-sensory learning experience was provided. This offered the participants with the tools to be spontaneous, self-expressive and socially and musically flexible, thus breaking away from the ritualistic and common symptoms of ASD. Both techniques provided the participants with non-verbal and comprehensible cues, which promoted and reinforced the recollection of both the songs thus making them a compatible combination to work with.

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Chapter 9: Appendices

Appendix A: Thick description MTPS session activities

Thick description of session number: ____

Group ____ with Music Therapy and PCS

Greeting song:

Drum activity:

Song learning:

Greeting song:

Appendix B: Thick description MT-only session activities

Thick description of session number: ____

Group ____ with Music Therapy

| |
|----------------|
| Greeting song: |
| Drum activity: |
| Song learning: |
| Greeting song: |

Appendix C: Session checklist MTPS

Date: _____

Group: _____

Session number: _____

Greeting song

- Learning of the same words and melody
- Greeting each participant individually by singing of names
- Wave movements
- Guitar as accompaniment

Drumming activity

- Improvisation
- Turn Taking game

Song learning

- Use of line drawing communication board
- Teaching of words using pictures
- Use of guitar as accompaniment

Greeting song

- Learning of the same words and melody
- Greeting each participant individually by singing of names
- Wave movements
- Guitar as accompaniment

Appendix D: Session checklist MT-only

Date: _____

Group: _____

Session number: _____

Greeting song

- Learning of the same words and melody
- Greeting each participant individually by singing of names
- Wave movements
- Guitar as accompaniment

Drumming activity

- Improvisation
- Turn Taking game

Song learning

- Use of guitar as accompaniment
- Repeat words of the song slowly
- Break song up into short phrases, teach it phrase by phrase

Greeting song

- Learning of the same words and melody
- Greeting each participant individually by singing of names
- Wave movements
- Guitar as accompaniment

Appendix E: Information letter (Unica Headmaster)

FACULTY OF HUMANITIES
MUSIC DEPARTMENT
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FAX (012) 420-2248



UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA

MUSIC THERAPY PROGRAMME
TEL (012) 420-2614
FAX (012) 420-4351
www.up.ac.za/academic/music/music.html

Date:

Participant information form

Study title: Song learning within Group Music Therapy in combination with Picture Communication Symbols (PCS) for children diagnosed with Autism Spectrum Disorder (ASD)

Dear acting principle at Unica School

As partial fulfilment of the Masters degree in music therapy degree at the University of Pretoria, I propose to conduct a study on exploring the process of song learning using Picture Communication Symbols (referred to as PCS) as an aid in music therapy for children diagnosed with Autism Spectrum Disorder. It would be meaningful to conduct the study at Unica School for Autism as the school and students are familiar with the PCS system and meet the criteria for the study's chosen client group.

The criteria for the participants participating in the study are the following: participants will be higher functioning students diagnosed with Autism Spectrum Disorder. The participants will be selected based on their level of functioning and verbal abilities. The participants must be able to vocalize sound or be able to use spoken language as well as understand the line drawings method. They must also be able to understand English.

I plan to conduct six weekly sessions within the time frame of two weeks with two groups consisting of participants who have met the above mentioned criteria. The sessions will take place during times that will be discussed with you and all involved so not to have a negative or inconvenient impact on other school activities or academic classes. Each session will be more or less 20 minutes long. The participants will be divided into two groups. The first three sessions will consist of the one group learning a song using music therapy techniques only whilst, in the control group, PCS will be employed in addition to the music therapy techniques. In sessions four to six the groups will learn a new song similar to the previous song only this time the groups will swap. This ensures that both groups are taught an unfamiliar song using music therapy techniques as well as with the aid of PCS techniques.

The sessions will be video-recorded. This is a standard practice in music therapy as analysis of these recordings inform the manner in which the next sessions will be conducted. These sessions will be analysed as part of the analyses process of the research study.

All information collected will be treated as confidential and none of the participant's identity will be used in the transcript of the data or within the dissertation. Participation is voluntary and the learners are free to withdraw at any stage during the process. Should any student withdraw during the process, all data regarding him/her will be destroyed.

All data collected will be stored at the University of Pretoria for 15 years. After completion, the dissertations will be made available through the University of Pretoria Library.

Please do not hesitate to contact me should you have any questions or concerns. I greatly appreciate being granted the opportunity to conduct this study at your school. If you consent to your school's participation, the necessary information and consent forms will be passed onto the participants' parents/guardians.

Thank you.

Hermi Viljoen

Researcher / Registered music therapy student

herb_viljoen@hotmail.com

Appendix F: Information letter (School Governing Body)

FACULTY OF HUMANITIES
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MUSIC THERAPY PROGRAMME
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www.up.ac.za/academic/music/music.html

Date:

Participant information

Study title: Song learning within Group Music Therapy in combination with Picture Communication Symbols (PCS) for children diagnosed with Autism Spectrum Disorder (ASD)

To whom it may concern

As partial fulfilment of the Masters degree in music therapy degree at the University of Pretoria, I propose to conduct a study on exploring the process of song learning using Picture Communication Symbols (referred to as PCS) as an aid in music therapy for children diagnosed with Autism Spectrum Disorder. It would be meaningful to conduct the study at Unica School for Autism as the school and students are familiar with the PCS system and meet the criteria for the study's chosen client group.

The criteria for the participants participating in the study are the following: participants will be higher functioning students diagnosed with Autism Spectrum Disorder. The participants will be selected based on their level of functioning and verbal abilities. The participants must be able to vocalize sound or be able to use spoken language as well as understand the line drawings method. They must also be able to understand English.

I plan to conduct one weekly session within the time frame of three weeks with two groups consisting of participants who have met the above mentioned criteria. The sessions will take place during times that will be discussed with the school and all others involved so not to have a negative or inconvenient impact on other school activities or academic classes. Each session will be more or less 20 minutes long. The participants will be divided into two groups. The first three sessions will consist of the one group learning a song using music therapy techniques only whilst, in the control group, PCS will be employed in addition to the music therapy techniques. In sessions four to six the groups will learn a new song similar to the previous song only this time the groups will swap. This ensures that both groups are taught an unfamiliar song using music therapy techniques as well as with the aid of PCS techniques.

The sessions will be video-recorded. This is a standard practice in music therapy as analysis of these recordings inform the manner in which the next sessions will be conducted. These sessions will be analysed as part of the analysis process of the research study.

All information collected will be treated as confidential and none of the participant's identity will be used in the transcript of the data or within the dissertation. Participation is voluntary and the learners are free to withdraw at any stage during the process. Should any student withdraw during the process, all data regarding him/her will be destroyed.

All data collected will be stored at the University of Pretoria for 15 years. After completion, the dissertations will be made available through the University of Pretoria Library.

Please do not hesitate to contact me should you have any questions or concerns. If you consent to the schools participation, the necessary information and consent forms will be passed onto the participants parents/guardians as well as the headmaster of Unica.

Thank you.

Hermi Viljoen

Researcher / Registered music therapy student

herb_viljoen@hotmail.com

Appendix G: Information letter (Parents/Guardians)

FACULTY OF HUMANITIES
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www.up.ac.za/academic/music/music.html



Date:

Participant information

Study title: Song learning within Group Music Therapy in combination with Picture Communication Symbols (PCS) for children diagnosed with Autism Spectrum Disorder (ASD)

Dear Parent/Guardian

As partial fulfilment of the Masters degree in music therapy degree at the University of Pretoria, I propose to conduct a study on exploring the process of song learning using Picture Communication Symbols (referred to as PCS) as an aid in music therapy for children diagnosed with Autism Spectrum Disorder. It would be meaningful to conduct the study at UNICA School for Autism as the school and students are familiar with the PCS system and meet the criteria for the study's chosen client group.

The criteria for the participants participating in the study are the following: participants will be higher functioning students diagnosed with Autism Spectrum Disorder. The participants will be selected based on their level of functioning and verbal abilities. The participants must be able to vocalize sound or be able to use spoken language as well as understand the line drawings method. They must also be able to understand English.

I plan to conduct one weekly session within the time frame of three weeks with two groups consisting of participants who have met the above mentioned criteria. The sessions will take place during times that will be discussed with you and all involved so not to have a negative or inconvenient impact on other school activities or academic classes. Each session will be more or less 20 minutes long. The participants will be divided into two groups. The first three sessions will consist of the one group learning a song using music therapy techniques only whilst, in the control group, PCS will be employed in addition to the music therapy techniques. In sessions four to six the groups will learn a new song similar to the previous song only this time the groups will swap. This ensures that both groups are taught an unfamiliar song using music therapy techniques as well as with the aid of PCS techniques.

The sessions will be video-recorded. This is a standard practice in music therapy as analysis of these recordings inform the manner in which the next sessions will be conducted. These sessions will be analysed as part of the analyses process of the research study.

All information collected will be treated as confidential and none of the participant's identity will be used in the transcript of the data or within the dissertation. Participation is voluntary and the learners are free to withdraw at any stage during the process. Should any student withdraw during the process, all data regarding him/her will be destroyed.

All data collected will be stored at the University of Pretoria for 15 years. After completion, the dissertations will be made available through the University of Pretoria Library.

Please do not hesitate to contact me should you have any questions or concerns. I greatly appreciate being granted the opportunity to conduct this study with your child. If you consent to your child's participation, please complete the attached consent form.

Thank you.

Hermi Viljoen

Researcher / Registered music therapy student

herb_viljoen@hotmail.com

Appendix H: Consent form (Unica School for Autism)

FACULTY OF HUMANITIES
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UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA

MUSIC THERAPY PROGRAMME
TEL (012) 420-2614
FAX (012) 420-4351
www.up.ac.za/academic/music/music.html

Date:

MUSIC THERAPY SESSION: PERMISSION FOR ATTENDANCE AND TO RECORD

I _____, headmaster of Unica School for Autism, hereby grant permission for _____ to take part in a research study conducted at Unica School for Autism from _____ to _____ 2016. I also grant permissions for the total of three sessions to be recorded onto video. I understand that these recordings will be used for research and educational purposes as part of the music therapy student's research study. I understand that the visual and audio recordings of the sessions are standard music therapy and research practice enabling detailed analysis of the sessions in order to gain data for the ongoing research study. Privacy and confidentiality are assured, in line with professional ethical practice. At the end of the research study the video material will become the property of the Music Department, University of Pretoria. The material will not be distributed nor sold.

Name and signature: Please also state relationship
to client: (relative, guardian, care-worker, etc) _____
Placement/Institution representative: _____
MMus (MT) Student and student number: _____
MMus (MT) Student signature: _____
Music therapy Student supervisor: _____

Appendix I: Consent form (Parents/Guardians)

FACULTY OF HUMANITIES
MUSIC DEPARTMENT
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UNIVERSITEIT VAN PRETORIA
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www.up.ac.za/academic/music/music.html

Date:

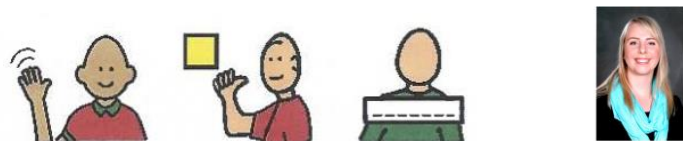
MUSIC THERAPY SESSION: PERMISSION FOR ATTENDANCE AND TO RECORD

I _____, parent/guardian of _____ grant permission for _____ to take part in a research study conducted at Unica School for Autism from _____ to _____ 2016. I also grant permissions for the total of three sessions to be recorded onto video. I understand that these recordings will be used for research and educational purposes as part of the music therapy student's research study. I understand that the visual and audio recordings of the sessions are standard music therapy and research practice enabling detailed analysis of the sessions in order to gain data for the ongoing research study. Privacy and confidentiality are assured, in line with professional ethical practice. At the end of the research study the video material will become the property of the Music Department, University of Pretoria. The material will not be distributed nor sold.

Name and signature: Please also state relationship
to client: (relative, guardian, care-worker, etc) _____
Placement/Institution representative: _____
MMus (MT) Student and student number: _____
MMus (MT) Student signature: _____
Music therapy Student supervisor: _____

Appendix J: Assent letter (Participant)

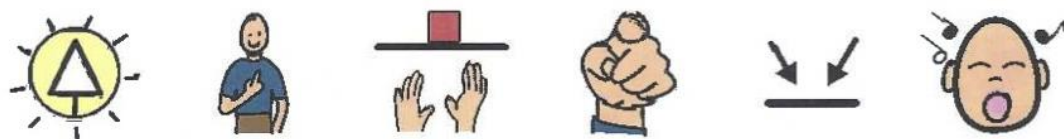
CHILD ASSENT LETTER



Hello, my name is Hermi.



I need your help.



Today I want you to sing



and play with me.



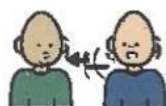
If you do not want to play or



sing



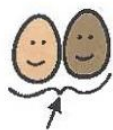
please



tell



me.



We



are going



to



have lots of



fun.



I am going



to



make a video



of you



playing



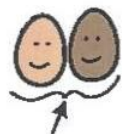
and



singing.



First



we



will sing



our



hello



song.



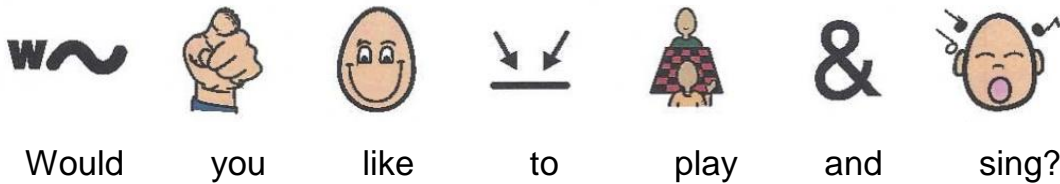
Then we will play on the drums.



Then we will learn a new song.



And then we will sing a goodbye song.



Would you like to play and sing?








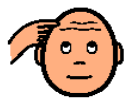

Now let us complete the form.

Appendix K: Assent form (Participant)
CHILD ASSENT FORM

Date: _____

Name of child: _____ Age: _____

Make a tick next to the one that you choose:

| | | | |
|---|---|--------|----|
|  | Did somebody tell to you what you will do today? | | |
| | Yes | Unsure | No |
|  | Do you understand that you may choose to help me? | | |
| | Yes | Unsure | No |
|  | Do you understand that you may stop when you want to? | | |
| | Yes | Unsure | No |
|  | Will you allow me to video record you? | | |
| | Yes | Unsure | No |
| Do you have _____?  | Do you have any questions to ask me? | | |
| | Yes | Unsure | No |
|  | Do you understand what I explained to you? | | |
| | Yes | Unsure | No |
|  | Would you like to help me today? | | |
| | Yes | Unsure | No |

Appendix L: Permission letter (UNICA School for Autism)



UNICA SCHOOL FOR CHILDREN WITH AUTISM

P.O. BOX 35182, MENLO PARK, 0102
TEL: 012 460 6539 / 012 346 1103
FAX: 012 460 6324
HOSTEL: 012 329 0647

REG NO: CDE 211179 TS 04
ACTING PRINCIPAL: Mrs A J. PERUMAL

Email: admin@unicaschool.co.za

11 April 2016

RESEARCH AT UNICA SCHOOL

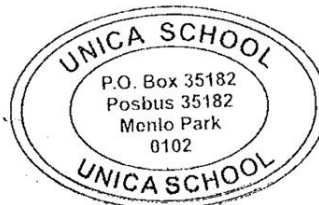
Topic: Song learning within Group Music Therapy in combination with Picture Communication Symbols (PCS) for children diagnosed with Autism Spectrum Disorder (ASD).

We herewith give permission to Hermi Viljoen to conduct the proposed research at our school.

Thank you for your interest in our school. We kindly request that a bound copy of the research project as well as any articles be made available to Unica school upon completion.

Sincerely,

Mrs AJ Perumal



Appendix M: Permissions letter (Ethics Committee UP)



UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

Faculty of Humanities
Research Ethics Committee

12 April 2016

Dear Prof Johnson

Project: Song learning with group music therapy in combination with Picture Communication Symbols (PCS) for children diagnosed with Autism Spectrum Disorder (ASD)
Researcher: H Viljoen
Supervisor: Ms C Lotter
Department: Music
Reference number: 10240323 (GW20160201HS)

Thank you for the response to the Committee's correspondence 7 March 2016.

I have pleasure in informing you that the Research Ethics Committee formally **approved** the above study at an *ad hoc* meeting held on 12 April 2016. Data collection may therefore commence.

Please note that this approval is based on the assumption that the research will be carried out along the lines laid out in the proposal. Should your actual research depart significantly from the proposed research, it will be necessary to apply for a new research approval and ethical clearance.

The Committee requests you to convey this approval to the researcher.

We wish you success with the project.

Sincerely

Prof. Maxi Schoeman
Deputy Dean: Postgraduate Studies and Ethics
Faculty of Humanities
UNIVERSITY OF PRETORIA
e-mail: tracey.andrew@up.ac.za

Kindly note that your original signed approval certificate will be sent to your supervisor via the Head of Department. Please liaise with your supervisor.

Research Ethics Committee Members: Prof MME Schoeman (Deputy Dean); Prof KL Harris; Dr L Blokland; Dr R Fassell; Ms KT Govinder; Dr E Johnson; Dr C Panebianco; Dr C Puttergill; Dr D Reyburn; Prof GM Spies; Prof E Taljard; Ms B Tsebe; Dr E van der Klashorst; Mr V Sithole

Appendix N: Permission letter (School Governing Body (GDE))



GAUTENG PROVINCE
EDUCATION
REPUBLIC OF SOUTH AFRICA

For administrative use:
Reference no. D2016 / 434 A
Enquiries: Diane Bunting 011 843 6503

GDE AMENDED RESEARCH APPROVAL LETTER

| | |
|--|--|
| Date: | 16 March 2016 |
| Validity of Research Approval: | 16 March 2016 to 30 September 2016 |
| Previous GDE Research Approval letter reference number | D2016 / 321 A dated 27 October 2015 and D2016 / 184 dated 27 July 2015 |
| Name of Researcher: | Viljoen H. |
| Address of Researcher: | 109 Limpopo Avenue, Lyttelton Manor; Extension 3; Pretoria; 0157 |
| Telephone / Fax Number/s: | 060 620 8630 |
| Email address: | herb_viljoen@hotmail.com |
| Research Topic: | Song learning with Music therapy in combination with Picture Communication Symbols (PCS) for children diagnosed with Autism Spectrum Disorder (ASD). |
| Number and type of schools: | ONE LSEN school |
| District/s/HO | Tshwane South |

Re: Approval in Respect of Request to Conduct Research

This letter serves to indicate that approval is hereby granted to the above-mentioned researcher to proceed with research in respect of the study indicated above. The onus rests with the researcher to negotiate appropriate and relevant time schedules with the school/s and/or offices involved. A separate copy of this letter must be presented to the Principal, SGB and the relevant District/Head Office Senior Manager confirming that permission has been granted for the research to be conducted. However participation is VOLUNTARY.

The following conditions apply to GDE research. The researcher has agreed to and may proceed with the above study subject to the conditions listed below being met. Approval may be withdrawn should any of the conditions listed below be flouted:

CONDITIONS FOR CONDUCTING RESEARCH IN GDE

1. The District/Head Office Senior Manager/s concerned, the Principal/s and the chairperson/s of the School Governing Body (SGB.) must be presented with a copy of this letter.

Handwritten: Halle 2016/03/18

Making education a societal priority

Office of the Director: Education Research and Knowledge Management ER&KM)

9th Floor, 111 Commissioner Street, Johannesburg, 2001
S. C. No. 7710, 155-156-157-158-159-160-161-162-163-164-165-166-167-168-169-170-171-172-173-174-175-176-177-178-179-180-181-182-183-184-185-186-187-188-189-190-191-192-193-194-195-196-197-198-199-200-201-202-203-204-205-206-207-208-209-210-211-212-213-214-215-216-217-218-219-220-221-222-223-224-225-226-227-228-229-230-231-232-233-234-235-236-237-238-239-240-241-242-243-244-245-246-247-248-249-250-251-252-253-254-255-256-257-258-259-260-261-262-263-264-265-266-267-268-269-270-271-272-273-274-275-276-277-278-279-280-281-282-283-284-285-286-287-288-289-290-291-292-293-294-295-296-297-298-299-300-301-302-303-304-305-306-307-308-309-310-311-312-313-314-315-316-317-318-319-320-321-322-323-324-325-326-327-328-329-330-331-332-333-334-335-336-337-338-339-340-341-342-343-344-345-346-347-348-349-350-351-352-353-354-355-356-357-358-359-360-361-362-363-364-365-366-367-368-369-370-371-372-373-374-375-376-377-378-379-380-381-382-383-384-385-386-387-388-389-390-391-392-393-394-395-396-397-398-399-400-401-402-403-404-405-406-407-408-409-410-411-412-413-414-415-416-417-418-419-420-421-422-423-424-425-426-427-428-429-430-431-432-433-434-435-436-437-438-439-440-441-442-443-444-445-446-447-448-449-450-451-452-453-454-455-456-457-458-459-460-461-462-463-464-465-466-467-468-469-470-471-472-473-474-475-476-477-478-479-480-481-482-483-484-485-486-487-488-489-490-491-492-493-494-495-496-497-498-499-500-501-502-503-504-505-506-507-508-509-510-511-512-513-514-515-516-517-518-519-520-521-522-523-524-525-526-527-528-529-530-531-532-533-534-535-536-537-538-539-540-541-542-543-544-545-546-547-548-549-550-551-552-553-554-555-556-557-558-559-560-561-562-563-564-565-566-567-568-569-570-571-572-573-574-575-576-577-578-579-580-581-582-583-584-585-586-587-588-589-590-591-592-593-594-595-596-597-598-599-600-601-602-603-604-605-606-607-608-609-610-611-612-613-614-615-616-617-618-619-620-621-622-623-624-625-626-627-628-629-630-631-632-633-634-635-636-637-638-639-640-641-642-643-644-645-646-647-648-649-650-651-652-653-654-655-656-657-658-659-660-661-662-663-664-665-666-667-668-669-670-671-672-673-674-675-676-677-678-679-680-681-682-683-684-685-686-687-688-689-690-691-692-693-694-695-696-697-698-699-700-701-702-703-704-705-706-707-708-709-710-711-712-713-714-715-716-717-718-719-720-721-722-723-724-725-726-727-728-729-730-731-732-733-734-735-736-737-738-739-740-741-742-743-744-745-746-747-748-749-750-751-752-753-754-755-756-757-758-759-760-761-762-763-764-765-766-767-768-769-770-771-772-773-774-775-776-777-778-779-780-781-782-783-784-785-786-787-788-789-790-791-792-793-794-795-796-797-798-799-800-801-802-803-804-805-806-807-808-809-810-811-812-813-814-815-816-817-818-819-820-821-822-823-824-825-826-827-828-829-830-831-832-833-834-835-836-837-838-839-840-841-842-843-844-845-846-847-848-849-850-851-852-853-854-855-856-857-858-859-860-861-862-863-864-865-866-867-868-869-870-871-872-873-874-875-876-877-878-879-880-881-882-883-884-885-886-887-888-889-890-891-892-893-894-895-896-897-898-899-900-901-902-903-904-905-906-907-908-909-910-911-912-913-914-915-916-917-918-919-920-921-922-923-924-925-926-927-928-929-930-931-932-933-934-935-936-937-938-939-940-941-942-943-944-945-946-947-948-949-950-951-952-953-954-955-956-957-958-959-960-961-962-963-964-965-966-967-968-969-970-971-972-973-974-975-976-977-978-979-980-981-982-983-984-985-986-987-988-989-990-991-992-993-994-995-996-997-998-999-1000

2. The Researcher will make every effort to obtain the goodwill and co-operation of the GDE District officials, principals, SGBs, teachers, parents and learners involved. Participation is voluntary and additional remuneration will not be paid;
3. Research may only be conducted after school hours so that the normal school programme is not interrupted. The Principal and/or Director must be consulted about an appropriate time when the researcher/s may carry out their research at the sites that they manage.
4. Research may only commence from the second week of February and must be concluded by the end of the THIRD quarter of the academic year. If incomplete, an amended Research Approval letter may be requested to conduct research in the following year.
5. Items 6 and 7 will not apply to any research effort being undertaken on behalf of the GDE. Such research will have been commissioned and be paid for by the Gauteng Department of Education.
6. It is the researcher's responsibility to obtain written consent from the SGB/s; principal/s, educator/s, parents and learners, as applicable, before commencing with research.
7. The researcher is responsible for supplying and utilizing his/her own research resources, such as stationery, photocopies, transport, faxes and telephones and should not depend on the goodwill of the institution/s, staff and/or the office/s visited for supplying such resources.
8. The names of the GDE officials, schools, principals, parents, teachers and learners that participate in the study may not appear in the research title, report or summary.
9. On completion of the study the researcher must supply the Director: Education Research and Knowledge Management, with electronic copies of the Research Report, Thesis, Dissertation as well as a Research Summary (on the GDE Summary template). Failure to submit your Research Report, Thesis, Dissertation and Research Summary on completion of your studies / project – a month after graduation or project completion - may result in permission being withheld from you and your Supervisor in future.
10. The researcher may be expected to provide short presentations on the purpose, findings and recommendations of his/her research to both GDE officials and the schools concerned;
11. Should the researcher have been involved with research at a school and/or a district/head office level, the Director/s and school/s concerned must also be supplied with a brief summary of the purpose, findings and recommendations of the research study.

The Gauteng Department of Education wishes you well in this important undertaking and looks forward to examining the findings of your research study.

Kind regards

Dr David Makhado

Dr David Makhado

Director: Education Research and Knowledge Management

DATE: *2016/03/18*

Appendix O: Thick descriptions A

| | | |
|-----------------------------|---|--|
| A | Under the water | |
| 18-Apr-16 | Session 1 with PCS Group A | |
| Time (minutes into session) | Transcribed sessions | Coding |
| 9:20 | | |
| Line 1 | I show the board with the picture symbols to the participants | |
| Line 2 | Tshepo and Jack lean forward in their seats to look closer at the symbols to see the PCS better, they seem very focused on the board | A2a) Participants interested in PCS A2b) Participants focused on PCS |
| Line 3 | The first symbol I point to is the symbol of the word "under" | A3a) Therapist direct attention to PCS |
| Line 4 | I ask the participants what word the picture symbol represents | A4a) Therapist ask participants question about PCS |
| Line 5 | Tshepo is first to answer that the symbol means "down". The overall energy of the participants are very low but they seem focused on the board as they attentively watch my finger point to the PCS | A5a) Participant identifies PCS to a word A5b) Participant associate PCS with own meaning A5c) Participants participate with low energy A5d) Participants focused on PCS |
| Line 6 | Other members agree with him | A6a) group agrees with associated PCS meaning |
| Line 7 | I explain to him that the symbol means "under" in the song | A7a) Therapist explain word represented by PCS |

| | | |
|---------|---|--|
| Line 8 | I point to the next symbol representing the word "water" | A8a) Therapist direct attention to PCS |
| Line 9 | The participants find this symbol much easier | A9a) Participants recognize PCS with ease A9b) Iconicity of word seems higher |
| Line 10 | All participants say together that the symbol means "water" | A10a) group agrees with intended PCS meaning |
| 9:34 | | |
| Line 11 | I start to sing the first two lines of the song while pointing to the symbols that match the words | A11a) Therapist verbally model melody and rhythm of first verse section A11b) Therapist direct attention to PCS |
| Line 12 | After I sing it to them I invite them to sing with me the same two lines I had just modeled for them | A12a) Therapist invite participants to sing A12b) Repetition of verse |
| Line 13 | Tshepo, Jack and Ellen lean forward from their seats and sing softly and slowly with me with very low energy | A13a) Participants interested in PCS A13c) Participants sing softly and slowly with therapist A13d) Participants engage with low energy |
| Line 14 | They closely watch my finger as I point to the symbols with blunted facial expressions | A14a) Therapist direct attention to PCS A14b) Participants focused on PCS A14c) Blunted facial expressions |
| Line 15 | After we sing the first two lines together I continue with the next line, which consists of the first symbol being "under" as in the first very first line while I point to the matching picture symbols. The participants remember the words "water" from the first two line with ease | A15a) Therapist introduce/model melody and rhythm of second verse section A15b) Therapist direct attention to PCS A15c) Repetition of verse A15d) Iconicity of word seems higher |
| Line 16 | The participants automatically start singing the words very softly and recognize the last symbol "sea" | A16a) Participants sing softly A16b) Participants remember PCS with ease A16c) Iconicity of words seems higher |
| Line 17 | I praise them for their effort | A17a) Therapist verbally give praise |

| | | |
|---------|---|--|
| 9:47 | | |
| Line 18 | I invite the group members to sing the song from the beginning with me | A18a) Therapist invite participants to sing A18b) Repetition of verse |
| Line 19 | We sing it together; Tshepo, Jack and Ellen is still leaning forward in their chairs to look at the communication board closely | A19a) Participants sing with therapist A19b) Participants interested in PCS |
| Line 20 | They follow my finger as I point to the symbols | A20a) Therapist direct attention to PCS A20b) Participants focused on PCS |
| Line 21 | They sing softly and slowly and with very low energy | A21a) Participants sing softly and slowly A21b) Low energy |
| Line 22 | It almost sounds like they are mumbling the words more than they are singing it | A22a) Mumbling of words |
| 9:56 | | |
| Line 23 | After I praise them for singing the correct words, I continue to with the song | A23a) Therapist verbally give praise A23b) Repetition of verse |
| Line 24 | There were no symbols available for the words "lots and lots" so I sing it very slowly and clearly to which the participants mumble the words with me | A24a) Therapist sing words without PCS represented A24b) Therapist sing slowly and clearly A24c) Mumbling of words |
| Line 25 | As soon as I get to the word "fish" I point to the symbol on the board again | A25a) Therapist direct attention to PCS |
| Line 26 | The participants say the word "fish" with me when I point to the symbol, they seem to recognize the picture symbol with ease | A26a) Participants recognize pc with ease A26c) Iconicity of word seems high |

| | | |
|---------|---|---|
| Line 27 | The participants softly sing/say the words with me as I continue with the song, some of them mumble the words along | A27a) Participants sing softly and slowly A27b) Participants speak words with monotonic voice tone A27c) Mumbling of words |
| Line 28 | They recognize and say the words "swimming" and "me" as I point to it with blunted facial expressions | A28a) Participants recognize pc with ease A28b) Participants speak words with monotonic voice tone A28c) Therapist point to PCS A28d) Blunted facial expressions A28e) Iconicity of word seems high |
| Line 29 | Tshepo, Jack and Ellen are still leaning forward to closely look at the board | A29a) Participants interested in PCS |
| Line 30 | They only look at my finger and the symbols I am pointing at | A30a) Therapist direct attention to PCS A30b) Participants focused on PCS |
| Line 31 | I repeat the line slowly and very clearly point to the symbols | A31a) Therapist sing softly A31b) Therapist direct attention to PCS A31c) Repetition of verse |
| Line 32 | The participants sing the song very softly and with low energy and blunted facial expressions while I sing and point to each symbol | A32a) Participants sing softly with therapist A32b) Therapist point to PCS A32c) Blunted facial expressions |
| Line 33 | Again they look very closely at the symbols on the communication board as I point to it | A33a) Participants focused on PCS A33b) Therapist direct attention to PCS |
| Line 34 | I praise them for their efforts | A34a) Therapist verbally give praise |
| 10:12 | | |
| Line 35 | I invite the participants so sing the lines of the song we had learned so far from the beginning | A35a) Therapist verbally invite participants to sing A36b) Repetition of verse |
| Line 36 | The participants follow my finger as I point to the symbols we are singing | A36a) Participants focused on PCS A36b) Participants and therapist sing together |

| | | |
|---------|--|---|
| Line 37 | They sing softly and with very low energy and at the last line when we sing "lots and lots" some of the participants stop singing | A37a) Participants sing softly A37b) Participants forget words without PCS representing A37c) Participants sing with low energy |
| Line 38 | They do however sing again as soon as I point to the symbols on the communication board again | A38a) Participants remember PCS |
| Line 39 | We sing the song from the beginning for a second time. The participants sing along with blunted facial expressions | A39a) Participants and therapist sing together A39b) Repetition of verse A39c) Blunted facial expressions |
| Line 40 | Jack leans back into his chair | A40a) Indiv relaxed body language |
| Line 41 | Near the end of the last line of the song, Jack makes hand movements representing that of a fish swimming (symbol of "fish") and points at himself when we sing "me" | A41a) Indiv participant imitates PCS by pointing to himself and imitate swimming fish |
| Line 42 | The participant's continuously look at my finger and the symbols I am pointing at throughout the verse section | A42a) Participants focused on PCS A42b) Therapist direct attention to PCS |
| 10:49 | | |
| Line 43 | I explain to them that the song is not finished | |
| Line 44 | I point to the symbol on the communication board that represents "hello" | A44a) Therapist direct attention to PCS |
| Line 45 | I then take out a symbol of an octopus that I stuck to a magnet | A45a) Therapist add PCS to board |

| | | |
|---------|---|--|
| Line 46 | As I place the octopus symbol on the board, I ask the participants what sea animal the symbol represents | A46a) Therapist direct attention to PCS A46b) Therapist ask participants question about PCS |
| Line 47 | Ellen answers spontaneously "octopus", to which the rest of the group repeat the word " octopus" with me | A47a) Individ recognize PCS with ease A27b) Individ spontaneously says intended PCS A47c) Group agrees with intended meaning |
| Line 48 | I continue by sticking the next symbol of the next sea animal while singing the song. The group softly mumble the words with me, they are unsure of the words | A48a) Therapist add PCS to board A48b) Mumbling of words A48c) Group says the words softly A48d) Participants unsure about the words |
| Line 49 | The participants say loudly at the same time "shark" as soon as they see the symbol | A49a) Participants recognize PCS with ease A49b) Participants spontaneously sing intended PCS |
| Line 50 | I continue by sticking the next symbol which is the symbol of a jellyfish | A50a) Therapist add PCS to board |
| Line 51 | The participants say loudly together "jellyfish" as one of the participants, Ellen, leans forward again to observe the board more closely | A51a) Participants recognize PCS with ease A52b) Individ interested in PCS A52c) Participants spontaneously shout intended PCS |
| Line 52 | I stick the last symbol, which is that of a crab | A52a) Therapist add PCS to board |
| Line 53 | The participants say loudly and simultaneously "crab" | A53a) Participants recognize PCS with ease A53b) Participants spontaneously shout intended PCS |
| 11:21 | | |
| Line 54 | I invite the participants to sing the section where we greet the sea animal with me | A54a) Therapist invite participants to sing A54b) Repetition of chorus |
| Line 55 | As we sing I point to every sea animal symbol, as well as back to the "hello" | A55a) Therapist direct attention to PCS A55b) Participants recognize PCS with ease A55c) Iconicity of words seem high |

| | | |
|---------|---|---|
| | symbol, which they remember to sing very well. The entire chorus sections picture symbols seems to be high in iconicity | |
| Line 56 | The participants sing along as well as they can, as they seem unsure of the melody still | A56a) Participants sing with therapist A56b) Participants unsure of melody |
| Line 57 | The participants still sing rather softly but much louder than they sang while we were learning the verse of the song and still with blunted facial expressions on their faces | A57a) Participants sing moderately loud A57b) Participants sing with more confidence A57c) Blunted facial expressions |
| 11:45 | | |
| Line 58 | I invite the participants to sing the song with me from the very beginning | A58a) Therapist invite participants to sing A58b) Repetition of verse |
| Line 59 | I count them in by counting to four as the song is in 4/4 meter time | |
| Line 60 | The members sing along softly but still seem unsure at certain words of the song except for when we sing the words there are symbols for on the communication board which seem iconic | A60a) Participants remember PCS with ease A60b) Participants forget words with PCS absent A60c) Participants sing softly A60d) Iconicity of words seem high |
| Line 61 | All members look intensively at the symbols as my finger points to the symbols as we sing | A61a) Participants focused on PCS A61b) Therapist direct attention to PCS |

| | | |
|---------|---|--|
| Line 62 | We sing the verse twice and move to the chorus section where we greet the different sea animals. The participants attentively watch my finger as I point to the picture symbols and say the words with me in a monotonic quality of voice and with blunted facial expressions | A62a) Repetition of chorus A62b) Participants sing with monotonic tone quality A62c) Participants unsure of melody A62d) Participants focused on PCS A62e) blunted facial expressions |
| Line 63 | When we get to the crab symbol, Tshepo stands up for a short second and throws his hands in the air as he sits down again | A63a) Indiv participant jumps up in excitement A63b) Indiv body language indicate excitement and eagerness to participate |
| Line 64 | He sings very loudly "Mr. Crab" | A64a) Participant sings loudly and spontaneously A64b) Indiv recognize PCS with ease |
| Line 65 | As we return to the verse section again, the members seem to be unsure about certain parts of the song as well as the melody | A65a) Participants unsure of melody A65b) Unsure of melody A65c) Repetition of verse |
| Line 66 | Three of the four participants lean forward in their seats to look at my finger pointing to the symbols more closely | A66a) Participants focused on PCS |
| Line 67 | We repeat the chorus section as in the beginning | A67a) Repetition of chorus |
| Line 68 | The participants are still unsure about the melody of the song and murmur the words overall with low energy, monotonic singing and blunted facial expressions | A68a) Participants unsure of melody A68b) mumbling of words A68c) Blunted facial expressions A68d) Participants engage with low energy A68e) Participants sing with monotonic tone quality |
| 13:35 | | |
| Line 69 | I place the communication board next to me on another chair | |

| | | |
|---------|--|--|
| Line 70 | I pick up my guitar and count to four. I play moderately slow | A70a) Therapist adds guitar accompaniment A70b) Therapist plays moderately slow |
| Line 71 | I strum on the first main pulse of each line in the verse | A71a) Therapist strum chords on main pulse slowly |
| Line 72 | I occasionally point to the symbols as much as I possibly can | A72a) Therapist occasionally direct attention to PCS |
| Line 73 | The participants sing the melody more clearly | A73a) Participants sing with therapist A73b) Participants remember melody A73c) Clearer pronunciation of words |
| Line 74 | We sing the verse section twice | A734a) Repetition of verse |
| Line 75 | The participants sing softly and with low energy but more melodic | A75a) Participants sing softly A75b) Participants remember melody |
| Line 76 | They mostly look at the communication board and my finger pointing to the symbols with blunted facial expressions | A76a) Participants focused on PCS |
| Line 77 | We continue to the chorus section where we greet the different sea animals | A77a) Repetition of chorus |
| Line 78 | Similar to how I strummed the guitar and still managed to point to the symbols, I strum the chord on the guitar on the first main pulse of the chorus and continue to point to the symbols as we sing it | A78a) Therapist strum main pulse slowly A77b) Therapist direct attention to PCS |
| Line 79 | The participants sing louder and more melodic than they had sung in the verse section. They also seem recognize the picture symbols easier and quicker for the chorus section as almost all of the picture symbols seem iconic | A79a) Participants sing louder A79b) Participants sing melodically A79c) Participants recognize PCS with ease A79d) Iconicity of words seem higher |

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| Line 80 | Ellen leans forward when we greet Mr. Jellyfish to see properly which symbol I am pointing to | A80a) Individ focus on PCS A80b) Individ interested in PCS |
| Line 81 | I say loudly that we are going to sing the verse section again and start immediately | A81a) Therapist verbally explain form of song A81b) Repetition of verse |
| Line 82 | This time I do not point to the symbols every time | A82a) Therapist occasionally direct attention to PCS |
| Line 83 | I strum the guitar more often and occasionally point to symbols such as "swimming" and "me" | A83a) Therapist strum guitar fuller A83b) Therapist occasionally direct attention to PCS |
| Line 84 | The participants looked at my hand and me as I strummed the guitar | A84a) Participants focus on PCS A84b) Participants focus on guitar |
| Line 85 | They sing the lyrics and melody more clearly but with blunted facial expressions | A85a) Participants recognize PCS with ease A85b) Participants sing melodic A85c) Blunted facial expressions |
| Line 86 | As soon as I pointed to the symbols, all participants immediately followed my hand and read the symbols | A86a) Participants dependent on PCS to remember words |
| Line 87 | Jack tapped the chair next to his with his hand on the very last pulse of the song as we finished singing it (specifically on the word "me") | A87a) Individ taps to the pulse of the music |
| Line 88 | I praise them for their efforts | A88a) Therapist verbally affirm |
| Session notes | Song learning using the communication board felt easy | |
| | The participants read the lyrics and remembered the melody well | |
| | They were not familiar with the symbol for the word "under" | |
| | It might not have been an iconic symbol for them | |

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| | Overall it seems that the participants learned the song with ease |
| | I struggled to play guitar and point to the symbols which made it very difficult |
| | Might be easier with an assistant or someone who can point to the symbols or play guitar |
| | Perhaps one of the participants can assist by pointing to the symbols in the next session |

Appendix P: Thick descriptions B

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| B | Under the water | |
| 18-Apr-16 | Session 1 without pcs Group B | |
| Time (minutes into session) | Thick description | Code |
| 11:07 | | |
| Line 1 | I explain that we are going to sing a song about the sea | |
| Line 2 | Lisa and Tom comment about the sea by saying it is very far and that one can build sandcastles in the sand when they go to the sea | B2a) Two individuals associated with real life memories |
| Line 3 | I softly strum the guitar | B3a) Therapist strums guitar softly |
| Line 4 | The tempo is moderately slow | B4a) Therapist strums guitar slowly |
| Line 5 | The main pulse (on count beat 1 and 3) is emphasized | B5a) Therapist put emphasis on beat one and three |
| Line 6 | The attentively participants look at my fingers as I start to play | B6a) Participants focus on therapist |
| Line 7 | When I start to sing the first line of the song, the participants look at my cheerful and inviting facial expression | B7a) Participants make eye contact with therapist B7b) Therapist facial expression is cheerful and inviting |
| Line 8 | After I finish singing the first line I verbally invite the participants to sing the first line with me. I sing slowly and pronounce the lyrics very clearly. The participants start at me with blunted facial expressions and the overall energy in the room is low | B8a) Therapist invite participants to sing B8b) Repetition of verse line B8c) Participants blunted facial expressions B8d) Participants engage with low energy |
| Line 9 | All the participants are sitting up straight with their hands on their laps, interested in what I am going to do next except for Tom who is slouching back into his chair while picking his nose calmly and relaxed | B9a) Indiv participant sits in relaxed slouched position B9b) Participants focus on therapist B9c) Indiv participant relaxed and comfortable body language |

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| Line 10 | I count to 4 and start to sing the first line | B10a) Repetition of verse |
| Line 11 | I rock my upper body from the one side to the other to the tempo of the song | B11a) Therapist rocks upper body to pulse of the music |
| Line 12 | I sing the first line of the song slowly and calmly however none of the participants sang with me as they are attentively staring at me with blunted facial expressions | B12a) Therapist sings calmly and slowly B12b) Participants focus on therapist B12c) Blunted facial expressions |
| Line 13 | I ask Tom to stop picking his nose | |
| Line 14 | He giggles and sits up straight | |
| Line 15 | The rest of the group giggles with him | B15a) Indiv giggles |
| Line 16 | I continue strumming the guitar softly and gentle | B16a) Therapist strums guitar softly and gentle |
| Line 17 | I verbally invite the group to sing along with me | B17a) Therapist invite participants to sing |
| Line 18 | This time the all participants sang the words very softly but seem unsure of the melody | B18a) Participants sing with therapist softly B18b) Participants unsure of verse melody |
| Line 19 | Some mumbled the words more than singing it. The overall energy in the space is very low | B19a) Mumbling of words B19b) Low energy participation and singing |
| Line 20 | I invite them to sing it one more time | B20a) Therapist invite participants to sing B20b) Repetition of verse |
| Line 21 | This time the participants all sing along but still very softly but also more melodic. I take turns making eye contact with each participant. They are still unsure of the lyrics so they mumble the lyrics | B21a) Participants sing softly B21b) Participants sing more melodically B21c) Therapist makes eye contact with participants B21d) Mumbling of words |
| Line 22 | Lisa lifts her arms and pretends to be cutting something using her middle and index fingers | B22A) Indiv participant make unrelated hand movement suggesting cutting with scissors |
| Line 23 | She repeatedly says the word "scissors" | B23a) Indiv make own association with unrelated hand gesture |
| Line 24 | Christopher lifts his arms and copies her movements however he mumbles the words of the first line along with the rest of the group | B24a) Indiv Participant physically imitating other Indiv movement B21b) Indiv participant spontaneously sings B21c) Indiv mumbles words |
| 11:59 | | |

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| Line 25 | I continue with the second line of the song | B25a) Therapist verbally introduce second line of verse |
| Line 26 | I emphasize words such as "fish", "swimming" and "me" | B26a) Therapist emphasize key words |
| Line 27 | As I sing the second line again some participants try to sing the words with me by mumbling the words I had emphasized with blunted facial expressions | B27a) Repetition of verse B27b) Mumbling of emphasized words B27c) Blunted facial expressions |
| Line 28 | Christopher makes hand movements that are similar to that of a fish swimming using his right hand and arm | B28a) Individ Associate intended lyrics with movement of an animal |
| Line 29 | I verbally invite the participants to sing the line with me again | B29a) Therapist invite participants to sing |
| Line 30 | Two of the participants mumble the line with me but the rest of the participants remain quiet | B30a) Two participants mumble words softly B30b) Participants low participation levels |
| Line 31 | It is mostly Tom and Christopher who seem to sing with me with enthusiasm | B31a) Two participants sing with therapist with enthusiasm |
| Line 32 | The quality of singing/mumbling of words of the participants is very soft and they seem shy or unsure about the words and the melody. I try to lift the overall energy and level of participation by smiling and being as inviting as possible to the participants but they stare at me and around the room with blunted facial expressions | B32a) Participants sing/mumble words softly B32b) Participants unsure of chorus words B32c) Unsure of chorus melody B32d) Therapist smiles B32e) Therapist body language is inviting B32e) Blunted facial expressions |
| 12:13 | | |
| Line 33 | I directly move to the beginning of the song and start singing the first line cheerful and lively | B33a) Therapist attempts to shift energy of the music B32b) Therapist sings cheerful and lively B33c) Repetition of verse |
| Line 34 | Very few of the participants sing with me, it is unclear to see who exactly is participating | B34a) Few participants sing with therapist |

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| Line 35 | Those who are singing only sing key words such as "under", "water", "sea", and "me" | B35a) Participants unsure of verse words B35b) Emphasized words pronounced clearest B35c) Participants remember emphasized words in verse most |
| Line 36 | We repeat the first two lines of the song of which the overall energy of the participants are very low. They stare at me with blunted facial expressions on their faces | B36a) Repetition of two verse lines B36b) Blunted facial expressions B36c) Low energy participation and singing |
| 12:24 | | |
| Line 37 | I verbally invite some members individually to sing with me such as Ben, Christopher | B37a) Therapist verbally invite Indiv participants to sing |
| Line 38 | I count to 4 enthusiastically to prepare them for when we will start singing the song again | B38a) Therapist count participants in with enthusiasm B38b) Repetition of verse |
| Line 39 | I fasten the tempo of my guitar playing | B39a) Therapist increase tempo of guitar strumming |
| Line 40 | Adjust the dynamics of my strumming and singing to a more lively quality but still very calm. I pronounce the words clearly | B40a) Therapist increase dynamics of singing and guitar strumming B40b) Therapist plays and sings lively B40c) Therapist pronounce words clearly |
| Line 41 | My strumming and singing overall are a bit louder than before | B41a) Therapist sings and strums louder |
| Line 42 | This time all participants sang along | |
| Line 43 | They sing with a very low energy, monotonic singing, mumble the emphasized words and stare at me with blunted facial expressions | B43a) Monotonic singing B43b) Participants quality of voice has low energy B43c) mumbling of emphasized words B43d) blunted facial expressions |
| Line 44 | Tom looks around the room and occasionally picks his nose while swinging his one leg slowly | B44a) Indiv seems distracted by other objects in the room |
| 13:00 | | |
| Line 45 | I praise them for their efforts and invite them to repeat the lines again with me before we carry on with the rest of the song | B45a) Therapist verbally invite participants to sing B45b) Repetition of verse |

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| Line 46 | I verbally invite Ben again to sing clearer and louder | B46a) Therapist verbally encourage Individ participants to sing |
| Line 47 | I strum with a lot more enthusiasm but still at a moderately slow tempo putting more emphasis on the syncopated beats (beat 2 and 4) | B47a) Therapist strum guitar with enthusiasm B47b) Therapist plays emphasized syncopated beat B47c) Therapist plays moderately fast |
| Line 48 | The participants sing a bit louder and pronounce most of the words clearer than before however it is still very close to being mumbled. They stare at me with blunted facial expressions still singing in a monotonic manner | B48a) Participants remember emphasized words in verse B48b) Participants sing louder and pronounce words clearer B48c) Mumbling of some words B48d) Monotonic singing B48e) Blunted facial expressions |
| 13:28 | | |
| Line 49 | I immediately move the chorus of the song | B49a) Therapist introduce chorus section to participants |
| Line 50 | I slow the tempo down of the song so I can sing the words clearly to the participants | B50a) Therapist decrease tempo B50b) Therapist sings slow B50c) Therapist sing words clearly |
| Line 51 | The first animal I sing about is an octopus | |
| Line 52 | After I greet the animal I stop the music to ask the participants what an octopus looks like | B52a) Therapist ask participants what an octopus looks like |
| Line 53 | Tom immediately waves his arms as if they were octopus tentacles. He makes eye contact with me and smiles widely | B53a) Individ participant imitate animal movement B53b) Individ participant associates song with animal in real life B53c) Individ makes meaningful eye contact with therapist B53d) Individ smiles |
| Line 54 | The rest of the group copies his movements enthusiastically | B54a) Group imitates Individ participants movement with enthusiasm |
| Line 55 | Christopher starts verbally describing the tentacles and refers to them as tails. He makes eye contact with me as he explains using big arm movements | B55a) Individ verbally associates lyrics with real life animal B55b) Individ participant verbally makes own interpretation and description of animal B55c) Individ makes eye meaningful contact with therapist |
| Line 56 | I copy the movements of the participants | B56a) Therapist imitate participants movement |

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| Line 57 | I explain to them the story of the song by explaining that we are swimming in the sea, then we see an octopus and then we greet him by singing "Hello Mr. Octopus". Lisa explains that the octopus is "the green one" to which I agree with her | B57a) Therapist verbally explain line B57b) Individ associates animal with color |
| Line 58 | I repeat the line where we sing hello to Mr. Octopus to which the participants only sing the word "octopus" | B58a) Repetition of chorus line B58b) Participants remember emphasized words in chorus |
| Line 59 | I continue with the rest of the story to where we greet the next animal, which is a shark | |
| Line 60 | I explain that it is a friendly shark and ask the participants if they all know what a shark is | B60a) Therapist verbally explain line B60b) Therapist ask participants if they all know what a shark is |
| Line 61 | Tom calls out enthusiastically "yes" | B61a) Individ participant responds spontaneously |
| Line 62 | I prepare them by saying we are going to sing hello to Mr. Shark | B62a) Therapist verbally invite participants to sing |
| Line 63 | Two of the members sing along softly but pronounce the words clearer and more melodically. Lisa makes a movement using her right arm matching the pulse of the music | B63a) Individ makes arm movements matching the pulse of the music B63c) Two participants sing very softly B63d) Two Individ pronounce words clearer B63e) Two Individ sing more melodically |
| Line 64 | I invite them to sing the greeting of Mr. octopus and Mr. Shark with me from the beginning | B64a) Repetition of chorus line B64b) Therapist invite participants to sing |
| Line 65 | Two members sang with but one can hear most of the words being mumbled softly | B65a) Mumbling of words B65b) Repetition of chorus |
| Line 66 | Tom kicks and swings his feet to the rhythm of the guitar strumming | B66a) Individ swings legs matching the pulse of the music |
| Line 67 | Christopher makes movements using both his hands that matches the main pulse of the song | B67a) Individ moves arms matching pulse of the music |
| Line 68 | We repeat the greetings of the first two animals | B68a) Repetition of chorus lines |
| 14:46 | | |
| Line 69 | I introduce the next animal that comes swimming by next, which is a jellyfish | |
| Line 70 | I ask the group what a jellyfish is | B70a) Therapist ask participants what is a jellyfish |

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| Line 71 | Tom makes a blowing sound as he waves his hands on top of his head as to indicate what a jellyfish looks like | B71a) Indiv imitate animal verbal sounds B71b) Indiv imitate animal movement |
| Line 72 | Ben starts to explain that a jellyfish has a lot of tails | B72a) Indiv participant associates song with animal in real life B72b) Indiv participant makes own interpretation and description of animal |
| Line 73 | After Ben's explanation I continue the song by greeting Mr. Jellyfish | B73a) Repetition of chorus line |
| Line 74 | The participants sing along with a lot more enthusiasm and higher energy | B74a) Participants sing with enthusiasm and higher energy |
| Line 75 | They pronounce the word "jellyfish" very clearly and with emphasis | B75a) Participants sing emphasize words loudly B75b) Clear pronunciation of emphasized words |
| Line 76 | Tom seems like he wants to jump up but only hops in his chair. Overall the participant's facial expressions are different. They smile more often and make eye contact with each other and me. Their overall focus is higher and they seem more interested and curious about the song than before | B76a) Indiv participant hop in their chairs and seem to want to jump up B76b) Participants facial expressions shift from blunted to smiling B76c) Participants occasionally make meaningful eye contact with therapist and each other B76d) Participant curious and interested in music B76e) Participants focus on therapist and music |
| Line 77 | He moves his arms back and forth on the syllables of the word "jellyfish" | B77a) Participant emphasize syllables of word by swinging arms to the pulse of the music |
| Line 78 | I immediately continue the song by explaining that another animal's swims by that we greet which is Mr. Crab | B78a) Therapist verbally explain line |
| Line 79 | As I say "Mr. Crab" I lift up my strumming hand (right hand) and imitate the movement of that of a crabs claws | B79a) Therapist imitate animal movement B79b) Therapist model hand gesture to participants |
| Line 80 | Two of the participants copy this movement | B80a) Two participants imitate therapist's movement |
| Line 81 | I continue to sing the section where we greet Mr. Crab | B81a) Repetition of chorus line |
| Line 82 | The participants do not sing that line with me. Christopher sits and looks at me with his arms folded while staring at me with a blunted facial expression. | B82a) Participants do not sing B82b) Indiv blunted facial expression B82c) Participants focus on therapist and music |

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| | The rest of the group attentively stare at me | |
| Line 83 | I verbally invite the participants to sing the section where we greet Mr. Jellyfish and Mr. Crab | B83a) Therapist invite participants to sing B83b) Repetition of chorus lines |
| Line 84 | All members sing a long, this time with more enthusiasm and much louder | B84a) Participants sing with enthusiasm B84b) Participants sing louder |
| Line 85 | The animals are emphasized, especially the jellyfish. | B85a) Emphasized words sung clearest by participants B85b) Participants remember emphasized words of chorus |
| 15:24 | | |
| Line 86 | I verbally invite the group to sing hello to all the animals as we are swimming by in the story | B86a) Therapist verbally invite participants to participate B86b) Repetition of chorus lines |
| Line 87 | They forget which animal we greet first (Octopus) and I give them a quick verbal reminder to which animal is next as we continue with the song | B87a) Participants forgets first animal greeted B87b) Therapist give verbal reminder of lyrics for chorus |
| Line 88 | Tom sings along monotonically when we greet the next animal (Shark) however he smiles while singing | B88a) Indiv monotonic singing B88b) Indiv sings alone B88c) Indiv smiles |
| Line 89 | I remind them that Mr. Jellyfish and Mr. Crab is next to be greeted | B89a) Therapist give verbal reminder of lyrics for chorus |
| Line 90 | The participants sing along with calmly | B89a) Participants sing calmly |
| Line 91 | The music is moderately soft and moderately fast and lively however the participants seem unsure of the melody and words and Tom is the only participant that can be heard singing and seems interested in the activity. The other participants look around the room and seem distracted | B91a) Participants sing moderately soft B100b) Unsure of melody B91c) Participants unsure of chorus lyrics B91d) Participants distracted by objects in the room B91e) Indiv focus on therapist and music B91f) Therapist's music is lively and moderately fast paced |
| 15:46 | | |
| Line 92 | We immediately continue with the song by singing the verse | B92a) Repetition of verse |
| Line 93 | Ben sings the loudest of all the members | B93a) Indiv participant sings loudest in group |
| Line 94 | He seems to remember all the words very well and his singing has a playful quality to it | B94a) Indiv participant remembers verse words B94b) Indiv remembers melody B94c) Indiv singing is playful |

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| Line 95 | The rest of the group mumble some of the words and sing the words emphasized such as "under", "sea", "fish" "swimming" and "me" louder and with a lot more certainty | B95a) Mumbling of words B95b) Emphasized words pronounced clearer B95c) Participants remember emphasized words of verse |
| Line 96 | The quality of the groups voices are flat and moderately soft | B96a) Participants sing moderately soft B96b) Participants flat tone quality of singing |
| Line 97 | We repeat the verse. All participants occasionally make eye contact with me and seem more focused on the music | B97a) Repetition of verse B97b) Participants make meaningful eye contact with therapist and each other B97c) Participants focus on music |
| Line 98 | The second time we repeat the verse one of the participants sing "under the sea" in a very high pitched voice and then goes back to singing in his with the rest of the group | B98a) Indiv adjusts quality of voice to higher pitched B98b) Indiv participant responds spontaneously and playful |
| 16:03 | | |
| Line 99 | When the verse ends I continue with the chorus of the song, which is greeting the animals individually | B99a) Repetition of chorus |
| Line 100 | I ask the group who we greet first | B100a) Therapist ask participants which animal is greeted first |
| Line 101 | Lisa is the only one that answers by saying "the green one" | B101a) Indiv spontaneously shouts out an answer B101b) Participant associates color of with animal |
| Line 102 | I praise her and say that we greet Mr. octopus first | B102a) verbally affirms participants for associating the animal with a color |
| Line 103 | I start to sing the greeting of Mr. Octopus very softly and gradually singing and strumming the guitar louder and louder, creating some sort of anticipation. The participants body language change from low energy and boredom to interest and curiosity | B103a) Therapist sings softly B103b) Therapist add crescendo B103c) Therapist plays loud and energetic B103d) Indiv body language indicate interest and excitement |
| Line 104 | The louder I start to sing louder. Some of the participants matching start to sing with me | B104a) Participants respond excitedly to dynamic shift B104b) Participants adjust to tempo and dynamic shift with ease B104c) Participants adjust their singing to lively and louder |
| Line 105 | I pause the song and explain that Mr. Shark is next in line to be greeted | B105a) Therapist give verbal reminder of lyrics of chorus |

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| Line 106 | I sing and strum loudly as I lean forward and sing hello to Mr. Shark | B106a) Therapist body language is inviting B106b) Therapist sings and strums loudly |
| Line 107 | The participants start moving their arms and legs excitedly at a fast pace | B107a) Participants respond with excitement B107b) Participants swing legs and arms at a fast pace |
| Line 108 | Some of them start to talk and explain to me what a shark is and looks like. They make meaningful eye contact with me as they all explain and describe the animals to me | B108a) Participants eagerly verbally explain lyrics to therapist B108b) Participants make meaningful eye contact with therapist |
| Line 109 | I continue the song by announcing that Mr. Jellyfish is next to be greeted | B109a) Therapist give verbal reminder of lyrics of chorus |
| Line 110 | I start to sing hello to Mr. Jellyfish by strumming and singing softly and then gradually singing and strumming louder and louder, creating anticipation | B110a) Therapist sings softly B110b) Therapist add decrescendo B110c) Therapist plays loud and energetic B110d) Therapist creates musical anticipation |
| Line 111 | The participants sing along, also gradually singing louder and louder and more enthusiastically as we sing louder while smiling and making eye contact with me | B111a) Participants respond excitedly to dynamic shift B111b) Participants adjust to tempo and dynamics shift with ease B111c) Participants make meaningful eye contact with therapist |
| Line 112 | I announce the next animal swimming by which is Mr. Crab | B112a) Therapist give verbal reminder of lyrics for chorus |
| Line 113 | As we sing loudly and cheerfully hello to Mr. Crab, Lisa and Tom imitated that of the claw of a crab using her left hand | B113a) Participants sing loudly and cheerfully B113b) Two Indiv imitate animal movement B113c) Two Indiv associate imitation of animal movement with song |
| Line 114 | The animal names are such the loudest and the participants seem more confident with the melody. The lyrics are pronounced clearer and their overall engagement is energetic. Their body language indicates an eagerness to participate as they are sitting up straight and make spontaneous movements | B114a) Participants remembers melody B114b) Participants remembers emphasized words of verse B114c) Participants sing loudly and energetically B114d) Participants pronounce lyrics clearly B114e) participants body language indicates eagerness to participate |
| 16:36 | | |
| Line 115 | I continue with the song by returning to the verse of the song | B115a) Repetition of verse |

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| Line 116 | I slow down the tempo; the strumming of my guitar is also different as I added a combination of picking and strumming in contrast to only strumming in the chorus of the song | B116a) Therapist slow down tempo B116b) Contrasting guitar accompaniment style |
| Line 117 | I my quality of voice is much more gentle and moderately soft | B117a) Therapist sings gentle and moderately soft |
| Line 118 | The group members start sing gentle and moderately soft with me | B118a) Participants match therapist gentle and moderately soft singing B118b) Participants adjust to tempo and dynamic shift with ease |
| Line 119 | All members seem to pronounce all the words of the song quit well however they sing very monotonic, as they seem unsure of the melody at certain points. Tom sings the loudest | B119a) Participants remember most lyrics by memory of verse B119b) Words are pronounced clearly B119c) Participants monotonic singing B119d) unsure of verse melody B119e) Indiv sings the loudest |
| Line 120 | The quality of their voices is monotonic and the mumbles some of the words they seem unsure of however the emphasized words are sung clearly and louder | B120a) Participants sing monotonic B120b) mumbling of some words B120c) Unsure of some verse words B120d) Participants sing emphasized words loud and clear |
| Line 121 | Tom sings the loudest of all as he swings his legs back and forth almost matching to the rhythm of the song | B121a) Indiv participant sings louder than group B121b) Indiv swings legs energetically |
| Line 122 | The rest of the group is watching me attentively with their hands folded on their laps or their arms folded. They seemed focused and interested in the music. Overall their facial expressions appear to be blunted. The overall energy shifted to low. | B122a) Participants blunted facial expressions B122b) Participants focus and interested in music B122c) Sudden energy shift from high to low B122d) Body language shift to still and closed off |
| Line 123 | I praise the group for their effort | B123a) Therapist verbally affirms participants at the end of the song for their efforts |
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| Session notes | The song learning was a bit more difficult without the board | |
| | It also took a bit longer than when using the communication board | |
| | I had to break up the song in very small sections and repeat each phrase many times | |

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| | <p>However I do find that the sessions was much more socially engaging, there was a lot of healthy eye contact being made throughout the sessions and I was able to musically adjust the song thus making the song more exciting and interactive for the participants</p> |
| | <p>I adjusted the strumming of the chorus and the verse and I believe it made the words and melody more memorable for the participants in the end</p> |

Appendix Q: Thick descriptions C

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| C | Under the water | |
| 20-Apr-16 | Session 2 with pcs Group A | |
| Time (minutes into session) | Thick description | Code |
| 8:38 | | |
| Line 1 | I put the communication board on my lap | |
| Line 2 | I remind the group that we learned a new song in the previous session and that we are going to sing that song again | |
| Line 3 | I start by pointing to the first symbol, which is the symbol for the word "under" | C3a) Therapist direct attention to PCS |
| Line 4 | I start to sing the first line of the verse section lively and loud without guitar accompaniment | C4a) Therapist sings loud and lively |
| Line 5 | The group members sing along almost instantly with a lot of enthusiasm, Ellen and Tshepo smile occasionally while the rest of the participants sit with blunted facial expressions | C5a) Participants instantly sing along with therapist C5b) Participants sing with enthusiasm C5c) Two indiv occasionally smile C5d) Blunted facial expressions |
| Line 6 | The quality of their voices is lively and melodic. They seem to read the picture symbols with ease as they sing louder and with confidence | C6a) Participants quality of singing is lively and melodic C6b) Participants remember PCS with ease C6c) Participants sing with confidence C6d) Participants sing louder |
| Line 7 | They are very sure of the words of the song but seem unsure of the melody in certain parts of the song during the first time we sing the verse | C7a) Participants remember PCS with ease C7b) Participants unsure about melody |
| Line 8 | The second time we sing it, Tshepo and Ellen point with their index fingers downwards when we sing the word "under" | C8a) Indiv participant imitates PCS by pointing downwards C8b) Indiv sing intended PCS meaning |

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| Line 9 | Tshepo also points so himself when we sing the word "me". Iconic words such as "fish" is sung louder and emphasized | C9b) Indiv participant imitates PCS by pointing to himself |
| Line 10 | The participants watch my fingers very closely as I point to the symbols as we sing it | C10a) Participants focused on PCS |
| Line 11 | The second time we sing the verse, the participants seem surer about the melody than the first time we sang it | C11a) Participants remember melody C11b) Repetition of verse |
| Line 12 | Ian was absent from school on the day of the first session | C12a) Participants first session |
| Line 13 | He sits on the tip of his chair and attentively watches my finger and try to sing with | C13a) Participant body language indicate interest and eagerness to participate C13b) Indiv interested in PCS |
| Line 14 | The overall quality of the groups singing is loud, lively and all the words are pronounced and sang clearly and correct | C14a) Participants sing loudly and lively C14b) Participants recognize PCS with ease C14c) Participants remember words with PCS absent C14d) Clearer pronunciation of words |
| 9:04 | | |
| Line 15 | We continue to the chorus section | |
| Line 16 | I point to the picture symbol representing the word "hello" | C16a) Therapist direct attention to PCS |
| Line 17 | The participants sing with enthusiasm and loudly but sound a bit unsure of what animal gets greeted next until I add the picture symbols | C17a) Participants sing loud C17b) Participants dependent on PCS to remember words C17c) Participants sing with enthusiasm C17d) Participants immediately remember PCS |
| Line 18 | As I add the picture symbol for the first animal we greet, Ian shouts out "shark" | C18a) Indiv participant recognize PCS immediately C19b) Participants spontaneously shouts intended PCS meaning |
| Line 19 | I continue singing and as the picture is placed on the board, the participants say/sing loudly "octopus" | C19a) Participants recognize PCS immediately C19b) Participants sing loudly |
| Line 20 | We continue to the next animal which is a shark | |
| Line 21 | I point to the hello picture symbol and then only do I move on to the next picture symbol | C21a) Therapist direct attention to PCS |

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| Line 22 | The participants immediately sing the name of the animal with loudly as soon as I place the picture symbol. Tshepo and Ian smile as we sing however the rest of the group started attentively at the board with blunted facial expressions on their faces | C22a) Participants recognize PCS immediately C22b) Blunted facial expression C22c) Participants sing loudly C22d) Two indiv smile C22e) Participants dependent on PCS to remember words C22f) Participants focused on PCS |
| Line 23 | Ian seems excited when it turned out to be a shark as he smiles widely | C23a) Indiv participant smiles widely |
| Line 24 | He waved his arms as soon as he saw the picture symbol of a shark, imitating the fins of a shark | C24a) Participant imitate PCS by swimming like a shark |
| Line 25 | I continue by first pointing to the hello picture symbol | C25a) Therapist direct attention to PCS |
| Line 26 | The participants immediately remember the jellyfish symbol | C26a) Participants immediately remembers PCS |
| Line 27 | They are no longer singing the name of the animal but rather saying it | C27a) Speaking of lyrics instead of singing |
| Line 28 | I point to the hello picture symbol before I add the last picture symbol of the animal being greeted | C28a) Therapist adds last PCS of chorus C28b) Therapist direct attention to PCS |
| Line 29 | The last animal to be greeted is Mr. Crab | |
| Line 30 | As is point to the hello picture symbol, I make sure to sing loud and clearly the melody again thus leading to the last animal which everyone sang again loudly and excitedly. The participants recognized all the picture symbols used for the chorus immediately and with ease | C29a) Therapist sings melody and lyrics loud and clear C29b) Therapist direct attention to PCS C29c) Participants sing loudly and with excitement C29d) Iconicity of word seem higher C29e) Participants immediately recognize PCS with ease |
| Line 31 | Tshepo pronounced the word "crab" in a higher and more playful and jumped up from his chair lifting his one arm up in the air and sitting down again | C31 a) Indiv participant changes pitch of voice to higher C31b) Indiv participant sings playful and lively C31c) Indiv participant jumps PCS up from chair in excitement C31c) Indiv participant makes waving arm movements |
| 9:30 | | |
| Line 32 | I cheerfully start singing the verse again | C32a) Repetition of verse C32b) Therapist sings cheerfully |
| Line 33 | I point to each picture symbol as we sing it | C33a) Therapist direct attention to PCS |

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| Line 34 | All participants are singing loudly and enthusiastically and with higher energy in their voices | C34a) Participants sing loudly 34b) Participants sing with high energy and enthusiasm |
| Line 35 | They seem excited to be singing the song as they sit up straight enthusiastically and interested | C35a) Participants respond in excitement C35b) Participants body language indicate interest and excitement |
| Line 36 | Jack starts to clap the main pulse of the song as we continue with the song | C36a) Indiv participant claps hands to the pulse of the song |
| Line 37 | Tshepo points to himself when we sing the word "me" and points downwards to the ground using his index finger when we sing the word "under" | C37a) Indiv participant imitates PCS by pointing to himself C37b) Indiv Associate PCS with movement |
| Line 38 | The participants watch my finger closely as I point to each picture symbol | C38a) Participants focus on PCS C38b) Therapist direct attention to PCS |
| Line 39 | We sing the verse twice in total with high energy and the participants seem to remember the melody and read the picture symbols with ease. The participants also seem to smile and move their bodies more instead of sitting still with their hands into their lap | C39a) Repetition of verse C39b) Participants remember melody C39c) Participants smile C39d) Participants immediately remember PCS with ease C39e) Participants focused on PCS C39f) Participants body language indicate interest and excitement |
| Line 40 | I praise them for remembering the song so well | C40a) Therapist verbally give praise |
| 10:10 | | |
| Line 41 | I place the board on a chair next to Jack and me | |
| Line 42 | I fetch my guitar and sit down | |
| Line 43 | I ask Albert to help me to strum the guitars he is sitting nearest to me at the moment | C43a) Therapist invite indiv participant to strum guitar |
| Line 44 | I show him how to strum the string using ones index finger | C44a) Therapist model guitar strumming |
| Line 45 | He kindly agrees | C45a) Indiv eager to participate |
| Line 46 | He stands up and stands in front of the guitar | |
| Line 47 | Albert start to strum the guitar slowly but very clearly and loud. He also sings along in a monotonic and low energy quality of voice | C47a) Indiv participant strums guitar slowly, loudly and clearly C47b) Indiv monotonic singing |
| Line 48 | As he strums the guitar for the first time, the group starts singing the first line of the song with him, | C48a) Participants spontaneously sing song slowly and loudly |

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| | matching Albert's tempo | |
| Line 49 | I join in by using my guitar strumming hand to point to the picture symbols on the board and my other hand to press the guitar chords while Albert does the strumming work however the group sing more melodic | C49a) Therapist support indiv participant musically C49b) Therapist direct attention to PCS C49c) Therapist presses guitar chords C49d) Participants sing melodic |
| Line 50 | The first verse dragged a bit because Albert did not keep the pulse at all times as he was trying to sing, read the picture symbols and strum the guitar | C50a) Indiv participant struggle to multi-task reading PCS, sing and strum guitar C50b) Indiv participant struggle to keep steady beat C50c) participants dragged singing C50d) Participants struggle to match singing with music C50e) Indiv dependent on PCS to remember words |
| Line 51 | The group listened attentively to his strumming and waited for him to strum the next chord every time with blunted facial expressions and very low energy | C51a) Group matches singing to indiv participants strumming C51b) Indiv strums at a slow and uneven tempo C51c) Blunted facial expressions |
| Line 52 | We continued with the chorus of the song | C52a) Repetition of chorus |
| Line 53 | Albert kept the pulse with ease at the beginning of the chorus section | C53a) Indiv participant strums guitar in a steady beat |
| Line 54 | The participants closely still watch the board and follow my finger as I point to the picture symbols as we sing music louder and more accurate pronunciation of words | C54a) Participants focus on PCS C54b) Participants sing louder C54c) Participants recognize PCS with ease C54d) Participants dependent on PCS to remember words |
| Line 55 | Before returning to the verse again Albert when to sit down and I ask if anyone else would like to help me with the strumming | C55a) Therapist invite participants to volunteer strumming the guitar |
| Line 56 | Jack, Tshepo, Ellen and Ian sit up straight and raise their hands with excitement | C56a) Three participants enthusiastically volunteer C56b) Participants body language indicate excitement and eagerness to participate |
| Line 57 | I ask Ellen to help me with the strumming for the verse | C57a) Therapist verbally invite indiv participant to strum the guitar C57b) Repetition of verse |
| Line 58 | Ellen strums the guitar softly, gentle and rhythmically while I point to the picture symbols with one hand | C58a) Indiv participant strums guitar softly, gentle and rhythmical C58b) Therapist direct attention to PCS |

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| Line 59 | The group sings along, matching her gentle and soft strumming however the words are mumbled most of the time but they seem to read the picture symbols with ease. The quality of the participants singing of the participants are very low in energy | C59a) Mumbling of words C59b) Participants sing softly C59c) Participants recognize PCS with ease C59d) Participants sing with low energy |
| Line 60 | She stomps right before the last strum and I strum the last chord | C60a) Indiv participant does not finish musical phrasing C60b) Therapist ends musical phrase |
| Line 61 | I ask who want to be next to strum for the chorus section | C61a) Therapist invite participants to volunteer strumming of guitar C61b) Repetition of chorus |
| Line 62 | All the participants excluding Albert raise their hands enthusiastically | C62a) Participants enthusiastically volunteer to strum the guitar C62a) Participants body language indicate excitement and eagerness to participate |
| Line 63 | I ask Tshepo to help me with the chorus section | C63a) Therapist invite indiv participant to strum guitar |
| Line 64 | He strums the guitar gently while I point to the picture symbols using one hand | C64a) Indiv participant strums guitar gently C64b) Therapist direct attention to PCS |
| Line 65 | He sings softly as he strums the guitar strings | C65a) Indiv participant sings softly |
| Line 66 | The rest of the group stop singing and Tshepo sing alone softly and reading the picture symbols while he strums the guitar | C66a) Group does not sing with indiv participant C66b) Individual sings alone softly C66c) Indiv dependent on PCS to remember words |
| Line 67 | He often looks at the board to see what animal is must be greeted next | C67a) Indiv dependent on PCS to remember words |
| Line 68 | I sing along with him | C68a) Therapist support indiv participant musically |
| Line 69 | I invite Ian to strum the guitar next | C69a) Therapist invite indiv participant to strum guitar |
| Line 70 | He strums the guitar moderately loud and slowly paced with a prominent beat while I point to the PCS on the board | C70a) Indiv participant strums guitar moderately loud and slowly paced C70c) Indiv keeps steady beat C70b) Therapist direct attention to PCS |
| Line 71 | All members sing along slowly and mumbling as Ian checks the board often to make sure of the words | C71a) Indiv dependent on PCS C71b) Participants sing softly C71c) Mumbling of words |
| Line 72 | I ask Jack to come help me strum the chorus | C72a) Therapist invite indiv participant to strum guitar C72b) Repetition of chorus |
| Line 73 | He gently strums the guitar strings | C73a) Indiv participant strums guitar gently |

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| Line 74 | He strums very slowly thus making the song slower | C74a) Indiv participant strums slowly |
| Line 75 | The rest of the group adjust their singing to match the tempo of Jack's playing | C75a) participants sing slowly |
| Line 76 | They sing loudly and pronounce all the words clearly and enthusiastically. Ian and Tshepo shout out the animal names early as Tshepo jumps up from his chair in excitement. Albert and Ellen look around in the room and sing occasionally with | C76a) Participants sing loudly C67b) Participants remember PCS with ease C76c) Words pronounced clearly C76d) Indiv jumps up in excitement C76e) Two indiv shouts out intended word of PCS meaning C76f) Two indiv lost interest and focus |
| Line 77 | Tshepo and Ian's voices start to have a more playful quality to it as they start to adjust the pitch of their voices by singing higher | C77a) Two indiv Participants change pitch of voices to higher C77b) Two indiv sing more playfully |
| Line 78 | I thank Jack and he sits down | C78a) Therapist verbally praise indiv participant |
| 13:49 | | |
| Line 79 | I verbally invite the group to sing the song from the beginning with me | C79a) Therapist verbally invite participants to sing C79b) Repetition of verse |
| Line 80 | We sing the song loud and energetic | C80a) Therapist and participants sing loudly and energetic C80b) Participants sing and participate with high energy |
| Line 81 | All the words are pronounced clearly by the participants and the participants occasionally look at the board but seem more focused at looking at the guitar and me. They seem to remember most of the words by memory | C81a) Participants remember most lyrics from memory C81b) Clear pronunciation of words C81d) Focus on therapist |
| Line 82 | I use both my hands to play the guitar so I am not pointing to the board | C82a) Participants read PCS by themselves C82b) Therapist plays guitar with both hands |
| Line 83 | The members look at my inviting facial expression and make eye contact with me | C83a) Participants make eye contact with therapist C83b) Therapist has inviting and uplifting facial expression |
| Line 84 | Ian pretends to be playing a guitar and Tshepo taps his fists vigorously on his lap to the rhythm of the song | C84a) Indiv participant imitates therapist movement of strumming guitar C84b) Indiv participant associates music with playing of instrument C84c) Indiv participant taps rhythm of song on his lap vigorously |
| Line 85 | Some of the members occasionally glance at the communication board, especially when we greeted | C85a) Participants dependent on PCS to remember words |

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| | the different animals | |
| Line 86 | Everyone is sitting up straight and moving their upper bodies in some manner to the rhythm of the song while smiling | C86a) Participants spontaneously move bodies to pulse of music |
| Line 87 | As we greet the animals, the group sings the names of the animals louder than the rest of the words | C87a) Participants sing louder C87b) Iconicity of words seem higher |
| Line 88 | Ian waves at the board and greets Mr. Jellyfish using spoken language after the group greeted Mr. Jellyfish using song | C88a) Indiv participant imitates intended PCS C88b) Indiv participant associates intended PCS with movement of greeting C88c) Indiv greets animal using spoken language |
| Line 89 | During the last repeat of the verse Ian continues to pretend that he is playing a guitar | C89a) Indiv participant imitates therapist movement of strumming guitar C89b) Indiv participant associates music with playing of instrument |
| 15:00 | | |
| Line 90 | I praise the group for singing very nicely | C90a) Therapist verbally praise participants |
| Line 91 | I ask Jack if he will point to the picture symbols on the boards for the group as he is sitting closest to the board from all the participants | C91a) Therapist invite indiv participant to point to PCS |
| Line 92 | He agrees to help me | C92a) Indiv eagerly participant agrees to help therapist |
| Line 93 | I explain to the group and Jack in particular the structure of the song | C93a) Therapist verbally explain song structure to participants |
| Line 94 | I start strumming the guitar gently and in a slow pace | C94a) Therapist strums guitar gently and slowly paced C94b) Repetition of verse |
| Line 95 | As soon as we start to sing Tshepo in particular start singing very loudly, the rest of the group joins him and also start to sing loud and energetic | C95a) Indiv participant spontaneously sings loud and energetic C95b) Participants sing with high energy and excitement C95c) Participants smile |
| Line 96 | I strum louder and more energetically | C96a) Therapist matches participants singing with guitar |
| Line 97 | Jack points to each picture symbol as we sing | C97a) Indiv participant directs attention to PCS |
| Line 98 | Ian pretends to play a guitar | C98a) Indiv participant imitates therapist guitar playing C98b) Indiv participants associates music with playing of instruments |

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| Line 99 | The participants follows Jack's finger attentively the moment they forget the words. They first look at me and then start to mumble the words thereafter they have to read the picture symbols first. Tshepo excitedly stomps his feet on the floor to the rhythm of the music | C99a) Participants dependent on PCS to remember words C99b) mumbling of words C99c) Indiv stomps feet on floor to the rhythm of music |
| Line 100 | I delay the music slightly when we move to the chorus section of the song | C100a) Therapist delays music between the verse and chorus section C100b) Repetition of chorus |
| Line 101 | Jack points to the first picture symbol of the verse however the rest of the group start to sing the chorus section at the correct time and the rest of the group follows and Jack adjust his finger | C101a) Indiv participant points incorrect PCS C101b) Participants read PCS by themselves C101c) Indiv participants adjust pointing to PCS |
| Line 102 | Tshepo stands up and hops up and down at the same place and sing very loudly as we greet the animals | C102a) Indiv participant jumps up in excitement C102b) Indiv participant sings loudly C102c) Indiv sing and moves with high energy |
| Line 103 | Ian waves at the board as we greet the animals | C103a) Indiv participant imitated PCS by waving movement |
| Line 104 | Ian continues to pretend to be playing a guitar, as we sing the last word "me", Ian jumps up and gives a final strum on his imaginary guitar as I strum the last final chord on my guitar. Throughout the last repeat of the verse section, Tshepo stands up from his seat and does a dance while he sings along | C104a) Indiv participant imitates therapist movement of playing guitar C104b) Indiv participant associates music with playing of instruments C104c) Indiv participant finish musical phrase on imaginary guitar C104d) Indiv dances |
| Line 105 | The rest of the group sing along excitedly and loudly until the very end while still reading the picture symbols occasionally but also seem more interested in looking at me and my guitar | C105a) Participants sing excitedly and loud C105b) Participants interested and focused on therapist and guitar C105c) Participants occasionally make meaningful eye contact with therapist |
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| Sessions notes | The participants remembered the song quit well | |
| | I had to sing it a few times and emphasize the key words for them to remember a few words of the song they seemed unsure of | |
| | I gave each participant the opportunity to strum the guitar while I point to the picture symbols | |

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| | At the very end Jack pointed to the picture symbols on the communication board and I could play my guitar properly |
| | This session felt more interactive than the previous session as there was better eye contact than before |
| | The participants looked at me more often than at the communication board |

Appendix R: Thick descriptions D

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| D | Under the water | |
| 20-Apr-16 | Session 2 without pcs Group B | |
| Time (minutes into session) | Thick description | Code |
| 8:29 | Transcription | Code level 1 |
| Line 1 | I start by reminding the participants that we learned a song in the first sessions | |
| Line 2 | Tom immediately says the first line of the song which is "under the water" | D2a) Indiv participant immediately verse remembers lyrics D2b) Indiv verbally says first line |
| Line 3 | I slowly and gently start to play the introduction of the song | D3a) Therapist strums guitar slowly and gentle D3b) Therapist musically support Indiv by adding guitar accompaniment to Indiv singing |
| Line 4 | I start to sing the first line gentle and slowly | D4a) Therapist sings slowly and gentle |
| Line 5 | Three participants start to sing with me softly, they sing only a few words occasionally and I struggle to hear them sing clearly. They look at me and each other and occasionally stare around the room with blunted facial expressions | D5a) Unsure about verse lyrics D5b) Participants sing very softly D5c) Participants distracted by objects in the room D5d) Participants occasionally make eye contact with therapist and each other D5e) Blunted facial expressions |
| Line 6 | Tom starts to rock his upper body from one side to the other on the rhythm of the song | D6a) Indiv rocks upper body matching the pulse of the music |
| Line 7 | Some of the words such as "lots and lots" are mumbled by the participants singing | D7a) Mumbling of non-emphasized words |
| Line 8 | Words such as "under", "sea", "swimming" and "me" are pronounced clear | D8a) Emphasized words pronounced clearest by participants D8b) Participants remember emphasized words of verse |

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| Line 9 | After singing the verse once I verbally invite the participants to sing the verse again with me | D9a) Repetition of verse D9b) Therapist invite participants to sing |
| Line 10 | I count to 4 in a faster tempo and start to strum the guitar and sing the song much faster and livelier | D10a) Therapist strums guitar and sings fast and lively |
| Line 11 | The participants sing softly and mumble some of the words | D11a) Mumbling of words D11b) Participants sing softly |
| Line 12 | All of the members sit dead still in their chairs with their hands in their laps except for Christopher who smiles widely and rocks his upper body gently from the one side to the other to the main pulse of the song .The rest of the group stares at the guitar with blunted facial expressions | D12a) Participants physically respond in robotic manner D12b) Indiv participant rocks upper body matching the pulse of the music D12c) Indiv participant portrays emotions of enjoyment through facial expression D12d) Indiv smiles D12e) Participants blunted facial expressions |
| Line 13 | Christopher mumbles most of the words | D13a) Indiv participant mumbles words |
| Line 14 | All the participants look at my guitar, my fingers strumming the guitar and pressing the chords and make regular eye contact with me when I look at them | D14a) Participants respond robotically D14b) Participants make eye contact with therapist D14c) Low energy participation |
| Line 15 | After we sing the verse for a second time, I pause the music and ask the participants what comes after we sang about swimming in the sea | D15a) Repetition of verse D15b) Therapist asks participants which verse line is sung next |
| Line 16 | Tom enthusiastically answers "octopus" | D16a) Indiv participant spontaneously shouts answer D16b) Indiv remembers chorus lyrics |
| Line 17 | I immediately start singing the chorus where we greet Mr. Octopus | |
| Line 18 | The phrase starts soft with a strumming in double time that gradually grows louder in dynamics | D18a) Therapist strums guitar softly D18b) Therapist gradually increases volume of guitar strumming |
| Line 19 | Tom sings softly with me | D19a) Indiv participant sings with therapist softly |
| Line 20 | The rest of the group quietly looks at the guitar and me with blunted facial expressions | D20a) Participants respond robotically D20b) Blunted facial expressions |
| Line 21 | I continue to the next animal we greet which is Mr. Shark | |

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| Line 22 | Tom and Christopher sing softly with me as we greet Mr. Shark by only singing the word "shark" loudly | D22a) Two participants remembers emphasized words of verse D22b) Participants unsure of chorus lyrics |
| Line 23 | I continue with the next animal being greeted | |
| Line 24 | I pause the music and my singing before the part where we name the animal being greeted and invite the participants to say whom we greet next | D24a) Therapist ask participants which animal is greeted next D24b) Therapist pauses music |
| Line 25 | Lisa makes imitates that of a crabs claw using both her hands and shouts out "sail" and "castle sands" | D25a) Indiv participant imitate animal movement D25b) Indiv participant spontaneously shouts out related word to theme of the song D25c) Indiv associates own related meaning to song theme |
| Line 26 | I name the animal we need to greet which is Mr. Jellyfish | D26a) Therapist verbally remind participants of lyrics for chorus |
| Line 27 | I finish the chorus by greeting Mr. Crab | |
| Line 28 | The participants continue to mumble and sing very softly the words with me with blunted facial expressions | D28a) Participants sing softly D28b) Mumbling of words D28c) Blunted facial expressions |
| Line 29 | They seem sure about the melody but unsure of some of the words | D29a) Unsure about chorus lyrics D29b) Participants immediately remembers melody |
| 9:46 | | |
| Line 30 | I continue with the song by returning to the verse | D30a) Repetition of verse |
| Line 31 | I sing and strum gently and slower than the chorus section | D31a) Therapist strums guitar and sings softly D31b) Therapist strums guitar slower |
| Line 32 | The guitar accompaniment is a combination of strumming and picking of the root note of each chord | |
| Line 33 | Tom is the only participants that sing with me but very softly and only a few of the emphasized words. I sing alone most of the time while the rest of the group stares at me with blunted facial expressions. The overall energy of the participants are very low | D33a) Indiv Participants sing softly with therapist D33b) Indiv remembers emphasized words of verse D33c) Participants engage with low energy D33d) Therapist sings alone D33e) Blunted facial expressions |
| Line 34 | Tom mumbles words such as "lots and lots" | D34a) Indiv Mumbles non emphasized |

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| | | words |
| Line 35 | Words such as "under", "sea", "swimming" and "me" can be heard clearer than the mumbled words | D35a) Emphasized words sung clearest by participants D35b) Participants remember emphasized words of verse |
| Line 36 | The quality of his voice is monotonic | D36a) Indiv singing quality is monotonic |
| Line 37 | Christopher and Tom gently and slowly rock their upper bodies from one side to the other to the rhythm of the song but only for a short while and then goes back to sitting still | D37a) Two participants rock upper bodies matching the pulse of the music briefly |
| Line 38 | After singing the verse only once, I directly move to the chorus section of the song | D36a) Repetition of chorus |
| Line 39 | Only Tom sing with me again but this time a bit louder while the rest of the group stares at me and the guitar with blunted facial expressions | D39a) Indiv participant sings louder D39b) Participants blunted facial expressions D39c) Low participation levels |
| Line 40 | When we get to the part where the animal must be named, I keep quiet and queue the participants to sing which animal we are greeting | D40a) Therapist invite participants to sing by themselves |
| Line 41 | Tom is the one to remember | D41a) Indiv participant immediately remembers chorus lyrics |
| Line 42 | He says clearly "octopus" | D42a) Indiv participant says animal name clearly |
| Line 43 | He speaks the word but very rhythmical that it still fits into the song rhythmically | D43a) Indiv participant says words rhythmical |
| Line 44 | I praise him for remembering so well | D44a) Therapist verbally affirms indiv for remembering the animal |
| Line 45 | I do the same with the next animal being greeted which is Mr. Shark | D45a) Therapist invite participants to sing by themselves |
| Line 46 | Tom softly says "shark" I praise him for remembering the animal and he smiles back at me | D46a) Indiv participant immediately remembers chorus words D46b) participants says words rhythmically D46c) Indiv smiles D46d) Indiv makes meaningful eye contact with therapist |

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| Line 47 | I continue with the song by singing the next animals being greeted along with the group cheerfully | D47a) Therapist sings with participants cheerfully |
| Line 48 | The participants make regular eye contact with me but with blunted facial expressions | D48a) Participants make eye contact with therapist D48b) Blunted facial expressions |
| Line 49 | The group members stare at me with blunted facial expressions. They seem unsure of the lyrics as well as the melody. The overall energy in the room is very low despite me engaging energetically and inviting towards them | D49a) blunted facial expressions D49b) Participants unsure of chorus lyrics D49c) Participants unsure of chorus melody D49d) Participants low participation and energy levels D49e) Therapist body language inviting and high energy |
| Line 50 | Christopher occasionally smiles at me and occasionally at Ben to which Ben does not smile back but instead looks away | D50a) Indiv occasionally smiles D50b) Indiv attempts to make meaningful eye contact with other group member |
| 10:26 | | |
| Line 51 | I continue with the song and sing the verse section | D51a) Repetition of verse |
| Line 52 | I return to the original slower tempo with a combination of strumming and picking on the guitar as accompaniment | D52b) Therapist strums guitar and sings slower |
| Line 53 | Tom sings along very softly. Christopher occasionally sings the emphasized words | D53a) Indiv sings softly with therapist D53b) Indiv remembers emphasized words of verse |
| Line 54 | Fewer words are mumbled and most of the words are sung melodically by Tom | D54a) Less mumbling of words D54b) Indiv remembers melody better |
| Line 55 | The quality of Tom and Christopher's voices are very low in energy and flat. Christopher sings very monotonic | D55a) Two participants tone quality is flat D55b) Two Indiv low energy singing D55c) Indiv monotonic singing |
| Line 56 | Christopher slowly rocks his upper body from one side to the other to the rhythm of the song | D56a) Indiv participant rocks upper body matching the pulse of the music |
| Line 57 | The rest of the participants sit still with their hands in their laps while staring at me and the guitar with blunted facial expressions | D57a) Participants blunted facial expressions D57b) Participants engage with low energy D57c) Low participation levels |
| 11:04 | | |
| Line 58 | I invite Christopher to help me strum the guitar | D58a) Therapist invite Indiv participant to strum guitar |
| Line 59 | He starts talking about a dinosaur | D59a) Indiv participant talks about unrelated |

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| | | subject |
| Line 60 | He waves his arm high up into the air as he repeats the word "dinosaur" | D60a) Indiv participant talk about unrelated subject D60b) Indiv participant makes use of unrelated hand gestures |
| Line 61 | I ask him to stand up and come to me | D61a) Therapist verbally invite Indiv participant to strum guitar |
| Line 62 | He stands up and starts imitation the claws of a dinosaur with his hands | D62a) Indiv participant makes use of unrelated hand gestures |
| Line 63 | I he continues to say the word "dinosaur" | D63a) Indiv participant talk about unrelated subject |
| Line 64 | I verbally acknowledge him and that he is imitating a dinosaur with big claws | D64a) Therapist verbally acknowledges Indiv participants imitation of a dinosaur |
| Line 65 | I lean forward with my guitar and model to him how to strum the guitar strings using my right hands index finger | D65a) Therapist models strumming of guitar |
| Line 66 | He copies my movement with ease and starts to gently strum the guitar for a brief second | D66a) Indiv participant imitate therapist's strumming D66b) Indiv Participant strums guitar gently |
| Line 67 | His strumming changes to lively and fast paced | D67a) Indiv participant strums lively and fast |
| Line 68 | I immediately start to sing the verse of the song and Tom joins in for only a few lines and then stomps singing | D68a) therapist sings lively D68b) Indiv sings lively with therapist D68c) Indiv remembers verse lyrics |
| Line 69 | His strumming has perseverative qualities to it | D69a) Perseverative quality to Indiv strumming |
| Line 70 | Christopher looks around the room and seems excited and smiles widely | D70a) Indiv participant responds with excitement and joy D70b) Participants distracted by objects in the room D70c) Indiv smiles widely |
| Line 71 | Tom and Ben sing softly with me at first but stop singing as they stare attentively at Christopher's big arm movements as he strums the guitar. The rest of the group stares attentively at Christopher's strumming with blunted facial expressions except for Tom who smiles widely for the brief moments he sang with | D71a) Two participants sing softly with therapist D71b) Participants stop singing D71c) Participants focus on Indiv strumming of guitar D71d) Indiv participant strum guitar with big arm movements D71e) Participants blunted facial expressions D71f) Indiv smiles when singing |

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| Line 72 | I sing the repeat of the verse alone | D72a) Therapist sings alone D72b) Repetition of verse |
| Line 73 | I invite Ben to strum the guitar next | D73a) Therapist invite Indiv participant to strum |
| Line 74 | He stands up and walks to the guitar | |
| Line 75 | He starts to strum spontaneously and without any need of modeling | D75a) Indiv participant strums guitar spontaneously |
| Line 76 | His strumming has a very clear and rich tone quality to it | D76a) Indiv participants strumming has rich tone quality |
| Line 77 | He strums the same fast paced tempo as Christopher | D77a) Indiv participant strums fast paced |
| Line 78 | He physically strums the strings harder making the dynamics of his playing loud. He attentively starts at his finger as he strum the guitar while smiling | D78a) Indiv participant strums loud and clear D78b) Indiv focus on strumming D78c) Indiv smiles |
| Line 79 | At first the rest of the group does not sing and I sing alone | D79a) Therapist sings alone |
| Line 80 | After greeting the first two animals I verbally invite the group to sing with me | D80a) Therapist verbally invite participants to sing |
| Line 81 | The members giggle softly and Tom starts to sing loud, clear, lively and enthusiastically the rest of the chorus with me. Christopher and Lisa smile widely and Lisa starts to wave | D81a) Participants smile widely D81b) Indiv sings loudly and lively D81c) Indiv remembers chorus words D81d) Indiv physically imitate lyrics of the song by waving |
| Line 82 | I invite Lisa to help me with the strumming next | D82a) Therapist invite Indiv participant to strum guitar |
| Line 83 | Lisa stands up and says the word "dinosaur" and imitates that of claws using both her hands | D83a) Indiv participant talk about unrelated subject D83b) Indiv participant makes use of unrelated hand gestures |
| Line 84 | I verbally acknowledge her and invite her to strum the guitar | D84a) Therapist verbally acknowledge Indiv participants imitation of a dinosaur D84b) Therapist invite Indiv to strum guitar |
| Line 85 | She starts to strum the guitar vigorously, fast paced (much faster than Ben and Christopher's strumming) and loud | D85a) Indiv participant strums guitar with force D85b) Indiv participant strums loud and at a presto tempo |

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| Line 86 | She strums the strings using the index finger of her right hand | |
| Line 87 | She strums the strings with a lot of force and enthusiasm | |
| Line 88 | The rest of the group sit up straight from their chairs immediately and look at her strumming attentively | D88a) Participants focus on Indiv participants strumming |
| Line 89 | The participants including Lisa doesn't sing the words with me but are smiling widely, seem excited and some even start to bounce up and down while still seated in their chairs | D89a) Therapist sings alone D89b) Participants focus on Indiv strumming D89c) Participants smile widely D89d) Participant hop in chairs D89e) Participants body language indicate excitement and interest in the music |
| Line 90 | I praise Lisa for her strumming and she goes to sit down | D90a) Therapist verbally affirms indiv participant for strumming the guitar |
| Line 91 | I invite Tom to help my by strumming the guitar | D91a) Therapist invite Indiv participant to strum guitar |
| Line 92 | He stands up and walks to the guitar while I verbally invite the group to sing | D92a) Therapist invite participants to sing |
| Line 93 | At first he gently, slowly and softly strums the guitar using both hands and all five fingers where soon after he suddenly starts to strum the guitar using both hands' index fingers | D93a) Indiv participant strums guitar slowly and gentle D93b) Indiv participant alternates hands during strumming |
| Line 94 | He strums the guitar very fast and lively | D94a) Indiv participant strums guitar fast and lively |
| Line 95 | He eventually starts to use all five his fingers again to strum the guitar | D95a) Indiv participant alternates hands during strumming |
| Line 96 | The tempo of his playing goes faster and faster until the rhythm is scattered and the main pulse is difficult to hear | D96a) Indiv participant fastens tempo D96b) Indiv participant plays scattered rhythm |
| Line 97 | I sang the words of the verse in the same tempo and by matching his playing with my singing | D97a) Therapist matches quality of Indiv strumming using voice |
| Line 98 | The rest of the participants sit and stare and giggle often as Tom continues to play | D98a) Participants respond with giggling D98b) Participants do not sing D98c) Participants smile |

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| Line 99 | Every now and again one can hear some of the participants singing a few emphasized words with me however it is difficult to hear who it exactly is | D99a) Different participants remembers emphasized words of verse |
| Line 100 | They seem excited and playful | D100a) Participants respond with excitement and playful |
| Line 101 | They make eye contact with each other and me often | D101a) Participants make eye contact with therapist and each other |
| Line 102 | I thank Tom for helping me with the guitar | D102a) Therapist verbally affirms indiv participant for strumming the guitar |
| 12:53 | | |
| Line 103 | I immediately continue to the chorus section of the song | D103a) Repetition of chorus |
| Line 104 | I strum the guitar vigorously and play in a very fast pace | D104a) Therapist strums guitar vigorously D104b) Therapist plays fast paced |
| Line 105 | The quality of my voice is playful and loud | D105a) Therapist sings playfully and loud |
| Line 106 | The participants sing with me excitedly they smile and laugh loudly | D106a) Participants laugh and smile widely D106b) Participants sing with excitement |
| Line 107 | They make eye contact with each other and me as they copy each other's movements. The energy in the room is very high | D107a) Participants make meaningful eye contact with therapist and each other D107b) Participants imitating physical movements from each other D107c) High energy participation and singing |
| Line 108 | Christopher and Tshepo of the participants bounce up and down in their chairs | D108a) Two participant hop in their chairs |
| Line 109 | Christopher waves his hands and arms in circular movements | D109a) Indiv participant waves arms |
| Line 110 | Lisa shouts out very loudly and excitedly "dinosaur" as she nods her head up and down to the rhythm of the song | D110a) Indiv participant nods head to pulse of the music D110b) Indiv participant shouts out unrelated word |
| Line 111 | After greeting the first two animals we continue to the next animal where I suddenly pause the music and wait for the participants to say who we greet next | D111a) Repetition of chorus D111b) Therapist pauses music D111c) Therapist invite participants to sing by themselves |

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| Line 112 | Christopher shouts out loudly and excitedly "shark" | D112a) Indiv participant spontaneously shouts out incorrect animal name D112b) Indiv forgets order of animals being greeted, shouts out wrong animal |
| Line 113 | Tom corrects him and softly says "jellyfish" | D113a) Indiv participant softly says correct animal name D11b) Indiv remembers chorus lyrics |
| Line 114 | We finish the chorus in a fast and lively tempo | D114a) Therapist and participants sing together fast paced and lively |
| Line 115 | All participants bounce around in their chairs, wave their arms, swing their feet or nod their heads to the rhythm of the song | D115a) Participant wave arms and legs D115b) Participants hop in chairs energetically to the pulse of the music |
| Line 116 | The sing loudly and excitedly | D116a) Participants sing loudly and with excitement |
| Line 117 | The quality of their voice is playful, confident and lively. They seem to remember some of the emphasized words but seem to mumble most of it. They also seem unsure of the melody but still participate by physically moving with the music and making meaningful eye contact with each other and me. | D117a) Participants sing with confidence and in a playful manner D117b) Participants sing with confidence D117c) Participants remembers emphasized words of chorus D117d) Mumbling of words D117e) Participants make meaningful eye contact with therapist and each other D117f) Participants unsure of chorus melody D117g) High energy participation D117h) High energy and fast paced physical movements |
| 13:08 | | |
| Line 118 | I pause of a few seconds before going back to the verse section of the song | D118a) Therapist creates musical anticipation |
| Line 119 | The participants look at me attentively and stop moving | D119a) Participants make meaningful eye contact with therapist D119b) Participants focus on music |
| Line 120 | I softly and slowly start to sing the first line of the verse | D120a) Therapist sings softly and slowly |
| Line 121 | The strumming of the guitar is a combination of picking and strumming | D121a) Therapist strums guitar softly and slowly |
| Line 122 | The quality of my voice is gentle and calm | D122a) Therapist quality of voice is calm and gentle |

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| Line 123 | The participants start to mumble some of the words along with me. They seem more sure of the lyrics and the melody | D123a) Mumbling of words D123b) Participants Remembers emphasized words of verse D123c) participants remember melody |
| Line 124 | I suddenly change the tempo and dynamics of the second line of the verse to fast paced, loud and vigorous strumming and singing | D124a) Therapist's suddenly shift tempo and dynamics to loud and fast tempo D124b) Therapist sings and strums fast and loud |
| Line 125 | The participants immediately start to laugh, clap and wave their hands and swing their legs | D125a) Participants respond with expression of laughter and enjoyment D125b) Participants clap hands, wave arms and swing legs |
| Line 126 | The words are too fast to pronounce all of them so I sing the line alone however the participants make eye contact with me and seems engaged | D126a) Therapist sings alone D126b) Tempo too fast for participants to sing D126c) Participants make meaningful eye contact with therapist |
| Line 127 | I pause after the second line and move to the next | D127a) Therapist pauses music |
| Line 128 | I play this line slow and soft, similar to the first line of the verse earlier | D128a) Therapist sings softly and slowly D128b) Therapist strums guitar softly and slowly D128c) Therapist quality of voice is calm and gentle |
| Line 129 | The participants smile widely and sing softly with me some of the emphasized lyrics | D129a) Participants sing softly with therapist D129b) Participants make meaningful eye contact with therapist D129d) Participants remember emphasized lyrics of verse |
| Line 130 | Some of them nod their heads or swing their legs slowly to the rhythm of the song | D130a) Participants nod their heads and swing legs to the pulse of the music |
| Line 131 | Before singing the very last line of the verse I pause for a few seconds | D131a) Therapist adds musical anticipation |
| Line 132 | Tom continues to sing the song and the rest of the group watches and waits in anticipation for me to start singing and playing again | D132a) Indiv participant ignore musical pause D132b) Indiv participant sings alone D132c) Indiv remembers melody D132d) Indiv remembers verse words |

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| Line 133 | I create anticipation and suddenly start to play and sing the last line fast, loud and vigorously | D133a) Therapist suddenly continues with song D134b) Therapist strums and sings loud, fast and vigorously |
| Line 134 | The participants hop in their chairs, laugh, make eye contact with each other and myself and seem very excited | D134a) Participant excitedly hop in chairs D134b) Participants look at therapist in anticipation D134c) Participants make meaningful eye contact with therapist D134d) Participants smile and laugh |
| Line 135 | I continue to the chorus section where I play slowly and calmly | D135a) Therapist sings softly and slowly D135b) Therapist strums guitar softly and slowly D135c) Therapist quality of voice is calm and gentle D135d) Repetition of chorus |
| Line 136 | I keep quiet when the part comes where the animal being greeted must be names | D136a) Therapist adds musical anticipation |
| Line 137 | I look at the group members and wait for the answer | D137a) Therapist makes meaningful eye contact with participants |
| Line 138 | All the members excitedly shout out different animals we had sang about at the same time | D138a) Participants spontaneously shout out animal names in anticipation D138b) High level of participation D138c) Participants forgets order of animals being greeted, shouts out wrong animal names |
| Line 139 | The loudest is Christopher who shouts out "crab" | D139a) Indiv forgets order of animal being greeted, shouts out wrong animal name |
| Line 140 | I correct him by saying "octopus" | D140a) Therapist verbally remind Indiv of lyrics for chorus |
| Line 141 | I speed up the tempo of the second animal we greet which is Mr. Shark | D141a) Therapist fastens tempo |
| Line 142 | Christopher starts to clap his hands in excitement while the rest of the group laughs and repeats the word "shark" | D142a) Indiv participant claps hands D142b) Participants repeats correct lyric after therapist D142c) Participants respond in excitement |

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| Line 143 | Tom kicks and swings his legs and laughs loudly | D143a) Indiv participant swings and kick legs energetically D143b) Indiv participant expresses joy through laughter and smiling |
| Line 144 | I ask the group whom we greet next | D144a) Therapist ask participants which animal is greeted next |
| Line 145 | Christopher shouts out "crab" He starts explaining that crabs have claws | D145a) Indiv participant spontaneously shouts out correct answer D145b) Indiv remembers chorus lyrics D145c) Indiv associates lyrics with real life animal |
| Line 146 | I verbally acknowledge him and greet the next animal slowly and calmly, which is Mr. Jellyfish | D146a) Therapist verbally acknowledge Indiv participant explanation of animal D146b) Therapist sings softly and slowly |
| Line 147 | I continue to greet Mr. Crab. Overall the body language of the participants are engaging and indicate a sense of excitement and eagerness to participate | D147a) Participants body language is engaging and indicate eagerness and excitement to participate |
| Line 148 | The group members, especially Tom, sing very loudly and energetically when we greet Mr. Crab | D148a) Participants sing loudly and with high energy D148b) Indiv participant sings louder |
| Line 149 | I immediately fasten the tempo before I continue with the verse of the song without a pause between | D149a) Therapist fastens tempo D149b) Repetition of verse |
| Line 150 | I sing the first line of the song fast and hastily | D150a) Therapist sings fast and hastily |
| Line 151 | The participants pronounce all the words very clear, especially Christopher. They seem to remember the melody correct as well | D151a) Participants immediately remember verse words D151b) Participants sing fast and hastily with therapist D151c) Participants remembers melody |
| Line 152 | The move and swing their arms and legs to the rhythm of the song | D152a) Indiv participant wave their arms and swing their legs fast and with high energy |
| Line 153 | After the first line of the verse I suddenly pause | D153a) Therapist adds musical anticipation |

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| Line 154 | During the pause Tom spontaneously start to sing the second line melodically and enthusiastically while the rest of the group attentively look at me in anticipation while smiling widely | D154a) Indiv participant ignore musical pause D154b) Indiv participant remembers verse lyrics and melody D154c) Indiv participant sings with confidence D154d) Participants smile D154e) Participants make meaningful eye contact with therapist D154f) Participants interested and focused on therapist and music |
| Line 155 | I join him and match the tempo and tone quality of his singing on the guitar and vocally | D155a) Therapist matches Indiv participants singing |
| Line 156 | The rest of the group sing along and giggle while looking at each other and me | D156a) Participants sing with therapist and Indiv participant cheerfully D156b) Participants express joy by giggling D156c) Participants make meaningful eye contact with therapist and each other |
| Line 157 | Christopher swings his arms as he bounces in his chair | D157a) Indiv participant swings arms and hops in chair |
| Line 158 | I continue with the next line in a slow and calm pace | D158a) Therapist strums guitar and sings in slow pace and gentle |
| Line 159 | The participants are laughing and making eye contact with each other | D159a) Participants express joy and excitement through laughter D159b) Participants make meaningful eye contact with therapist and each other |
| Line 160 | When I pause at the end of the line, Tom spontaneously starts to sing the last line fast paced, lively and melodically again | D160a) Therapist adds musical anticipation D160b) Indiv participant ignore musical pause D160c) Indiv participant remembers melody D160d) Indiv participant sings with confidence and fast paced D160e) Indiv remembers verse lyrics |
| Line 161 | I match him and the participants hop in their chairs enthusiastically and excitedly while laughing and smiling widely. They look at me and each other | D161a) Therapist match Indiv participants enthusiastically and energetic singing D161b) Participants respond by hopping in their chairs energetically D161c) Participants smile and laugh D161d) Participants make meaningful eye contact |

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| | | with each other and the therapist |
| 14:14 | | |
| Line 162 | I continue with the chorus at a moderately slow pace | D162a) Repetition of chorus D162b) Therapist sings and strums guitar at moderately slow pace |
| Line 163 | The participants sing all the words with me lively and loud. They all look at me attentively while mumbling some of the words however the emphasized words are pronounced the clearest | D163a) Participants sing lively and loud with therapist D163b) Mumbling of words D163c) Participants focus on therapist D163d) Participants remembers emphasized words of chorus D163e) Emphasized words pronounced clearest |
| Line 164 | After greeting the first two animals, I expectantly pause | D164a) Therapist adds musical anticipation |
| Line 165 | A few times I pretend that I am going to start playing but don't. The participants look at me in anticipation, they smile widely | D165a) Therapist extends anticipation D165b) Participants focus on therapist D165c) Participants smile |
| Line 166 | As soon as I start to play again (in a faster pace than the first two lines), I stop singing the part where the animal music be named and wait for the participants to say which animal we are greeting next | D166a) Therapist plays at a fast pace D166b) Therapist invite participants to sing by themselves |
| Line 167 | Tom immediately shouts out "jellyfish" and lifts his arms and wiggles his fingers imitating the tentacles of a jellyfish | D167a) Indiv participant spontaneously shouts out animal name D167b) Indiv participant physically imitate lyrics D167c) Indiv remembers chorus lyrics |
| Line 168 | I continue to the next animal being greeted which is Mr. Crab | |
| Line 169 | The participants emphasize the word "crab" by singing it loudly and in higher pitched voices. They participants remembers most of the words but was very dependent on my first singing the specific animals name before singing with | D169a) Participants change pitch of voices to higher D169b) Participants respond playful and silly D169c) Emphasized words are sung the loudest D169d) Participants unsure of some chorus words D169e) Participants remembers melody D169f) Therapist remind participants of lyrics for chorus |

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| Line 170 | I move to the verse | D170a) Repetition of verse |
| Line 171 | At first I sing the first line very softly, slowly and gentle | D171a) Therapist sings softly and gentle |
| Line 172 | I pause for a few seconds to create anticipation before I vigorously strum my guitar and sing loudly and in a fast paced tempo the second line of the verse. The participants look at me attentively and in anticipation | D172a) Therapist adds musical anticipation D172b) Therapist strums and sings vigorously and fast paced D172c) Participants make meaningful eye contact with therapist D172d) Participants adjust to tempo and dynamic shift with ease D172e) Participants focus on therapist and music |
| Line 173 | The participants sing a long loudly, pronouncing all the lyrics of the song very clearly while they bounce in their chairs, swing their arms and legs vigorously in the air and laugh | D173a) Participants sing loudly D173b) Participants immediately remember verse words D173c) Participant excitedly and energetically hop in chairs and wave arms D173d) Participants adjust to tempo and dynamic shift with ease D173e) Participants pronounce all words clearly |
| Line 174 | They make eye contact with each other and me | D174a) Participants make meaningful eye contact with therapist and each other |
| Line 175 | I move to the next line by playing it slowly, calmly and softly to which the participants do not sing with but they remained focused on me and the music | D175a) Therapist sings softly and gentle D175b) Participants focus on therapist and music |
| Line 176 | I pause for a few seconds before singing the very last line of the verse | D176a) Therapist adds musical anticipation |
| Line 177 | I vigorously strum my guitar as I sing the last line of the verse | D178a) Therapist strums and sings vigorously and fast paced |
| Line 178 | Near the end of the line I add a short ritardando to end the song | |
| Line 179 | The participants sing along loudly and vigorously | D180a) Participants sing loud and vigorously D180b) Participants adjust to tempo and dynamic shift with ease |
| Line 180 | They swing their arms and legs excitedly | D181a) Participant swing arms and legs excitedly |

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| Line 181 | When the ritardando is added they seem to calm down by placing their hands in their laps or sitting still | D182a) Participant adjust to tempo and dynamic shift with ease |
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| Session notes | At first the song went very slow, especially at the beginning of the song learning process | |
| | The participants seem to remember the melody and most of the lyrics but seem to struggle to remember what animals are being greeted and the order they are greeted | |
| | I alternated the tempo and dynamics as well as the overall energy of the song | |
| | I added a lot of anticipations and sudden pauses throughout the song to provide the participants with multiple experiences of the song | |
| | This made the song much more socially engaging and for the first time the children seemed excited and spontaneous | |
| | The bounced and moved around in their chairs | |
| | Sometimes some had even hopped up from their chairs of excitement | |
| | Overall the memorization of the words are quite slow in comparison with group A however the experience of singing and learning the song without PCS seem much more important in the context of these participants daily lives | |

Appendix S: Thick descriptions E

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| E | Under the water | |
| 25-Apr-16 | Session 3 with pcs Group A | |
| Time (minutes into session) | Thick description | Code |
| 8:16 | | |
| Line 1 | After I place the communication board on the chair next to me | |
| Line 2 | I ask the group if everyone can see the board | E2a) Therapist ask participants a question about PCS board |
| Line 3 | Ian says loudly "yes" and starts to sing the first line of the song melodically, confidently and slowly | E3a) Indiv participant immediately recognize PCS E3b) Indiv participant spontaneously sings song E3c) Indiv participant sings slowly E3c) Indiv remembers melody E3d) Indiv sings with confidence |
| Line 4 | I immediately start to point to the symbols as he continues to sing | E4a) Therapist direct attention to PCS |
| Line 5 | The rest of the participants join in with the singing while I quietly point to the picture symbols | E5a) Participants remember melody E5b) Therapist does not sing E5c) Therapist direct attention to PCS E5d) Participants immediately recognize PCS |
| Line 6 | The participants sit with their arms folded or in their lap as they sing with a monotonic quality of voice. The overall energy of participation is low | E6a) Participants engage with low energy E6b) Participants sing with monotonic tone quality |
| Line 7 | They attentively watch my finger as I point to the symbol as we sing the song with blunted facial expressions | E7a) Participants focus on PCS E7b) Blunted facial expressions |

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| Line 8 | All participants pronounce all the words correctly, including those who do not have a symbol (lots and lots) | E8a) Participants immediately remembers words E8b) Participants remember words with absent PCS E8c) Clear pronunciation of words |
| Line 9 | The quality of the groups singing is almost monotonic sounding | E9a) Participants sing with monotonic tone quality |
| Line 10 | When we start singing the repeat of the verse, Tshepo who is sitting right next to the communication board starts to point to the symbols with me spontaneously | E10a) Repetition of verse E10b) Indiv participant spontaneously direct attention to PCS E10c) Therapist direct attention to PCS |
| Line 11 | When we get to the second line of the verse which does not have the symbols for "lots and lots", Tshepo continues to point to the symbol for fish when the group is singing "lot and lots" | E11a) Indiv participant direct attention to incorrect PCS |
| Line 12 | I take his hand gently away from the board and then point to the symbol for fish when we sing it in the song | E12a) Therapist direct attention to correct PCS |
| Line 13 | Tshepo does not continue helping me with pointing to the symbols but continues attentively reading the picture symbols | E13a) Indiv participant stomps pointing to PCS E13b) Indiv join group singing E13c) Indiv and group focus on PCS |
| Line 14 | The participants sing more melodic the second time we repeat the verse however their quality of voice is robotic sounding | E14a) Repetition of verse E14b) Participant sing melodic E14c) Participants sing with a robotic tone quality |
| Line 15 | The quality of their voices is also louder and more melodic | E15a) Participants sing louder E15b) Participants sing melodic |
| 8:42 | | |
| Line 16 | I continue to the verse by asking the participants how the rest of the song goes | E16a) Repetition of chorus |
| Line 17 | It seems like all the members remember that in the chorus we greet the different animals as they immediately start to sing the chorus section by themselves. The participants attentively watch the and read the PCS as we sing the chorus | E17a) Participant immediately recognize PCS E17b) Therapist direct attention to PCS E17c) Participants focused on PCS |

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| Line 18 | As they sing the greetings, I place picture symbols of the animals on the communication board while they sing confidently all the words melodically | E18a) Therapist direct attention to PCS E18b) Participants sing with confidence E18c) Participants remember melody E18d) Participants recognize PCS with ease |
| Line 19 | They seem a bit unsure about which animal gets greeted when and forgot Mr. Jellyfish | E19a) Participants unsure of words E19b) Participants dependent on PCS to remember words |
| Line 20 | As soon as I place the picture symbol on the board they all sing loudly "Jellyfish" | E20a) Participants recognize PCS immediately E20b) Participants dependent on PCS to remember words |
| Line 21 | Overall they seemed unsure about the animals but were able to continue with the song after seeing the picture symbols. They remembers the melody by themselves but the quality of their voices was very flat and their facial expressions very blunt, almost a robotic response | E21a) Participants unsure of words E21b) Participants dependent on PCS to remember words E21c) Blunted facial expressions E21d) Participants remembers melody E21e) Participants sing with a flat quality of voice E21f) Participants sing with a robotic tone quality |
| 9:02 | | |
| Line 22 | After the chorus section of the song, I continue with the verse section | E22a) Repetition of verse |
| Line 23 | The group members attentively follow my index finger as I point to the picture symbols | E23a) Therapist direct attention to PCS E23b) Participants focus on PCS |
| Line 24 | They seem to recognize the picture symbols by ease now and know the melody of the song very well | E24a) Participants remembers PCS with ease E24b) Participants remember melody well |
| Line 25 | The quality of their voices is very monotonic | E25a) Participants sing with monotonic tone quality |
| Line 26 | It sounds as if they are reading more than singing and they only look at the board with blunted facial expressions | E26a) Speaking of words instead of singing |
| Line 27 | They sing the rhythm of the melody correct | E27a) Participants remember rhythm of song E27b) Blunted facial expressions E27c) Participants focused on PCS |

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| Line 28 | I stand up and fetch my guitar | E28a) Therapist fetch guitar |
| Line 29 | Ian offers to help me with playing the guitar | E29a) Indiv participant kindly offer to help therapist |
| Line 30 | I thank him and tell him that there is no need for his help at this point | E30a) Therapist verbally give praise to indiv |
| 9:41 | | |
| Line 31 | I ask Tshepo to point to the picture symbols as we sing the song and I play guitar | E31a) Therapist invite indiv participant to point to PCS |
| Line 32 | Tshepo leans forward and tries to strum the guitar as I think he did not understand what I was asking of him | E32a) Indiv participant misunderstands therapist invitation to strum guitar |
| Line 33 | Jack who is sitting next to him takes his arm and pulls him to the boards gently while I explain to Tshepo that I will be pointing the guitar alone and that he must point to the picture symbols as we sing the song | E33a) Other indiv participant assist indiv participant by modeling PCS pointing E33b) Therapist invite participant to strum guitar |
| Line 34 | I start to strum the guitar in a moderately fast tempo using a combination of strumming and picking as accompaniment | E34a) Therapist plays guitar with both hands E34b) Therapist plays moderately fast |
| Line 35 | Tshepo looks at the guitar confused | E35a) Indiv participant confused by therapist's instructions |
| Line 36 | I ask him what picture is the first one we sing in the song | E36a) Therapist ask participants a question about song |
| Line 37 | He says "under" | E37a) Indiv participant immediately remembers PCS with ease |
| Line 38 | I ask him to show everyone on the communication boards | E38a) Therapist invite indiv to point PCS |
| Line 39 | He looks at the boards unsure | E39a) Indiv participant unsure of verbal instruction of pointing PCS |
| Line 40 | Jack leans forward and shows Tshepo which picture symbol represents the words "under" | E40a) Other indiv participant assist indiv participant by modeling PCS pointing |
| Line 41 | I start to strum the guitar again as I did before | E41a) Therapist plays guitar with both hands E41b) Therapist plays moderately fast |

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| Line 42 | I play a short introduction | |
| Line 43 | When we start to sing the verse of the song all participants sing along cheerfully at a moderately fast tempo | E43a) Repetition of verse E43b) Participants sing cheerfully E43c) Participants sing at moderately fast tempo |
| Line 44 | They attentively follow Ben's finger as he points to the correct picture symbols of the lyrics of the song, Ellen and Jack lean forward to see the board which Tshepo is covering with his body | E44a) Indiv participant direct attention to PCS E44b) Participants focus on PCS E44c) Participants dependent on PCS |
| Line 45 | He seems very focused and fixated on pointing to the correct picture symbol | E45a) Indiv participant direct attention to PCS E45b) Indiv focus on PCS |
| Line 46 | He hops gently in his seat every time he points to the next matching picture symbol | E46a) Indiv participant hops to the pulse of the music E46b) Indiv participant direct attention to PCS |
| Line 47 | He forgets to stop pointing when we sing the lyrics "lots and lots" because there were no picture symbols for those words | E47a) Indiv participant direct attention to incorrect PCS E47b) Indiv forget words with PCS absent |
| Line 48 | He continues and finishes one picture symbol too early for the lyrics | E48a) Indiv participant direct attention to incorrect PCS |
| Line 49 | The second time we sing the verse he immediately points to the first picture symbol that matches the first word of the song which is "under" | E49a) Repetition of verse E49b) Indiv participant direct attention to PCS |
| Line 50 | This time he remembers to stop pointing when we sing "lots and lots" | E50a) Indiv participant direct attention to correct PCS E50b) Indiv participant corrects pointing mistake from previous verse |
| Line 51 | He ends with the correct picture symbol that matches the groups singing | E51a) Indiv participant direct attention to correct PCS |
| Line 52 | The group members attentively follow his index finger as he points to the picture symbols | E52a) Participants focus on PCS |

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| Line 53 | Some of them lean forward in their seats to see past him as Tshepo was sitting in front of most of the board. The participants sing along all the words and pronounce the words clearly. They seem confident about the melody and their quality of voice is much livelier. | E53a) Participants focus on PCS E53b) Participants dependent on PCS to remember words E53c) Participants remember PCS with ease E53d) Words are pronounced clearly E53e) Participants remembers melody with ease E53f) Participants quality of singing is livelier |
| 10:26 | | |
| Line 54 | I pause the music for a few seconds in which I ask Tshepo what comes next and where must he point on the board | E54a) Therapist pause music E54b) Therapist ask indiv participants a question about song and PCS |
| Line 55 | The rest of the group start to sing the chorus | E55a) Participants spontaneously sing by themselves E55b) Participants recognize PCS by themselves |
| Line 56 | Tshepo does not point to the board at first and I have to point and show him where to point | E56a) Therapist assist indiv participant by modeling pointing to PCS |
| Line 57 | He immediately copies me | E57a) Indiv participant direct attention to PCS E57b) Indiv participant imitates therapist by directing attention to PCS |
| Line 58 | I continue to play the guitar while Tshepo points to the communication board | E58a) Therapist plays guitar with both hands E58b) Indiv directs attention to PCS |
| Line 59 | As he points to the correct animals as well as the symbol for the word "hello" every time, he taps the pictures with his index finger matching the rhythm of the main pulse of the guitar strumming | E59a) Indiv directs attention to appropriate PCS E59b) Indiv respond to music by rhythmically tapping of finger on PCS |
| Line 60 | Ian gets very excited and starts to sing much louder and confidently than the rest of the group. He also imitate the animals being greeted by making gestures using his hands | E60a) Indiv participant sings with excitement E60b) Indiv sings loud and with confidence |
| Line 61 | He moves around on his seat and waves his arms around | E61a) Participants body posture indicate excitement and eagerness to participate E61b) Indiv waves arms |

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| Line 62 | The rest of the group sit in their chairs very still and sing loudly but attentively looks at the board and the picture symbols with their arms folded or on their laps with blunted facial expressions | E62a) Participants sing loudly E62b) Participants focus on PCS E62c) Participants dependent on PCS to remember words E62d) Blunted facial expressions |
| Line 63 | After we finish the chorus section, I verbally queue the group and specifically Tshepo that we are going to sing the verse again which is the same as the beginning of the song | E63a) Repetition of verse |
| Line 64 | Tshepo points to the picture symbols of the verse without hesitation | E64a) Indiv participant spontaneously direct attention to PCS |
| Line 65 | Ian starts to sing even louder, less melodic, like he is shouting every word. He seems very excited and knows the melody very well | E65a) Indiv participant sing with excitement E65b) Indiv shouts lyrics loudly |
| Line 66 | He waves his arms from side to side and lifts it up in the air and wiggles his fingers and continues with the waving of arms that is matching to the rhythm of the music | E66a) Indiv participant make hand big gestures E66b) Indiv body language indicates excitement and eagerness to participate E66c) Indiv sings and moved with high energy |
| Line 67 | Tshepo points to the correct picture symbols both the times we sang the verse. The participants sang with low energy and the quality of their voices is very flat | E67a) Indiv direct attention to PCS E67b) Participants sings with low energy E67c) Participants quality of singing is flat |
| Line 68 | I praise the group for their efforts and contributions | E68a) Therapist verbally give praise |
| 11:06 | | |
| Line 69 | I thank Tshepo and tell him that he no longer has to point to the picture symbols | E69a) Therapist verbally give praise |
| Line 70 | I tell the group that we are going to sing the song again | E70a) Repetition of verse E70b) Repetition of chorus |
| Line 71 | I start to play a short introduction to the song | |
| Line 72 | I use a combination of strumming and picking at a moderately fast tempo | E72a) Therapist plays guitar with both hands E72b) Therapist strums the guitar moderately fast |
| Line 73 | The quality of my playing is lively | E73a) Therapist strums the guitar lively |

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| Line 74 | I count to 4 before we start to sing the song | |
| Line 75 | The group sings loudly and enthusiastically, especially Ian who sing with high energy | E75a) Participants sing loud and with enthusiasm E75b) Individ sings louder E75c) Individ participates with high energy |
| Line 76 | Ian and Tshepo both start to hop in their chairs to the rhythm of the music | E76a) Two participants hop in chairs E76b) Two indiv respond with high energy movements |
| Line 77 | They wave and swing their arms to the rhythm of the music as well | E77a) Two indiv respond with high energy movements |
| Line 78 | Tshepo is the only participant to read the picture symbols on the communication board | E78a) Individ focus on PCS E78b) Individ dependent on PCS to remember words |
| Line 79 | The rest of the group makes eye contact with me and gradually start to move their upper bodies to the rhythm of the music. The rest of the group seem to remember the lyrics without the use of the board | E79a) Participants respond with high energy movements E79b) Participants make meaningful eye contact with therapist and each other E79c) Participants remember lyrics from memory |
| Line 80 | For the first time the members smile as they sing the song and move and hop in their chairs to the beat of the music | E80a) Participants facial expression indicate emotions of excitement and joy E80b) Participants smile E80c) Participants hop in chairs to pulse of music |
| Line 81 | The quality of their voices matches the guitar playing and my voice which is lively and energetic | E81a) Participants sing loudly and energetic |
| Line 82 | When we get to the chorus section, I change the dynamics of my playing and singing to soft but keep the same moderately fast tempo as well as the lively quality of playing and singing | E82a) Repetition of chorus E82b) Therapist shifts music to softer but still at moderately fast tempo |
| Line 83 | The members sing softer as well | E83a) Participants musically adjust tempo and dynamics of singing E83b) Participants sing softly |
| Line 84 | When we get to the second animal being greeted, I change the dynamics of my playing and singing to loud and strong | E84a) Therapist shifts music to loud and forceful |

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| Line 85 | The group members sing along loudly and excitedly | E85a) Participants musically adjust tempo and dynamics of singing E85b) Participants sing loudly and excitedly |
| Line 86 | The third animal we greet I change the dynamics of my playing and singing to soft and gently again but keep the moderately fast tempo | E86a) Therapist shifts music to softer but still at a moderately fast paced tempo |
| Line 87 | The group members sing softly with me as they attentively watch me in with curious facial expressions | E87a) Participants musically adjust tempo and dynamics of singing E87b) Participants sing softly E87c) Participants have curious facial expressions |
| Line 88 | We greet the last animal | |
| Line 89 | We all sing loud and enthusiastically and lively together while making a healthy amount of eye contact with each other and myself | E89a) Musical shift to lively and loud E89b) Participants musically adjust E89c) Participants and therapist sing loud and lively together E89d) Participants make meaningful eye contact with therapist and each other |
| Line 90 | Some of the members shout out "Mr. Crab" in a high pitched and playful voice | E90a) Indiv participants change pitch of voices to higher E90b) Indiv participants sing playful and silly |
| Line 91 | Jack imitated the claws of a crab using his middle and index fingers as we greet Mr. Crab | E91a) Indiv participant imitate movement of a crab |
| Line 92 | We continue to the verse section | E92a) Repetition of verse |
| Line 93 | Ian is still singing the loudest of all the members in a high-pitched voice | E93a) Indiv participant sings in high pitched voice E93b) Indiv sings loudest |
| Line 94 | The rest of the group members sing along enthusiastically and energetically while smiling | E94a) Participants sing with enthusiasm and high energy E94b) Participants smile |
| Line 95 | Tshepo start to match Ian's singing by also singing louder and in a higher pitched voice | E95a) Other Indiv participant match other indiv singing in high pitched voice |
| Line 96 | They rock their upper bodies from one side to the next matching the plucking and strumming rhythm of the guitar accompaniment | E96a) Participants rock upper bodies matching the pulse of the music |
| Line 97 | I praise the participants for their singing | E97a) Therapist verbally give praise |
| 12:05 | | |

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| Line 98 | I ask the participants if they sang the song using the board or if they remembered the words by themselves | E98a) Therapist ask participants a question about PCS |
| Line 99 | Jack answers that he used the board however he was watching me the entire time and not the board | |
| Line 100 | Ian agrees with Jack however he was also watching me and Tshepo and not the board throughout the song | |
| Line 101 | I invite Albert to come to the board so he can point to the picture symbols while I strum the guitar | E101a) Therapist invite indiv participant to point PCS |
| Line 102 | He friendly agrees | E102a) Indiv eager to point to PCS |
| Line 103 | I ask Tshepo and Albert to swop seats | |
| Line 104 | I play a short introduction and count to 4 | |
| Line 105 | We start to sing the verse | E105a) Repetition of verse |
| Line 106 | All the members start to sing enthusiastically and energetically | E106a) Participants sing with enthusiasm and high energy |
| Line 107 | Ian and Tshepo sing in a very high and dissonant pitched voice | E107a) Two participants sing with high pitched voices E107b) Participants response indicate emotions of joy and silliness |
| Line 108 | They sing enthusiastically and lively | E108a) Two participants sing lively and with enthusiasm |
| Line 109 | The rest of the group sing along cheerfully and hop in their chair to the rhythm of the music but Tshepo and Ian's singing overpower their voices | E109a) Two participants singing overpowers others singing E109b) Participants sing cheerfully E109c) Participants hop in chairs |
| Line 110 | Jack tells Tshepo to keep quiet by touching his arm for his attention and placing his index finger on his own lip and making the sound "shh" as to indicate to him to keep quiet or to sing softer | E110a) Indiv participant verbally ask indiv participant to sing softer |
| Line 111 | After he does this twice I tell Jack that it is okay for Tshepo to sing like that | E111a) Therapist verbally acknowledge indiv wishes E111b) Therapist non-verbally allows two participants to continue singing with high pitched voices |

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| Line 112 | Albert points to the correct picture symbol as we sing the song | E112a) Indiv direct attention to PCS |
| Line 113 | He attentively and rhythmically and very well focused points to every picture symbol as we sing it | E113a) Indiv direct attention to PCS E113b) Indiv focus on PCS pointing |
| Line 114 | When we finish singing the chorus section he sits back in his chair and I have to remind him that the sing is not yet finished | E114a) Pointing indiv does not go back to verse section E114b) Therapist verbally invite indiv to point to PCS E114c) Pointing indiv dependent on therapist directing attention to PCS |
| Line 115 | We continue to sing the song | |
| Line 116 | He points to the correct symbols and remembers to go back to the symbol for the word "hello" as it is repeated every time we greet an animal | E116a) Indiv direct attention to PCS |
| Line 117 | Ian sings even more louder and enthusiastically and spontaneous | E117a) Indiv sings louder and playful E117b) Indiv sings spontaneous and with high energy |
| Line 118 | He cups his hands together as if they were a speaker and sing loudly through it | E118a) Indiv cups hands in front of mouth E118b) Indiv sings louder with cupped hands |
| Line 119 | Tshepo excitedly hops in his chair to rhythm of the music | E119a) Indiv hops in chair with high energy |
| Line 120 | We sing the chorus in a moderately fast paced tempo with a moderately fast strumming as guitar accompaniment | E120a) Repetition of chorus E120b) Moderately fast paced strumming and singing |
| Line 121 | As we go back to the verse section, I have to remind Albert that the song is not yet finished because he sat back in the chair again | E121a) Repetition of verse E121b) Indiv does not go back to verse section E121c) Therapist verbally invite indiv to point PCS |
| Line 122 | I slow down the tempo and go back to the combination of picking and strumming on the guitar as accompaniment | E122a) Therapist shifts music to a moderately slow pace E122b) Guitar accompaniment changes |
| Line 123 | Ian still sings in a high pitched voice | E123a) Indiv continues singing with high pitched voice |
| Line 124 | Jack starts to tap the floor with his feet to the rhythm of the song for half a line but then stomps again | E125a) Indiv taps feet to the beat of the music |

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| Line 125 | He cups his hands like a speaker, imitating what Ian is still doing from the chorus section | E125a) Individ copies other individ cupping of hands singing |
| Line 126 | Albert points to the correct picture symbols attentively | E126a) Individ direct attention to PCS E126b) Individ focus on pointing PCS |
| Line 127 | All participants are making a healthy amount of eye contact with me except for Albert who is looking at the board while he points to the symbols. The participants sing loudly and with high energy. The smile and adjust to the musical shifts with ease | E127a) Participants make meaningful eye contact with therapist and each other E127b) Individ pointing to PCS make no eye contact with others E127c) Individ focus on pointing PCS E127d) Participants musically adjust E127f) Participants smile E127g) participants sing loudly and with high energy |
| 14:04 | | |
| Line 128 | After praising the group for their signing, I invite them verbally to sing the song again but this time Albert will not be pointing to the symbols | E128a) Therapist invite participants to sing |
| Line 129 | I explain to them that if they want to, they can look at the board and at the symbols but that nobody will be pointing to the picture symbols as we sing the lyrics | E129a) Therapist invites participants to read PCS by themselves |
| Line 130 | I start to strum and pick the guitar as a short introduction | E130a) Therapist strums guitar with both hands |
| Line 131 | The tempo is moderately fast and has a playful and lively quality to it | E131a) Therapist strums guitar moderately fast and lively |
| Line 132 | I count to 4 | |
| Line 133 | We start to sing the song the song | E133a) Therapist and participants sing together |
| Line 134 | All the participants look at me attentively | E134a) Participants make meaningful eye contact with therapist E134b) Participants focus on therapist |
| Line 135 | Most of them copy my body movement of rocking from side to side to the rhythm of the picking on the guitar, which is on the main pulse of the beat | E135a) Participants imitate physical body movement of therapist |

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| Line 136 | Tshepo start to sing in a high pitched voice and much louder than the rest of the group but the rest of the groups singing is still lively and loud | E136a) Indiv singing with high pitched voice E136b) Indiv facial expression indicate emotions of joy and silliness E136c) Participants sing loudly and lively |
| Line 137 | Jack and Ian cup their hands as speakers and sing through it | E137a) Two participants cup hands in front of mouths |
| Line 138 | The quality of the groups singing is energetic, lively, playful and more spontaneous behavior is present. The group members occasionally look at the board but seem to sing most of the words by memory | E138a) Participants singing is spontaneous, lively and energetic E138b) Remember lyrics from memory |
| Line 139 | All members are moving their bodies in some way | E139a) Participants move bodies to the beat of music |
| Line 140 | Some rock from one side to the other while some hop in their chairs up and down | E140a) Participants body posture indicate excitement and eagerness to participate |
| Line 141 | In the chorus section I take turns by singing the first line and animal being greeted softly but still at the same tempo than the verse and the next line and animal being greeted loud | E141a) Repetition of chorus E141b) Therapist alternates dynamics from soft to loud during verse lines |
| Line 142 | The group members adjust the dynamics and quality of singing with ease according to mine | E142a) Participants musically adjust tempo and dynamics of singing with ease |
| Line 143 | When we greet an animal loudly, Ian, still cupping his hands in front of his mouth like a speaker, sings very loud | E143a) Indiv participants cup hands in front of mouth E143b) Indiv sings louder |
| Line 144 | When we go back to the verse section I change my strumming to a combination of strumming and picking again | E144a) Repetition of verse E144b) Guitar accompaniment shift to calm and gentle |
| Line 145 | I keep the same moderately fast tempo but change the dynamics of my singing and playing too much softer and gentle | E145a) Therapist shifts dynamics from loud to soft and gentle |
| Line 146 | The group adjusts their singing | E146a) Participants musically adjust tempo and dynamics of singing with ease |
| Line 147 | The song ends at a moderately fast and cheerful tempo with a ritardando at the end | E147a) Therapist plays and sings cheerfully E147b) Music is moderately fast E147c) Song ends with gradual ritardando |

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| Line 148 | I praise the participants for their singing | E148a) Therapist verbally affirm |
| Session notes | The members seem to remember the song very well | |
| | They remembered the words more so they were less dependent of the communication board | |
| | They made a lot more eye contact with me | |
| | There seem to be a few moments where the participants were more awareness of each other, such as Jack copying Ian's movement by also cupping his hands in front of his mouth like a speakerphone | |
| | I was also able to have the participants assist me by pointing to the picture symbols on the communication board | |
| | I was able to adjust the tempo and the dynamics of the song | |
| | I added a few anticipations but felt limited when using the board | |
| | I did not always feel too spontaneous as I did in with the group without the communication board | |
| | The participants were however able to adjust their singing in terms of tempo and dynamics with ease | |

Appendix T: Thick descriptions F

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| F | Under the water | |
| 25-Apr-16 | Session 3 without pcs Group B (Ben was absent) | |
| Time (minutes into session) | Thick description | Code |
| 7:46 | | |
| Line 1 | I ask the participants if they remember the song | |
| Line 2 | I play a slow and gentle introduction on the guitar using a combination of strumming and picking | F2a) Therapist plays slow and gentle |
| Line 3 | Tom raises his hand and enthusiastically says "fish" | F3a) Indiv remembers word from chorus F3b) indiv responds with enthusiasm |
| Line 4 | I respond by also saying "fish" approvingly | F4a) Therapist verbally confirms indiv correct answer of animal |
| Line 5 | I start to sing the verse in a moderately slow and calm pace | F5a) Therapist sings slowly and calmly paced |
| Line 6 | All participants start to sing along at a slow tempo however they pronounce all the words clearly and sing melodically | F6a) Participants sing slowly F6b) Participants pronounce lyrics clearly F6c) Participants remembers verse melody and lyrics with ease |
| Line 7 | Tom's voice is the most notable as he sings the loudest and with confidence | F7a) Indiv sings the loudest F7b) Indiv sings with confidence |
| Line 8 | Christopher waves his arms to the rhythm of the first line of the verse where after he imitates that of a fish swimming with his hands | F8a) Indiv swings arms energetically F8b) Indiv imitate movement of animal in song |
| Line 9 | Tshepo excitedly stands up for a short moment and sit down again while singing enthusiastically | F9a) Indiv excitedly stands up briefly F9b) Indiv sings with enthusiasm |

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| Line 10 | The participants pronounce all the words clearly and properly. Their overall participation is high in energy and they all seem very focused at the music and me | F10a) Participants pronounce words clearly F10b) Participants participate with high energy F10c) Participants focus on therapist and the music |
| Line 11 | The quality of their voices is melodic, lively and energetic. The participants often make eye contact with me and each other while smiling | F11a) Participants singing is lively energetic and melodic F11b) Participants make eye contact with therapist and each other F11c) Participants smile |
| Line 12 | When we get to the chorus Tom and Christopher remembers all the animals we are greeting in the correct order. Christopher waves his arms in the air cheerfully as he and Tom smile widely at me | F12a) Two indiv remembers chorus lyrics with ease F12b) Indiv waves arms cheerfully F12c) Two participants smile widely F12d) Indiv make meaningful eye contact with therapist |
| Line 13 | Lisa seems unsure about the animal we greet next when its Mr. Jellyfish's turn and shouts out the word "shell" a few times as she pretends to hold a shell in her hand and tries to show it to me by placing her hand in the air in front of me | F13a) Indiv unsure of chorus lyrics F13b) Indiv enthusiastically shouts out related word to the theme |
| Line 14 | I slow down the tempo slightly and start the first line of the chorus section softer gradually growing louder and kept the tempo and dynamics the same for the rest of the chorus section | F14a) Therapist slows down music F14b) Therapist adjust dynamics gradually from soft to loud |
| Line 15 | The guitar accompaniment changes as well to strumming the main pulse in double time | F15a) Therapist's guitar strumming changes to double time |
| Line 16 | The participants sing along enthusiastically and energetically. They make meaningful eye contact with me and each other | F16a) Participants sing with high energy and enthusiasm F16b) Participants make meaningful eye contact with therapist and each other |
| Line 17 | They emphasize the animals being greeted by shouting loudly and excitedly out the names of the animals when we sing it in the song | F17a) Participants shout emphasized words excitedly F17b) Participants remembers chorus lyrics and melody with ease |
| Line 18 | Occasionally all participants would jump up from their seats of excitement and then sit down again | F18a) Participants jump up from chairs in excitement |

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| Line 19 | The wave their arms and swing their legs in a fast pace as they smile widely and playfully | F19a) participants swing legs and arms energetically F19b) Participants smile widely F19c) Participants engage playfully |
| Line 20 | As soon as we return to the verse I change the guitar accompaniment to a gentle, slow and soft combination of picking and strumming | F20a) Repetition of verse F20b) Therapist shift music to gentle and slow |
| Line 21 | I adjust my singing as well to the guitar accompaniment | F21a) Therapist sings slowly and gentle |
| Line 22 | I rock my upper body from one side to the other to the rhythm of music | F22a) Therapist rocks upper body matching the pulse of the music |
| Line 23 | The participants sing along eagerly | F23a) Participants eager to participate |
| Line 24 | Lisa and Christopher sing softer and gentler but Tom sings loud and overpowers the other participants singing almost | F24a) Two indiv adjust to tempo and dynamic shift with ease F24b) Indiv sings loudly and overpowering |
| Line 25 | Christopher waves his arms from one side to the other matching the rhythm of the music | F25a) Indiv waves arms matching the pulse of the music |
| Line 26 | The group makes a healthy amount of eye contact with me during the first time we sing the song in this session. The overall level of participation is very high and the members are very focused on the activity | F26a) participants make meaningful eye contact with therapist and each other F26b) High energy participation F26c) Participants focused on music and therapist |
| 8:45 | | |
| Line 27 | I continue to the chorus section again | F27a) Repetition of chorus |
| Line 28 | I unexpectedly change the tempo and dynamics of my singing and playing to a fast pace and more lively quality | F28a) Therapist suddenly shift music to fast and lively tempo and loud dynamics |
| Line 29 | My strumming on the guitar is much more vigorous | F29a) Therapist strums guitar vigorously |
| Line 30 | The participants do not sing along however they laugh loudly, smile widely and look at what the others in the group are doing | F30a) Participants laugh and smile widely F30b) Participants make meaningful eye contact with each other |

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| Line 31 | All the participants hop in their seats as they vigorously swing their legs in a fast pace to the rhythm of the song | F31a) Participants hop excitedly and energetically in their chairs F31b) Participants swing legs vigorously matching the pulse of the song |
| Line 32 | The swing their arms in a vigorous and fast pace, matching the tempo of the music as well | F32a) Participants wave arms vigorously matching the pulse of the music |
| Line 33 | The participants seem to imitate each other's physical movements | F33a) Participants imitate vigorous body movements from each other |
| Line 34 | After greeting the first two animals I unexpectedly pause | F34a) Therapist adds musically anticipation |
| Line 35 | I look at each participant creating a sense of anticipation | F35a) Therapist makes meaningful eye contact with participants |
| Line 36 | All the participants stop swinging their arms and legs and looks back at me in anticipation to see what will happen next | F36a) Participants focused on therapist and music F36b) Participants physically stop movement in anticipation of music |
| Line 37 | Before I continue with the song, Tom spontaneously starts to sing the song loudly and with confidence | F37a) Indiv remembers chorus lyrics F37b) Indiv sings loudly and with confidence |
| Line 38 | I join in immediately with the same tempo and dynamics I used for the first two lines | F38a) Therapist singing and playing matches indiv singing |
| Line 39 | The participants start laughing out loud; swing their legs and arms of excitement | F39a) Participants laugh and smile widely F39b) Participants wave arms and swings legs excitedly |
| Line 40 | Their physical movements match the tempo and energy of the music which is lively and cheerful | F40a) Participants physical movements matches lively and cheerful characteristics of music |
| Line 41 | All participants make a healthy amount of eye contact with each other and myself as the chorus section continues | F41a) Participants make meaningful eye contact with therapist and each other |
| Line 42 | When we get to the end of the chorus section, I suddenly pause the music again and look at all the participants thus creating anticipation to what will happen next in the song | F42a) Therapist adds musical anticipation F42b) Therapist makes meaningful eye contact with participants F42c) Therapist interacts playfully |
| 8:58 | | |

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| Line 43 | After a short pause I start to sing the verse softly and gentle | F43a) Therapist's singing is soft and gentle F43b) Repetition of verse |
| Line 44 | I change the strumming to a combination of picking and strumming | |
| Line 45 | I rock my upper body from one side to the other, matching the main pulse and the picking of the guitar accompaniment | F45a) Therapist rocks upper body matching slow tempo of the music |
| Line 46 | The participants start to sing along immediately in a slow and gently pace | F46a) Participants sing slowly and gentle F46b) Participants adjust to tempo and dynamic shift with ease |
| Line 47 | They look at me attentively | F47a) Participants focus on therapist and music |
| Line 48 | Christopher imitates my rocking movement by rocking his head from one side to the other for a short moment | F48a) Indiv imitates therapist rocking movement with nodding of head |
| Line 49 | He lifts his arms up and down to the rhythm of the music | F49a) Indiv moves arms matching the pulse of the music |
| Line 50 | Tom sings the loudest however Lisa and Christopher gradually sing louder and louder thus matching Tom's singing. They sing energetically and melodically. They pronounce the words clearly and playfully while making meaningful eye contact with each other and me. All the participants smile widely | F50a) Indiv sings loudest F50b) Two indiv gradually sing louder F50c) Participants remembers verse lyrics and melody F50d) Participants sing energetically and melodically F50e) participants pronounce words clearly F50f) Participants make meaningful eye contact with therapist and with each other F50g) Participants smile widely |
| Line 51 | After singing the first two lines of the verse, I unexpectedly change my strumming and singing to a fast and vigorous tempo | F51a) Therapist suddenly shifts music to a fast and vigorous tempo |
| Line 52 | Tom sings with me but even faster | F52a) Indiv sings faster than the intended tempo |
| Line 53 | Lisa and Christopher laugh out loud instead of singing as they stare at Tom | F53a) Two indiv laugh loudly at other indiv F53b) Two participants make meaningful eye contact with indiv |

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| Line 54 | Christopher swings his arms and legs vigorously and fast paced thus matching the tempo of the music | F54a) Indiv swings legs vigorously and fast matching the pulse of the music |
| Line 55 | The second time we repeat the verse, I do the exact same as the previous verse in terms of the tempo, dynamics and strumming | F55a) Repetition of verse F55b) Therapist alternates music between fast paced and vigorous strumming and singing to slow paced and calm strumming |
| Line 56 | The participants adjust their singing and body movement to a slow and gently pace | F56a) Participants adjust to tempo and dynamic shift with ease F56b) Participants sing slowly and gentle F56c) Participants swing legs and wave arms slowly matching the pulse of the music |
| Line 57 | When I pause before singing the last two lines of the verse, Tom starts spontaneously singing the first line vigorously and fast paced | F57a) Therapist adds musical anticipation F57b) Indiv sings spontaneously ahead of group F57c) Indiv sings loudly, energetic and vigorously |
| Line 58 | The group and myself join him immediately | F58a) Therapist and participants match indiv fast paced and vigorous singing F58b) Participants adjust to tempo and dynamic shift with ease |
| Line 59 | The tempo is fast paced and the group members laugh and swing their legs and arms vigorously matching the tempo of the music | F59a) Participants laugh and smile widely F59b) Participants swing limbs with high energy matching the pulse of the music |
| Line 60 | They make eye contact with each other and me often | F60) Participants make meaningful eye contact with therapist and each other |
| Line 61 | I unexpectedly end the last line of the verse by adding a slow ritardando | F61a) Therapist adds ritardando to end verse |
| Line 62 | I sing softer and gentler | F62a) Therapist sings softly and gentle |
| Line 63 | The participants sing calmly | F63a) Participants adjust to tempo and dynamic shift with ease |
| Line 64 | He shouts out the last word, which is "me" loudly and playfully | F64a) Indi shouts out emphasized word loudly and playfully |
| 9:18 | | |

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| Line 65 | I unexpectedly move to the chorus section of the song | F65a) Repetition of chorus F65b) Therapist continues music unexpectedly |
| Line 66 | I strum vigorously in a fast tempo and sing loud matching the strumming on the guitar | F66a) Therapist strums and sings fast paced and vigorously |
| Line 67 | I sing the entire chorus through keeping the same tempo and dynamics I started it with. I make meaningful eye contact with the group members and they respond by making eye contact with me | F67a) Therapist's music remains fast paced and vigorous F67b) Therapist makes meaningful eye contact with participants F67c) Participants make meaningful eye contact with therapist |
| Line 68 | The participants' laughs loudly, some imitate me by pretending to play the guitar | F68a) Participants smile and laugh loudly F68b) Participants imitate therapist by pretending to play guitar |
| Line 69 | They swing their legs vigorously, matching the music | F69a) Participants swing legs with high energy matching the pulse of the music |
| Line 70 | They make eye contact with each other and myself often and their overall focus is on the music and me. Their overall body language indicates eagerness to participate and excitement | F70a) Participants make meaningful eye contact with therapist and each other F70b) Participants focus on therapist and music F70c) Participants body language indicate eagerness and excitement to participate |
| Line 71 | I pause the guitar strumming and my singing unexpectedly when finishing the chorus section | F71a) Therapist adds musical anticipation |
| Line 72 | I started to sing the verse section | F72a) Repetition of verse |
| Line 73 | I change the guitar accompaniment to a combination of strumming and picking | F73a) Therapist's guitar accompaniment changes |
| Line 74 | I sing and play slower, softer and gentler | F74a) Therapist sings and plays soft, slower and gentle |
| Line 75 | I rock my upper body from one side to the other matching the main pulse of the guitar picking | F75a) Therapist rocks upper body matching the pulse of the music |
| Line 76 | The participants sing along lively and enthusiastically. They know the words very well and sing it with confidence | F76a) Participants sing lively and with enthusiasm F76b) Participants remember verse melody and lyrics with ease |

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| Line 77 | Lisa and Christopher swing their arms matching the rhythm of the music | F77a) Two indiv swing arms matching the pulse of the music |
| Line 78 | When we get to the second line of the verse, I unexpectedly change the tempo and dynamics of the music to fast paced and livelier | F78a) Therapist shifts music to fast paced and lively |
| Line 79 | The participants sing along loudly and laugh in between the singing | F79a) Participants adjust to tempo and dynamic shift with ease F79b) Participants laugh loudly |
| Line 80 | They swing their feet and arms vigorously and matching to the music | F80a) Participants energetically and vigorously swing legs matching the pulse of the music |
| Line 81 | When we start with the repeat of the verse, I change the tempo and dynamics of the song to slower and gentler | F81a) Repetition of verse F81b) Therapist shifts music to slow and gentle |
| Line 82 | The participants sing along lively and loud | F82a) Participants do not adjust with music F82b) Participants sing lively and loudly |
| Line 83 | Before we get to the second section of the verse, Tom spontaneously and fast paced continue to sing the next line of the verse | F83a) Indiv energetically sing ahead of participants and therapist F83b) Indiv remembers verse lyrics F83c) Indiv sings energetically and spontaneously |
| Line 84 | I pause and look at Tom | F84a) Therapist makes meaningful eye contact with indiv |
| Line 85 | He stomps singing and looks at me in anticipation to what will happen next | F85a) Indiv focus on therapist in anticipation F85b) Indiv makes meaningful eye contact with therapist |
| Line 86 | I unexpectedly start to strum the guitar vigorously at a fast tempo | F86a) Therapist suddenly plays with high energy and fast paced |
| Line 87 | The participants laugh very loudly, swing and kick their legs and wave their arms | F87a) Participants laugh loudly F87b) Participants swing legs and wave arms energetically |

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| Line 88 | They make eye contact with each other and myself | F88a) Participants make meaningful eye contact with therapist and each other |
| 9:55 | | |
| Line 89 | I continue to the chorus section | F89a) Repetition of chorus |
| Line 90 | I strum and sing slowly and lazily the greeting of the first animal | F90a) Therapist strums lazy and slowly |
| Line 91 | Each word is emphasized and pronounced very clearly by all the members | F91a) Participants remembers chorus melody and lyrics with ease F91b) Participants pronounce words clearly |
| Line 92 | Tom sings ahead a few times | F92a) Indiv sings ahead of therapist and participants |
| Line 93 | I pause the music for a few seconds when Tom starts singing the next line spontaneously and in a very fast pace | F93a) Therapist adds musical anticipation F93b) Indiv sings ahead spontaneously and fast paced |
| Line 94 | I immediately join him, and so do the rest of the participants | F94a) Therapist and participants sing fast paced and energetically F94b) Participants adjust to tempo and dynamic shift with ease |
| Line 95 | The second animal being greeted is very fast paced and energetically, loud and vigorous strumming and singing | F95a) Therapist's music is fast paced and vigorously sung and strum |
| Line 96 | The participants swing their arms and legs and laugh very loud | F96a) Participants sing loudly and energetically 96b) Participants swing arms and legs energetically |
| Line 97 | The third animal we greet is in a slow and lazy pace to which the members adjust their singing with ease | F97a) Therapist shifts music to a slow and lazy pace F97b) Participants adjust to tempo and dynamic shift with ease F97c) Participants sing slowly and lazy |
| Line 98 | The animal that should be greeted is Mr. Jellyfish | |

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| Line 99 | Lisa shouts out very loudly "shark" with confidence while smiles at me | F99a) Indiv sing incorrect animal name with confidence F99b) Indiv smiles F99c) Indiv makes meaningful eye contact with therapist |
| Line 100 | I continue with the song by greeting the fourth animal in a fast and vigorous tempo | F100a) Therapist strums and sings fast and vigorously |
| Line 101 | The participants swing their arms and legs vigorously as they loudly sing and shouts out "crab" | F101a) Participants swing arms and legs energetically F101b) Participants sing loudly F101c) Participants remember emphasized words of chorus |
| 10:10:00 | | |
| Line 102 | After a short pause I start to sing the verse softly and gentle | F102a) Therapist shifts music to slow and gentle F102b) Repetition of verse |
| Line 103 | I change the strumming to a combination of picking and strumming | F103a) Therapist's guitar accompaniment changes |
| Line 104 | I rock my upper body from one side to the other, matching the main pulse and the picking of the guitar accompaniment | F104a) Therapist rocks upper body matching the pulse of the music |
| Line 105 | The participants start to sing along immediately. They remember the lyrics with ease | F105a) Participants immediately remembers verse melody and lyrics with ease |
| Line 106 | They look at me attentively while smiling widely. They seem curious and excited by the music | F106a) Participants focus on therapist and music F106b) Participants make eye contact with therapist F106c) Participants participate with excitement F106d) Participants smile |
| Line 107 | After singing the first line of the verse, I unexpectedly change my strumming and singing to a fast and vigorous tempo | F107a) Therapist suddenly shifts music to fast and vigorous |
| Line 108 | The participants laugh out loud | F108a) Participants respond in excitement and laughter |

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| Line 109 | They all swing their arms and legs vigorously in a fast pace thus matching the tempo of the music | F109a) Participants swing arms and legs fast and energetically F109b) Participants swing arms and legs matching the pulse of the music |
| Line 110 | The second time we repeat the verse, I do the exact same as the previous verse in terms of the tempo, dynamics and strumming | F110a) Repetition of verse F110b) Therapist's expectantly alternate between fast and slow tempo |
| Line 111 | The participants adjust their singing and body movement to a slow and gently pace | F111a) Participants adjust to tempo and dynamic shift with ease |
| Line 112 | When I pause before singing the last two lines of the verse, Tom starts spontaneously singing the first line vigorously and fast paced | F112a) Indiv sings unexpectedly and spontaneously F112b) Indiv sings energetically and fast paced |
| Line 113 | I pause for a short time and Tom stomps singing and look at me in anticipation. He smiles widely at me | F113a) Indiv smiles F113b) Indiv makes meaningful eye contact with therapist F113c) Therapist adds musical anticipation |
| Line 114 | I unexpectedly continue with the song | F114a) Therapist suddenly continues the song |
| Line 115 | The tempo is fast paced and the group members laugh and swing their legs and arms vigorously matching the tempo of the music | F115a) Therapist plays fast and energetically F115b) Participants respond with excitement and laughter F115c) Participants swings arms and legs energetically and vigorously F115d) Participants swing arms and legs matching the pulse of the music |
| Line 116 | They make eye contact with each other and myself often while smiling widely | F116a) Participants make meaningful eye contact with therapist and each other F116b) Participants smile |
| 10:35 | | |
| Line 117 | Before moving to the chorus section again | F117a) Repetition of chorus |
| Line 118 | I lower my voice to almost whispering | F118a) Therapist speaks whisper-like |
| Line 119 | I ask the group what we sing after the verse section | F119a) Therapist asks participants what we sing after the verse section |

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| Line 120 | The all look at me with excitement and anticipation | F120a) Participants focus on therapist F120b) Participants seem excited F120c) Participants make meaningful eye contact with therapist F120d) Participants body language and facial expressions indicate anticipation and curiosity |
| Line 121 | I start to sing the greeting of the first animal | |
| Line 122 | The participants make eye contact with me while smiling | F122a) Participants make eye contact with therapist F122b) Participants smile |
| Line 123 | I sing slowly and pronounce and emphasize every word of the line clearly | F123a) Therapist sings slowly F123b) Therapist emphasize lyrics F123c) Therapist pronounces lyrics clearly |
| Line 124 | The participants look at me attentively and in anticipation | F124a) Participants make meaningful eye contact with therapist F124b) Participants focus on therapist in anticipation |
| Line 125 | I pause for a short while and unexpectedly sing the greeting of the second animal in a fast and lively tempo | F125a) Therapist adds musical anticipation F125b) Therapist unexpectedly sings at a fast and lively tempo |
| Line 126 | The group start to sing loudly with me, they swing their legs and arms vigorously and in a fast pace, matching the tempo and energy of the music | F126a) Participants adjust to tempo and dynamic shift with ease F126b) Participants swing arms and legs energetically matching the pulse of the music F126c) Participants engage with high energy and excitement |
| Line 127 | They shout out the animal's name we are greeting which was Mr. Shark loudly and energetically while smiling widely | F127a) Participants remembers chorus melody and lyrics with ease F127b) Participants smile widely F127c) Participants sing loudly and energetically |
| Line 128 | I pause again | F128a) therapist adds musical anticipation |
| Line 129 | I start to sing the greeting of the third animal | |
| Line 130 | The participants make eye contact with me as they stare at me in anticipation and with curiosity | F130a) Participants make meaningful eye contact with therapist F130b) Participants focus on therapist with curiosity and anticipation |

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| Line 131 | I sing slowly and pronounce and emphasize every word of the line clearly | F131a) Therapist sings slow F131b) Therapist pronounces lyrics clearly F131c) therapist emphasize lyrics |
| Line 132 | The participants look at me attentively and in anticipation while smiling widely | F132a) Participants make meaningful eye contact with therapist F132b) Participants focus on therapist with curiosity and anticipation F132c) Participants smile |
| Line 133 | As we sing the animal being greeted name, which was Mr. Jellyfish, Tom specifically, shouts out the animals name in a forced and low pitched voice, almost similar to growling | F133a) Indiv shouts lyrics in a low pitched voice F133b) Indiv sings with force and very loud F133c) Indiv remembers chorus melody and lyrics with ease |
| Line 134 | I pause for a short while and unexpectedly sing the greeting of the fourth animal in a fast and lively tempo | F134a) Therapist adds musical anticipation F134b) Therapist sings and strums at a fast pace and vigorously F134c) Therapist unexpectedly starts to sing |
| Line 135 | The participants swing their arms and legs energetically and excitedly | F135a) Participants swing their arms and legs energetically and excitedly |
| Line 136 | Luca playfully imitates my movement by pretending to play a guitar | F136a) Indiv copies therapist's playing of the guitar with physical imitation F136b) Indiv engages playfully |
| 10:53 | | |
| Line 137 | I return to the verse | F137a) Repetition of verse |
| Line 138 | I slow down the tempo and adjust the guitar accompaniment to a combination of strumming and picking | F138a) Therapist plays slow and calmly |
| Line 139 | I rock from one side to the other matching the pulse of the music | F139a) Therapist rocks upper body matching the pulse of the music |
| Line 140 | The participants sing along lively and enthusiastically while smiling widely at me | F140a) Participants sing lively and enthusiastically F140b) Participants smile F140c) Participants make meaningful eye contact with therapist |

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| Line 141 | As we get to the second line of the verse, Tom starts to sing faster, I immediately speed up the tempo of my playing and singing but not too fast or vigorous as Tom's singing | F141a) Indiv sings ahead of group F141b) Therapist adjust to tempo and dynamic shift with ease F141c) Indiv sings fast paced and loudly with high energy F141d) Therapist sings and strums guitar fast paced and energetically |
| Line 142 | The rest of the group musically adjust to the tempo with ease while smiling widely and swinging their arms matching the pulse of the music | F142a) Participants adjust to tempo and dynamic shift with ease F142b) Participants smile widely F142c) Participants swings arms and legs energetically to the pulse of the music |
| Line 143 | The second time we sing the verse, I slow down the tempo and adjust the guitar accompaniment to a combination of strumming and picking again | F143a) Therapist plays slowly and lively |
| Line 144 | The participants sing along lively while smiling at me. The members are able to adjust the tempo and quality of their singing to slow and lively with ease | F144a) Participants sing slow and lively F144b) Participants adjust to tempo and dynamic shift with ease F144c) Participants smile F144d) Participants make meaningful eye contact with therapist |
| 11:11 | | |
| Line 145 | I continue to the chorus section | F145a) Repetition of chorus |
| Line 146 | I keep the tempo of the chorus more or less the same as the verse however I strum more lively and stronger | F146a) Therapist sings and strums guitar lively and strong |
| Line 147 | I slow down the tempo and strum gentler when we greet the third animal, which is Mr. Jellyfish and return to the lively, and moderately fast paced tempos when we greet the fourth animal | F147a) Therapist unexpectedly shifts music to slow and gentle paced tempo F147b) Therapist unexpectedly shifts music to lively and moderately fast paced |
| Line 148 | The participants seem to remember all the animals being greeted, including Mr. Jellyfish as well as the order we are greeting them | F148a) Participants remember chorus lyrics and melody with ease |
| Line 149 | The sing along all the lyrics | F149a) Participants remembers chorus lyrics with ease |
| Line 150 | They pronounce all the words clearly | F150a) Participants pronounce words clearly |

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| Line 151 | The quality of their voices is lively and energetic | F151a) Participants quality of voices are lively and energetic |
| Line 152 | They sing with a lot of confidence and seem excited by the anticipation of not knowing when the music is going to change. They make eye contact with me and each other as they swing their arms and legs energetically | F152a) Participants sing with confidence F152b) Participants respond with excitement and curiosity F152c) Participants make meaningful eye contact with therapist and each other F152d) Participants swing arms and legs energetically |
| Line 153 | I return to the verse | F153a) Repetition of verse |
| Line 154 | I slow down the tempo and adjust the guitar accompaniment to a combination of strumming and picking | F154a) Therapist plays at a slow paced tempo |
| Line 155 | I rock from one side to the other matching the pulse of the music | F155a) Therapist rock upper body matching the pulse of the music |
| Line 156 | The participants sing along lively, loudly and enthusiastically | F156a) Participants sing lively, loud and with enthusiasm |
| Line 157 | As we get to the second line of the verse I immediately speed up the tempo of my playing and singing to a more energetic and vigorous quality | F157a) Therapist plays energetic and fast paced F157b) Therapist suddenly shifts music to a vigorous and energetic character |
| Line 158 | The rest of the group sings along while making eye contact with each other and myself. They adjust their singing with ease | F158a) Participants adjust to tempo and dynamic shift with ease F158b) Participants sing energetic and vigorously F158c) Participants make meaningful eye contact with therapist |
| Line 159 | They swing their arms and legs as they sing and laugh loudly | F159a) Participants respond with laughter F159b) Participants swing arms and legs energetically matching the pulse of the music F159c) Participants sing loudly |
| Line 160 | The second time we sing the verse, I slow down the tempo and adjust the guitar accompaniment to a combination of strumming and picking again | F160a) Therapist sings slowly F160b) Therapist suddenly shifts music to a slow paced tempo |

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| Line 161 | The participants sing along lively and confidently. They adjust the tempo of their singing to a slower pace with ease | F161a) Participants adjust to tempo and dynamic shift with ease F161b) Participants sings lively and with confidence |
| Line 162 | The very first line of the verse I fasten the tempo, strum the guitar more vigorously and sing louder | F162a) Therapist suddenly shifts music to fast and energetically paced tempo F162b) Therapist sings loudly and strums guitar with force |
| Line 163 | The participants swing their legs and arms, laugh and sing loudly and excitedly | F163a) Participants respond with loud laughter F163b) Participants sing loudly and excitedly F163c) Participants swings arms and legs energetically |
| Line 164 | I extend the last chord as well as the word "me" to which the participants joins in by hopping and swinging their limbs vigorously and excitedly | F164a) Therapist and participants exaggerates final chord by extending the word playfully F164b) Participants hop in their chairs energetically and with excitement |
| Line 165 | They sing loudly and enthusiastically with me | F165a) Participants sing over exaggerated last word loudly and with enthusiasm |
| Line 166 | I end the music by strumming a strong final chord loudly | F166a) Therapist strums a strong final chord to end the song |
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| Session notes | The song learning went very well in this session | |
| | The participants remembered the lyrics and melody very well | |
| | Tom spontaneously offered tempo and dynamics changes to the song by singing faster and louder | |
| | I adjusted my singing and playing to match his quality of singing | |
| | All the participants seem to have a lot of fun | |
| | They laughed, hopped in their chairs and sang with confidence, high energy and excitement | |
| | The song learning process felt much easier | |
| | There were a lot of space and time to musically extend the song and thus provided a wider variety of experiences of the song and interacting within a group context to each participant | |

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| | <p>Overall the song learning in this session was playful, exciting, socially engaging and enjoyable for the participants and myself</p> |
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Appendix U: Thick descriptions G

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| G | At the circus | |
| 26-Apr-16 | Session 1 without pcs Group A | |
| Time (minutes into session) | Thick description | Code |
| 6:55 | | |
| Line 1 | I explain to the participants that we are singing a new song | |
| Line 2 | Jack asks "what about the board?" He appears to be bit upset that we won't be using the board | G2a) Indiv observes absence of Pcs G2b) Upset at absence of PCS |
| Line 3 | I explain to him that we will be learning the song without using a board | G3a) Therapist verbally acknowledge indiv concern of absent PCS board |
| Line 4 | He keeps quiet and looks at me with a frown | G4a) Indiv makes meaningful eye contact with therapist G4b) Indiv seems upset at absence of PCS |
| Line 5 | I explain to them that it is very similar to the previous song | |
| Line 6 | I start to pick the guitar in a slow and calm pace | G6a) Therapist picks guitar strings slowly and softly |
| Line 7 | I start to sing the song gently and slowly, I make sure to pronounce the lyrics very clearly and correct | G7a) Therapist sings softly and gentle G7b) Therapist pronounce lyrics clearly |
| Line 8 | Some of the participants try to sing along by mumbling the words and trying to predict the lyrics as I sing it. They seem to remember the melody very well from the previous song. All participants look at me attentively with blunted facial expressions | G8a) Participants seem eager to learn lyrics G8b) Mumbling of words G8c) Blunted facial expressions G8d) Participants focus on therapist and music |

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| Line 9 | The lyrics that are the same as in the previous song such as "lots and lots" some of the participants sing clearer | G9a) Participants immediately remember lyrics similar to previous song |
| Line 10 | Some mumble as they are unsure what the words of the song are but seem to remember the melody of the song very well | G10a) Mumbling of words G10b) Participants remember melody from previous song G10c) Participants unsure of verse lyrics |
| Line 11 | I sing the verse for a second time, this time the members sing along but still mumbling for most part of the song | G11a) Repetition of verse G11b) Mumbling of words |
| Line 12 | Ian cups his hands in front of his mouth and sings the last line of the song very clear and loud | G12a) Individ respond to music by physically cupping hands in front of mouth and singing |
| Line 13 | After I finish the first repeat of the verse I ask the participants what the song is about | G13a) Therapist ask participants ask what the song is about |
| Line 14 | Ian answers by saying" this song is about the circus animals" | G14a) Individ gives correct intended meaning of the songs theme |
| Line 15 | I praise him for his correct answer | G15a) Therapist verbally affirms indiv for remembering the songs theme |
| Line 16 | I explain to the participants that the song is about going to the circus | G16a) Therapist verbally explain theme of song |
| Line 17 | Albert shouts out "like Madagascar", referring to the animated children's movie | G17a) Individ associate theme of song with a film |
| Line 18 | I start to strum the guitar gently again | G18a) Therapist strums guitar gently G18b) Repetition of verse |
| Line 19 | I verbally invite the participants to sing the verse with me again | G19a) Therapist invite participants to sing |
| Line 20 | I count to four and we all start to sing together at a moderately slow tempo | G20a) The music is moderately slow |

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| Line 21 | At some parts of the verse some of the members seem uncertain about the words but they mumble along during those parts. All the participants sing along. They're facial expressions are blunted and their singing and level of engagement is low in energy | G21a) Unsure of verse words H21b) Mumbling of lyrics H21c) Blunted facial expressions H21d) Low energy singing and engagement |
| Line 22 | Ian sings with his hands cupped in front of his mouth | G22a) Indiv respond to music by physically cupping hands in front of mouth and sing |
| Line 23 | His voice is the most noticeable from all the participants singing as this makes is his voice louder. The quality of his singing is playful and energetic | G23a) Indiv sings the loudest G23b) Indiv singing is playful and energetic |
| 8:25 | | |
| Line 24 | I pause for a moment and verbally invite the participants to greet the circus animals with me | G24a) therapist verbally invite participants to sing |
| Line 25 | I tell them that the first animal we are greeting is Mr. Elephant | G25a) Therapist verbally tell participants lyrics of chorus |
| Line 26 | I start to sing hello to Mr. Elephant | G26a) Therapist sings line |
| Line 27 | The group sings along much louder and with more enthusiasm than the verse. They seem to remember the melody from the previous session very well | H27a) Participants sing loudly and with confidence H27b) Participants remember melody from previous song |
| Line 28 | I verbally say that the next animal we are greeting is Mr. Horse | G28a) Therapist verbally tell participants lyrics of chorus |
| Line 29 | The participants sing along the greeting of Mr. Horse loudly and with a lot of confidence. All the participants attentively look at me with blunted facial expressions except Ian. Albert hops in his chair briefly | G29a) Participants and therapist sing loudly and with confidence together G29b) Participants focus on therapist and music G29c) Blunted facial expressions H29d) Indiv hops in chair briefly |

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| Line 30 | After we finish the phrase, Ian imitates the sound of a horse verbally while he flops his hands and head, imitating the movement of a horse. He smiles widely and looks at the participants. He also sings with his hands cupped in front of his mouth | G30a) Individ imitate movement of animal H30b) Individ imitate vocal sound of animal H30c) Individ smiles widely H30d) Individ sings with hands cupped in front of mouth H30e) Individ participated with high energy and playfulness H30f) Individ makes eye contact with participants |
| Line 31 | I verbally say that the next animal we will be greeting is Mr. Grizzly bear | G31a) Therapist verbally speak lyrics for chorus |
| Line 32 | We sing hello to Mr. Grizzly bear with low energy and mumbling of lyrics. Albert rocks his body from one side to the other with small actions. Ian imitates the sound and movement of a growling bear. The participants seem to remember the melody and the words very well however they stare at me with blunted facial expressions and sing very low in energy and the quality of their voices is very flat except for Ian who sings with high energy and smiles widely | G32a) Participants sing with low energy G32b) Participants quality of singing is flat G32c) Mumbling of lyrics G32d) indiv rocks upper body G32e) Individ imitate movement and vocal sound of animal G32f) Participants remembers chorus lyrics and melody with ease G32g) Participants blunted facial expressions G32h) Individ smiles widely G32i) Individ sings with high energy |
| Line 33 | The group seems interested in the music and occasionally make eye contact with me | G33a) participants make eye contact with therapist G33b) Participants focus on therapist |
| Line 34 | At the end of the phrase Ian roars like bear and lifts his hands and pretends they are bear claws loudly and playfully | G34a) Individ imitates physical movement and vocal sound of animal G34b) Individ physical and vocal imitation is playful |
| Line 35 | I lower my voice to introduce the last animal we will be greeting | G35a) Therapist lowers voice |
| Line 36 | The group members look at me curiously | G36a) Therapist creates anticipation G36b) Participants focused and interested in therapist |
| Line 37 | I explain that the last animal is Mr. Snake | G37a) Therapist verbally speak lyrics for chorus |
| Line 38 | I put emphasis on the "s" sound of Mr. Snake by making a hissing sound as I say the word "snake" | G38a) Therapist emphasize vocal "S" sound |

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| Line 39 | As we sing hello to Mr. Snake the participant's imitate the hissing sound when they say the word "snake" | G39a) Participants imitate vocal sound of therapist |
| Line 40 | Ian doesn't sing the words; instead he hisses like a snake and imitates a snake slithering around with his right arm throughout the verse in a playful and energetic manner. Ian immediately starts to sing the first two lines of the verse by himself with his hands cupped before his mouth | G40a) Individ imitates physical movement and vocal sound of animal G40b) Individ participates with high energy and playfulness G40c) Individ sings with hands cupped in front of mouth G40d) Individ remembers song form G40e) Individ remembers chorus melody and lyrics |
| 9:11 | | |
| Line 41 | I verbally invite the members to greet the animals again with me | G41a) Repetition of chorus G41b) Therapist verbally invite participants to sing |
| Line 42 | I verbally ask them who we greet first | G42a) Therapist ask participants which animal is greeted next |
| Line 43 | Jack immediately answers that we are greeting Mr. Elephant. He smiles proudly for a brief moment | G43a) Individ immediately remembers chorus lyrics G43b) Individ smiles proudly for brief moment |
| Line 44 | I praise him for remembering | G44a) Therapist verbally affirms participant for remembering the animal |
| Line 45 | We sing hello to Mr. Elephant | |
| Line 46 | The participants sing along with confidence, as they know the melody and lyrics very well. They sing with blunted facial expressions | G46a) Participants sing with confidence G46b) Blunted facial expressions G46c) Participants remembers chorus lyrics and melody with ease |
| Line 47 | Ian sings with his hands cupped in front of his mouth, which makes his voice louder | G47a) Individ cups hands in front of mouth G47b) Individ sings louder |
| Line 48 | He also imitated the trumpeting sound an elephant would make at the end of the phrase loudly and energetically. Ian participates in a very playful manner | G48a) Individ imitate vocal sound of animal with high energy and playfulness |

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| Line 49 | I continue with the song by asking who we greet next | G49a) Therapist ask participants which animal is greeted next |
| Line 50 | I don't not stop playing guitar and the group answers by singing the correct line with the correct melody with blunted facial expressions | G50a) Participants remembers chorus lyrics G50c) Participants remember melody G50d) Blunted facial expressions |
| Line 51 | I wait a short moment and continue to greet Mr. Horse | |
| Line 52 | The participants sing along with flat quality of voices and mumbling of words except for Ian | G52a) Participants sing with flat quality of voices G52b) Mumbling of words |
| Line 53 | Ian sings the loudest and high energy, still cupping his hands in front of his mouth | G53a) Indiv cups hands in front of mouth G53b) Indiv sings louder and energetically |
| Line 54 | I continue to the next animal being greeted without asking who we greet next | |
| Line 55 | The next animal being greeted is Mr. Grizzly bear | |
| Line 56 | The participants sing along louder and seem to predict Mr. Grizzly bear with ease. Albert and Ina hops in their chairs to the rhythm of the music | G56b) Participants sing loudly G56c) Two indiv hop in their chairs to the pulse of the music |
| Line 57 | We greet the last animal which is Mr. Snake | |
| Line 58 | All participants sing along loudly, energetic and enthusiastically and predicts the lyrics with ease. They all look at me attentively and with blunted facial expressions except for Ian who smiles and still sings with his hands cupped in front of his mouth | G58a) Participants sing loudly and more energetically G58b) Participants make eye contact with therapist G58c) Blunted facial expressions G58d) Indiv smiles G58f) Indiv sings with cupped hands in front of mouth |
| 9:35 | | |
| Line 59 | I move directly into the verse section | G59a) Repetition of verse |
| Line 60 | I change the guitar accompaniment from strumming in double time to a calm combination of picking and strumming | G60a) Guitar accompaniment shift to slower and calmer |
| Line 61 | The participants sing along with low energy and blunted facial expressions | G61a) Participants sing with low energy G61b) Participants blunted facial expressions |

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| Line 62 | They seem to remember all the lyrics very well as well as the melody however they tend to sing monotonic | G62a) Participants remember verse melody G62b) Participants remember verse lyrics with ease G62c) Participants monotonic singing |
| Line 63 | They sing louder when we sing words such as "lots and lots" that are similar to the previous song | G63a) Participants remember lyrics from previous song |
| Line 64 | Ian's voice is heard the loudest and clearest because he is singing with his hands cupped in front of his mouth. He sings more energetically as he moves his upper body in a rocking movement matching the pulse of the music | G64a) Individ cups hands in front of mouth G64b) Individ sings louder and playfully G64c) Individ participates with high energy G64d) Individ rocks upper body matching the pulse of the music |
| Line 65 | We repeat the verse for a second time | G65a) Repetition of verse |
| Line 66 | All participants sing along with blunted facial expressions while attentively staring at me and my guitar | G66a) Participants focus on therapist and music |
| 10:17 | | |
| Line 67 | I praise the group for learning the words so well | G67a) Therapist verbally affirms participants for remembering the song |
| Line 68 | I verbally invite them to sing the song with me for a last time | G68a) Therapist verbally invite participants to sing |
| Line 69 | I start to strum and pick the guitar for the verse section | G69a) Therapist plays introduction G69b) Repetition of verse |
| Line 70 | I fasten the tempo and play and sing with a lot more energy and enthusiasm as I did before | G70a) Therapist fastens tempo and plays with enthusiasm and high energy |
| Line 71 | The participants start to sing along, Albert hops in his chair for a short while, the rest of the participants sit still on their chairs and look at the guitar and me with blunted facial expressions and low energy | G71a) Participants blunted facial expressions G71b) Participants participate with low energy G71c) Individ participant hops in chair energetically G71d) Participants make eye contact with therapist |
| Line 72 | The participants pronounce the words clearly. They sing loudly and seem to remember the melody and lyrics with ease | G72a) participants sing loudly G72b) Participants remember verse melody and lyrics with ease G72c) Clear pronunciation of words |

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| Line 73 | When we get to the chorus section | G73a) Repetition of chorus |
| Line 74 | I ask the participants whom we greet first | G74a) Therapist ask participants which animal is greeted next |
| Line 75 | Jack starts to sing softly "hello Mr. Elephant" with a blunted facial expressions | G75a) Indiv softly sings verse G75b) Indiv blunted facial expression |
| Line 76 | The group and I join him and we all greet Mr. Elephant cheerfully | G76a) Therapist and participants cheerfully sing answer together |
| Line 77 | I continue with the song | |
| Line 78 | All participants sing along loudly as we greet Mr. Horse. They remember the order of the animals being greeted with ease. Their singing is low in energy and they stare at me with blunted facial expressions while occasionally making eye contact with me | G78a) Participants sing loudly G78b) Participants remember chorus lyrics and melody with ease G78c) Low energy singing G78d) Blunted facial expressions G78e) Participants occasionally make eye contact with therapist |
| Line 79 | At the end of the phrase Ian imitates the sound of a horse as he wiggles his fingers in front of his mouth energetically and excitedly | G79a) Indiv respond to music by physically wiggling fingers G79b) Indiv associate lyrics to real life animal sounds G79c) Indiv responds with excitement and high energy participation |
| Line 80 | I continue to the next animal | |
| Line 81 | Ian sings with his hands cupped in front of his mouth thus singing louder and with a playful tone quality | G81a) Indiv cups hands in front of mouth G81b) Indiv sings loudly and playfully |
| Line 82 | Halfway through the phrase Ian starts to roar like a bear as we greet Mr. Grizzly bear energetically and loud. He imitates the animal sounds with his hands cupped in front of his mouth | G82a) Indiv imitates animal vocal sound loudly and energetically G82b) Indiv cups hands in front of mouth |
| Line 83 | We continue to greet the last animal which is Mr. Snake | |

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| Line 84 | The participants put an emphasis on the "s" sound and playfully make hissing sounds when we greet Mr. Snake. Ian continues to sing with his hands cupped in front of his mouth and singing loudly and playfully. The rest of the group stare at me with blunted facial expressions however they sing loudly and pronounce all the lyrics clearly | G84a) Participants emphasize "s" vocal sound of animal in song G84b) Participants blunted facial expressions G84c) Participants remembers chorus melody and lyrics very well G84d) Participants pronounce lyrics clearly G84e) Indiv cups hands in front of mouth G84f) Indiv sings loudly and playfully |
| Line 85 | I continue to the verse | G85a) Repetition of verse |
| Line 86 | All participants sing along loudly and with confidence | G86a) Participants sing loudly and with confidence |
| Line 87 | They sing with blunted facial expressions and stare at me attentively | G87a) Participants blunted facial expressions H87b) Participants focus on therapist and music |
| Line 88 | Ian's voice is the loudest of them all because he is singing with both his hands cupped in front of his mouth. His voice is playful and melody. It seems as if he might be smiling behind his cupped hands. He often makes eye contact with me and the other group members | G88) Indiv cup hands in front of mouth G88b) Indiv sings loudest G88c) Indiv sings playfully and melodic G88d) Indiv makes eye contact with indiv participants and therapist |
| Line 89 | Ellen gives a big stretch during the second repeat of the verse and Jack rocks his upper body gently from one side to the other for a short while | G89a) Repetition of verse G90a) Participants rock upper body gently |
| Line 90 | After we end the song, Jack asks when we are using the communication board again | G90a) Indiv observes absence of Pcs |
| Line 91 | I explain to him that we are not going to use the communication board for this song | G91a) Therapist verbally explain absence of pcs |
| Line 92 | He seems upset as he says to me "I want to use the board" | G92a) Indiv insists on presence of pcs G92b) Indiv upset at absence of pcs |
| Line 93 | I acknowledge him and continue with the goodbye song | G93a) Therapist verbally acknowledge indiv upset emotions |
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| Session notes | Overall there had to be a lot of repetition of the phrases and lyrics of the song |
| | The participants knew the melody and structure of the song already which made the song learning process easier to an extent |
| | Jack seemed upset at the beginning and end of the session that we were not making use of the communication board as in the previous sessions with the previous song |
| | The rest of the participants seem to adjust well without the use of a communication board, in fact some did not even seem to notice there was no communication board being used |
| | Overall I think the song was learned with ease without using any form of visual aid |

Appendix V: Thick descriptions H

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| H | At the circus | |
| 26-Apr-16 | Session 1 with pcs Group B | |
| Time (minutes into session) | Thick description | Code |
| 5:45 | | |
| Line 1 | I take out the communication board and place it in an upright standing position on my lap | |
| Line 2 | I point to the first symbol representing the word "here" | H2a) Therapist directs attention to PCS |
| Line 3 | I ask the participants what that symbol means | H3a) Therapist ask participants a question about PCS |
| Line 4 | Lisa puts up her hand and say "my turn" | H4a) Indiv participant eagerly volunteers to answer |
| Line 5 | She then asks me to turn the board to her so she can see better | H5a) indiv interested in PCS |
| Line 6 | She gives an answer but I am unable to hear it clearly in the video footage | H6a) Unclear speech |
| Line 7 | I turn to the rest of the participants and give them the answer | H7a) Therapist gives intended meaning of PCS |
| Line 8 | Lisa stands up and points to the picture symbol for the word "here" | H8a) Indiv spontaneously direct attention to PCS |
| Line 9 | She says, "it's here" | H9a) Indiv recognize PCS and direct attention to PCS |
| Line 10 | She points to the next picture symbol along with me as I say the next symbol which is the symbol for the word "circus" | H10a) Indiv direct attention to PCS H10b) Therapist verbally says intended PCS meaning H10b) Therapist direct attention to PCS |

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| Line 11 | Lisa responds by saying "it's circus" as she points with me to the picture symbol of the word "circus" | H11a) Indiv recognize PCS with ease H11b) Iconicity of PCS seems higher |
| Line 12 | I continue to the next symbol and as Lisa and I point together I say the words "so much " | H12a) Therapist and indiv direct attention to PCS |
| Line 13 | Lisa repeats the word "much" as she points to the symbol for the word "much" | H13a) Indiv direct attention to PCS H13b) Indiv recognize PCS with ease |
| Line 14 | I point to the next symbol without saying the word the picture symbol represents | H14a) Therapist direct attention to PCS |
| Line 15 | Lisa is the only participant who answers, "see" which is the correct words for the next picture symbol and the Group participants stare at board with blunted facial expressions | H15a) Indiv recognize PCS with ease H15b) blunted facial expressions H15c) Iconicity of PCS seems higher |
| Line 16 | Lisa is still standing and pointing to the picture symbols along with me | H16a) Indiv and therapist direct attention to PCS |
| Line 17 | I verbally continue with the verse of the song by saying the words there are no picture symbols for which are the words "lots and lots" | |
| Line 18 | I point to the next picture symbol without verbally saying the word | H18a) Therapist direct attention to PCS |
| Line 19 | Christopher is the only one to answer by saying "animals" which is the correct word for the picture symbol I am pointing to | H19a) Indiv recognize PCS with ease H19b) Iconicity of PCS seems higher |
| Line 20 | I point to the next picture symbol | H20a) Therapist direct attention to PCS |
| Line 21 | Low energy singing and engagement | H21a) Indiv verbally identify intended PCS meaning H21b) Iconicity of PCS seems higher H21c) Indiv recognize PCS with ease H21d) Participants singing is low in energy and engagement |
| Line 22 | I repeat the word "waiting" in approval that she was correct | H22a) Therapist nonverbally confirm indiv answer by repeating the word |

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| Line 23 | I continue to the next and last picture symbol of the verse to which Lisa says loudly and confidently " me " as she points to herself, similar to that of the picture symbol of a child pointing to him/herself | H23a) Therapist direct attention to PCS H23b) Indiv imitate PCS by pointing to herself H23c) Indiv recognize PCS with ease H23d) Iconicity of PCS seems higher |
| Line 24 | She sits down after I repeat the word "me" in agreement | |
| 6:19 | | |
| Line 25 | I explain to the group that we are now going to sing the verse part we just learned | H25a) Repetition of verse |
| Line 26 | I start to sing the verse | |
| Line 27 | As I sing in a slow and calm manner, I point to each picture symbol as I sing it | H27a) Therapist sing slow and calmly H27b) Therapist direct attention to PCS |
| Line 28 | None of the participants sing along | H28a) Participants don't sing |
| Line 29 | I look at the board as I point to the symbols and occasionally look up and make eye contact with the group members when it is the parts of the verse that has no picture symbols for the words | H29a) Therapist direct attention to PCS H19b) Therapist occasionally make eye contact with participants |
| Line 30 | I sing the verse one alone | H30a) Therapist sings alone |
| Line 31 | Thereafter I verbally invite the participants to sing along with me | H31a) Therapist verbally invite participants to sing |
| Line 32 | I ask them if they are ready to start | |
| Line 33 | They all shout out loud "yes/yay" and lift their fists in the air excitedly, Lisa smiles widely | H33a) Participants respond with excitement and eagerness to participate H33b) Participants verbally respond by shouting yes/yay energetically H33c) Indiv smiles widely |
| Line 34 | I count to 4 | |
| Line 35 | Before we can start Tom stands up and fetches a tissue | |
| Line 36 | After he returns I verbally invite the participants to sing along with me again | H36a) Therapist verbally invite participants to sing |
| Line 37 | I count to 4 and we start to sing | |

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| Line 38 | The participants sing very softly and with low energy. They seem very unsure of the words | H38a) Participants sing softly H38b) Participants unsure of words H38c) Participants quality of singing is low in energy |
| Line 39 | The quality of their voice is very monotonic and almost impossible to hear. They also seem distracted and swing their legs vigorously | H39a) Participants sing with monotonic tone quality H39b) participants sing unclear and softly H39c) Participants seem distracted |
| Line 40 | This continues for the first repeat of the verse | H40a) Repetition of verse |
| Line 41 | I slow down the second time we sing the song and point to the picture symbols more prominently as we sing it | H41a) Therapist slows down music H41b) Therapist direct attention to PCS |
| Line 42 | I make more eye contact with the participants however they focus mostly on the board | H42a) Therapist makes meaningful eye contact with participants H42b) Participants Focus on PCS |
| Line 43 | The participants swing their legs and stare at the board and my finger pointing to the picture symbols as we sing | H43a) Participants focus on PCS H43b) Participants swing legs |
| Line 44 | The second time we sing the verse I slow the tempo down even more | H44a) Repetition of verse H44b) Therapist slows down the tempo |
| Line 45 | The participants still sing softly, mumbles the words but when we get to the "lots and lots" part where there are no symbols Tom* starts to sing very loudly and energetic | H45a) Mumbling of words H45b) Participants sing softly H45c) Indiv participant immediately remember words of previous song H45d) Indiv participant sings with loud and energetic |
| Line 46 | The rest of the participants join in and they all sing the last line with the correct words more clearly and enthusiastically. Overall the participants remember the melody of the song with ease | H46a) Participants sing louder and faster matching indiv participants singing H46b) Participants recognize PCS faster H46c) Participants remembers melody with ease |
| Line 47 | I praise them for their efforts | H47a) Therapist verbally give praise |
| 7:17 | | |
| Line 48 | I continue to the chorus section | H48a) Repetition of chorus |
| Line 49 | I start by introducing the first animal we are greeting by sticking the picture symbol on the first podium | H49a) Therapist directs attention to PCS |

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| Line 50 | The participants recognize the animal with ease and shout out altogether "elephant" | H50a) Participants immediately recognize PCS H50c) Iconicity of PCS seems higher |
| Line 51 | The animal we greet I introduce by sticking the picture symbol on the second podium | H51a) Therapist directs attention to PCS |
| Line 52 | The group members shout together "horse" | H52a) H50a) Participants immediately recognize PCS H52b) Participants shouts intended PCS meaning H52c) Iconicity of PCS seems higher |
| Line 53 | I place the next animal on the third podium | H53a) Therapist directs attention to PCS |
| Line 54 | The group keeps quiet for a few seconds as they all look at the picture symbol | H54a) Participants focus on PCS |
| Line 55 | One of the group members say softly "grizzly" | H55a) Indiv recognize PCS H55b) Iconicity of PCS seems higher |
| Line 56 | I praise the participants and say it is Mr. Grizzly bear that we are greeting next | H56a) Therapist verbally give praise to indiv H56b) Therapist verbally give intended PCS meaning |
| Line 57 | The last animal that we greet is Mr. Snake | |
| Line 58 | As I stick the picture symbol on the fourth podium, Lisa makes a hissing sound before she says snake | H58a) Therapist directs attention to PCS H58b) Indiv imitate vocal sound of animal being greeted H58c) Indiv immediately recognize PCS H58d) Iconicity of PCS seems higher |
| 7:46 | | |
| Line 59 | I verbally invite the group to sing the song from the very beginning with me | H59a) Therapist verbally invite participants sing |
| Line 60 | I count to four and start to song the first line with enthusiasm at moderately slow paced tempo | H60a) Therapist sings with enthusiasm H60b) therapist sings and plays at a moderately slow pace |
| Line 61 | We start with the first repeat of the verse | H561a) Repetition of verse |
| Line 62 | The group sing softly and seem unsure of the words | H62a) Participants unsure of words H62b) Participants sing softly |

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| Line 63 | When we get to " lots and lots", Tom starts to sing very loud and pronounces the words correctly for the rest of the verse | H63a) Indiv participant immediately remember words with absent PCS H63b) Indiv participant sings with loud and with force H63c) Indiv remembers previous songs words |
| Line 64 | All members attentively watch my finger as I point to the picture symbols as we sing | H64a) Participants focus on PCS |
| Line 65 | I also watch the board to ensure I that I am pointing to the correct picture symbols but do occasionally look up and try to make eye contact with the participants however they stare robotically at the board | H65a) Therapist focus on PCS H65b) Therapist attempts to make eye contact with participants H65c) Participants engage in robotic manner H65d) Blunted facial expressions |
| Line 66 | When we sing the repeat of the verse the group sing softly and mumble most of the words | H66a) Repetition of verse H66b) mumbling of words H66c) participants sing softly |
| Line 67 | The quality of their voices was low in energy, monotonic and they seem unsure of the words | H67a) Participants sing with monotonic tone quality H67b) Participants unsure of words H67c) Participants quality of singing is low in energy |
| Line 68 | I continue to the chorus section | H68a) Repetition of chorus |
| Line 69 | I keep the tempo moderately slow as in the verse | H69a) Therapist sings and plays at a moderately slow pace |
| Line 70 | When we greet the different animals the Tom starts to sing loudly again with a lot of energy and starts to swing his legs | H70a) Indiv sing loudly and energetically H70b) Indiv participant swing legs vigorously |
| Line 71 | The rest of the participants stare at my finger as I point to the board however they do seem to be singing the words more melodically but still very softly | H71a) Participants focus on PCS H71b) Participants sing softly H71c) Participants recognize PCS easier |
| Line 72 | They seem more sure about the melody and the words | H72a) Participants remember melody from previous song |
| Line 73 | The rest of the group gradually sing louder but Tom's singing is still overpowering the other members | H73a) Participants sing gradually louder H73b) Indiv singing overpowers other |

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| Line 74 | When we get to greet the last animal, which is Mr. Snake, Lisa sing very loudly the words "snake". Overall the participants seem to recognize the picture symbol of the chorus section with ease as they all seem more iconic | H74a) Indiv imitate vocal sound of animal being greeted H74b) Iconicity of chorus PCS seem higher |
| Line 75 | I continue to the verse section again | H75a) Repetition of verse |
| Line 76 | The first two words the group members seem unsure about some of the lyrics but soon after the group start to sing louder, especially Tom who almost starts shouting the words in a higher pitched voice than what he usually sings with | H76a) Participants unsure of words H76b) Participants gradually sings louder H76c) Indiv sings louder in high pitched voice H76d) Participants recognize PCS with ease H76e) Indiv singing portrays emotions of silliness and joy |
| Line 77 | The second repeat of the verse Lisa sings along in a monotonic voice but she seems to be pronouncing most of the words and stares around the room and not at the board, just like the rest of the group participants | H77a) Repetition of verse H77b) Indiv monotonic singing H77c) Indiv recognize PCS with ease H77d) Participants distracted by objects in the room H77e) Participants make meaningful eye contact with each other and therapist H77f) Indiv pronounces words clearly |
| 8:55 | | |
| Line 78 | I place the communication board on an open chair next to me and I pick up my guitar | |
| Line 79 | I start to sing the song calmly | H79a) Therapist sings calmly H79b) Repetition of verse |
| Line 80 | I give a prominent strum at the beginning of every line and hold the chord to fade by itself as I point to the picture symbols using my strumming hand | H80a) Therapist alternate directing attention to PCS and strumming of guitar |
| Line 81 | The group members follow my finger as I point to each picture symbol as the song continues. The participants stare at me with blunted facial expressions and the overall level of engagement is low in energy | H81a) Participants focus on PCS H81b) Participants engage with low energy H81c) blunted facial expressions |
| Line 82 | Tom is the only participant that is singing along with me | H82a) Indiv participant sing with therapist |

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| Line 83 | He sings soft but energetically | H83a) Indiv participant sing softly and with high energy |
| Line 84 | When we move to the chorus section I stop pointing to the picture symbols and strum in an energetic and but still gentle and moderately fast paced tempo as we greet the animals | H84a) Repetition of chorus H84b) Participants read PCS by themselves H84c) Music is energetic and fast paced |
| Line 85 | The participants follow the picture symbols by themselves and seem to do well by doing so with the chorus section | H85a) Participants focus on PCS H85b) Participants recognize PCS with ease H85c) Participants dependent on PCS to remember words |
| Line 86 | All participants look at the communication board but they sang louder and pronounced all the words correctly | H86a) Participants focus and dependent on PCS to remember words H86b) Participants sing louder H86c) Participants pronounce words clearly |
| Line 87 | I repeat the chorus section again | H87a) Repetition of chorus |
| Line 88 | Tom confuses this song with the previous song "under the water" and I verbally remind him that we are now singing a different song | H88a) Indiv sing previous songs words H89b) Therapist verbally remind participant of new song |
| Line 89 | I slow down the tempo as we move back to the verse section | H89a) Therapist slows down music to a slower pace H89b) Repetition of verse |
| Line 90 | I strum the guitar once and use my strumming hand to rather point to the picture symbols | H90a) Therapist alternate directing attention to PCS and strumming of guitar |
| Line 91 | The participants sing along with low energy and blunted facial expressions and also very softy. Tom and Christopher attentively watch my hand as I point to the picture symbols while Lisa looks around the room and occasionally say a few words | H91a) Participants sing softly and slowly H91b) Two Participants focus on PCS H91c) Participants dependent on PCS to remember words H91d) Blunted facial expressions H91e) Indiv loss of interest and focus H91f) Participants engage with low energy |
| Line 92 | Tom sings the loudest and overpowers the rest of the participants singing | H92a) Indiv singing overpowers others |

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| Line 93 | Lisa at one point starts looking around the room and occasionally softly sing some of the key words such as "me" and "animals" | H93a) Indiv mumble occasional words softly H93b) Indiv remember iconic PCS H93c) Indiv distracted by objects in the room |
| 11:00 | | |
| Line 94 | I invite Christopher to help me by pointing to the correct picture symbols as we sing it. At first he seems unsure of what I am asking so I model the pointing to the first verse to which he copies me and starts pointing at the appropriate time | H94a) Therapist invite indiv participant to point PCS H95b) Therapist models pointing to PCS |
| Line 95 | I carefully match the tempo he points with my guitar strumming and sing along enthusiastically | H95a) Therapist match strumming tempo and singing with indiv PCS pointing H95b) Therapist sings with enthusiasm H95c) Indiv participant direct attention to PCS |
| Line 96 | Tom and Lisa sing along softly. They smile as they attentively follow Christopher's finger | H96a) Participants sing softly H96b) Participants focus on PCS H96c) Participants smile |
| Line 97 | When we have to repeat the verse again he seems confused and unsure to where he must point next | H97a) Repetition of verse H97b) Indiv forgets to repeat verse section |
| Line 98 | I assist him by showing him which symbol is the first symbol again | H98a) Therapist models pointing to PCS to indiv |
| Line 99 | The second time Lisa and Tom sings a long enthusiastically and loudly. Lisa looks around the room and Tom moves around in his chair looking bored | H99a) Two participants sing with therapist with enthusiasm and louder H99b) Indiv loss of focus and attention H99c) Indiv moves around in chair suggesting boredom |
| Line 100 | Tom sings along very loudly and confuses some of the words of the song with the previous songs words | H100a) Indiv sing previous songs words |
| Line 101 | I assist Christopher by showing him where the next symbol is which is the "hello" symbol to greet all the animals | H101a) Indiv forgets to point to chorus section H101b) Therapist models pointing to PCS to indiv |
| Line 102 | He starts to explain to me verbally that we are going to greet all the animals and in a very fast paced tempo of speaking, he names some of the animals | H102a) Indiv remembers song theme |

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| Line 103 | I acknowledge him and we continue with the song | H103a) Therapist verbally acknowledge indiv |
| Line 104 | Christopher struggles to understand fully that he now has to continue the song by pointing to the picture symbols | H104a) Indiv participant forgets to point chorus section |
| Line 105 | Tom gets up from his chair and takes over Christopher's job | H105a) Other Indiv spontaneously direct attention to PCS |
| Line 106 | Christopher sits back and continues to sing along softly as he attentively start at the board | H106a) Indiv sings softly H106b) Indiv focus on PCS |
| Line 107 | When we get to the verse section Tom knows very well where to point | H107a) Indiv participant directs attention to PCS |
| Line 108 | He points rhythmical and the music has a very nice flow to it | H108a) Indiv participant directs attention to PCS H108b) Indiv points rhythmically |
| Line 109 | As he stands and point to the picture symbols, he covers the entire board with his body | |
| Line 110 | Lisa is unable to see the communication board properly and she stomps to sing when we return to the verse section | H110c) Participants dependent on PCS to remember words H110b) Repetition of verse |
| Line 111 | Christopher also stomps singing and Tom focuses on pointing and does not sing so I finish the song by myself | H111a) Therapist sings alone H111b) Indiv focus on directing attention to PCS H111c) Indiv participant struggle to multi-task reading PCS, sing and point to PCS |
| 12:35 | | |
| Line 112 | Lisa stands up spontaneously when the song ends and Tom goes back to his seat | H112a) Indiv stands up spontaneously for a brief moment in excitement |
| Line 113 | Lisa voluntarily wants to help with the pointing to the picture symbols | H113a) Indiv eagerly volunteers to direct attention to PCS H113b) Indiv stands up and start pointing spontaneously to PCS |
| Line 114 | I verbally invite the rest of the group sing along | H114a) Therapist verbally invite participants to sing |
| Line 115 | Tom adjusts his chair so he can see the board a bit more properly as Lisa is covering it with her entire body | H115a) Indiv dependent on PCS to remember words |

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| Line 116 | As we start to sing the song, both Christopher and Tom sing along however Tom's voice is overpowering and the other participants singing cannot be heard at all | H116a) Indiv participant directs attention to PCS H116b) indiv singing overpowers others |
| Line 117 | Lisa points to the picture symbols very rhythmically and sync with the singing of the group | H117a) Indiv direct attention to PCS rhythmically |
| Line 118 | Tom sings the song of the old song and I suspect that he might be doing it on purpose this time | H118a) Indiv sings previous songs words on purpose |
| Line 119 | I confront him about it and he agrees to stop doing it | H119a) Therapist verbally confronts indiv |
| Line 120 | We sing the verse again with enthusiasm and Tom sings loudly along and Lisa points to the correct PCS on time | H120a) Repetition of verse H120b) Participants and therapist sing together with enthusiasm H120c) Indiv singing overpowers others H120d) Indiv participant direct attention to PCS |
| Line 121 | When we get to the chorus section, I sing more energetically but the tempo remains moderately fast paced | H121a) Repetition of chorus H121b) Music is moderately fast tempo H121c) Therapist strum guitar energetically |
| Line 122 | Lisa continues to attentively point to the correct PCS and Tom sings with high energy all the correct words and melodically | H122a) Indiv participant direct attention to PCS H122b) Indiv sings loudest of all H122c) Indiv remembers melody H122d) Indiv recognize PCS with ease |
| Line 123 | When we return to the verse section I change my strumming to a combination of Picking and strumming which is overall calm and gentle | H123a) Repetition of verse H123b) Guitar accompaniment shifts to gentle and calmer |
| Line 124 | The dynamics and tempo decreases and the song are more calm and gentle | H124a) Guitar accompaniment shifts to calming and gentle |
| Line 125 | I thank Lisa when we finish the song as she proudly says "yeah" | H125a) Therapist verbally affirm participants response |
| Line 126 | She goes back to her seat | |
| 14:18 | | |

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| Line 127 | I invite everyone to sing it along with me one more time and also to follow the picture symbols by themselves | H127a) Therapist verbally invite participants to sing H127b) Participants read PCS by themselves |
| Line 128 | I count to 4 and start to play the guitar by strumming and picking guitar as an introduction to the sing | H128a) Repetition of verse |
| Line 129 | I play lively and energetic | H129a) Therapist strum guitar lively and energetic |
| Line 130 | The tempo is a moderately fast pace | H130a) Guitar strumming is a moderately fast tempo |
| Line 131 | I rock my upper body from one side to the other as I strum and pick the guitar | H131a) Therapist rocks upper body matching the pulse of the music |
| Line 132 | As we start to sing, some of the members start to copy my rocking movement | H132a) Participants imitate therapist rocking movements |
| Line 133 | They sing loudly and lively and Tom can be heard the most however he does not overpower the other members this time | H133a) Participants sing with therapist loud and lively H133b) Indiv sing loudest |
| Line 134 | The members follow the picture symbols most of the time while smiling as they sing cheerfully | H134a) Participants occasionally dependent on PCS to remember words H134b) Participants smile H134c) Participants sing cheerfully |
| Line 135 | The quality of their voices are melodic, they seem very sure of the melody but some of the words are being mumbled sometimes however all participants seem engaging and focused on the song and activity. Overall the participants sing with confidence | H135a) Participants sing melodic H135b) Participants remembers melody H135c) Mumbling of some words H135d) Participants body posture indicate social engagement and eagerness to participate H135e) Participants sing with confidence |
| Line 136 | As we greet the animals, Lisa imitates an elephant by lifting her arm in the air as if it were an elephant's trunk | H136a) Indiv participant imitate the trunk of an elephant H136b) Repetition of chorus |
| Line 137 | When greeting the different animals, all participants carefully watch the picture symbols | H137a) Participants focus on PCS H137b) Participants dependent on PCS to remember words |
| Line 138 | All the animals are pronounced loudly and correctly as the chorus sections PCS seem to be more iconic | H138a) Participants pronounce words clearly H138b) Iconicity of PCS for chorus seems high |

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| Line 139 | I keep the guitar accompaniment exactly the same throughout the entire song | H139a) Therapist strums guitar lively and energetic |
| Line 140 | I also keep the tempo and dynamics the same for the entire song | H140a) Guitar strumming is a moderately fast tempo |
| Line 141 | The members rock their upper bodies throughout the song and swing their feet energetically at the last repeat of the verse | H141a) Participants rock upper bodies energetically H141b) Repetition of verse |
| Line 142 | I end the song with a prominent last strum on the guitar and praise them for their efforts | H142a) Therapist verbally affirm indiv |
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| Session notes | The song learning went much faster because of the board and also the participants already knew the melody of the song | |
| | The participants took turns to point to the picture symbols on the board so I could strum the guitar properly | |
| | I suspect Tom sang the lyrics of "Under the water" instead of the new lyrics on purpose some of the times and I had to ask him to stop doing it after the third time | |
| | There was very little eye contact from me to the group and also from the group with me because we were all attentively following the picture symbols on the communication board | |

Appendix W: Thick descriptions I

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| I | At the circus | |
| 28-Apr-16 | Session 2 without pcs Group A | |
| Time (minutes into session) | Thick description | Code |
| 6:14 | | |
| Line 1 | I ask the group if they can remember what our new song is about | I1a) Therapist ask participants what the song is about |
| Line 2 | Ellen answers by saying "the circus song" | I2a) Indiv immediately remembers song theme |
| Line 3 | I play an introduction to the song moderately fast and calmly on the guitar and count to four | I3a) Therapist plays introduction moderately fast and calmly |
| Line 4 | We start to sing the verse in a moderately fast and lively tempo | I4a) Music is moderately fast and lively |
| Line 5 | The first time we sing the verse, the participants sing along with blunted facial expressions. They attentively look at me and the guitar | I5a) Participants blunted facial expressions I5b) Participants focus on therapist and music I5c) Participants make eye contact with therapist |
| Line 6 | They seem unsure about some of the words however most of the words are pronounced clearly | I6a) Unsure of some verse lyrics I6b) Participants remembers most verse lyrics well |
| Line 7 | Very little mumbling takes place | I7a) Clear pronunciation of words |
| Line 8 | The participants also seem to remember the melody very well however their quality of singing is very flat and low in energy | I8a) Participants remember melody I8b) Participants low energy and flat quality of singing |
| Line 9 | After singing the verse once I pause the music for a short moment in which two students walk into the room and start greeting me | |

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| Line 10 | After the interruption I start the song from the beginning | I10a) repetition of verse |
| Line 11 | I play it very lively and in a faster pace | I11a) Therapist strums guitar lively and fast paced |
| Line 12 | All participants sing along, they look at me and the guitar with blunted facial expressions | I12a) Robotic response I12b) blunted facial expressions |
| Line 13 | I make eye contact with each member often. Albert hops in his chair but not with a lot of energy. The rest of the group members seem to remember the lyrics and the melody but they sing very softly and the quality of their voices is flat and very low in energy | I13a) Therapist makes eye contact with participants I13b) Indiv hops in chair I13c) Participant remembers verse lyrics I13d) Participants remembers melody I13e) Participants sings softly with low energy and flat voices |
| Line 14 | I pause the music before continuing with the chorus section | I14a) Therapist pause music |
| Line 15 | I ask the group who we greet first | I15a) Therapist ask participants which animal is greeted |
| Line 16 | Tshepo answers with confidence by singing the line "Hello Mr. Elephant" | I16a) Indiv spontaneously answer therapist by singing line I16b) Indiv remembers chorus melody and lyrics I16c) Indiv sings with confidence |
| Line 17 | I praise her for remembering the lyrics and invite the group to sing together the line lively and loudly. Ellen and Albert sing with blunted facial expressions while Tshepo smiles | I17a) Therapist verbally affirms indiv for remembering lyrics I17b) therapist and participants sings cheerfully and loud I17c) Indiv smiles I17d) Two participants blunted facial expressions |
| Line 18 | I ask the group who we greet after Mr. Elephant | I18a) Therapist ask participants which animal is greeted next |
| Line 19 | Ellen answers by singing "hello Mr. Horse" loud and confidently | I19a) Indiv spontaneously sings answer I19b) Indiv remembers chorus lyrics and melody I19c) Indiv sings with confidence and loud |

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| Line 20 | The group and I sing together the line where the horse is being greeted loudly and with high energy. The participants remembers the melody very well as well as the lyrics | I20a) therapist and participants sing cheerfully, loud with high energy I20b) Participants remembers chorus melody and lyrics |
| Line 21 | I continue with the song and keep quiet when the next animal has to be named | I21a) Therapist invite participants sing by themselves |
| Line 22 | Albert sings "Mr. Grizzly Bear" confidently and rhythmically as well as melodically. I acknowledge him and sing along with him. Albert looks at me as he hops in his chair rhythmically while he sings The rest of the group makes eye contact with me and attentively listens to Albert's singing | I22a) Indiv sings with confidence I22b) Indiv remembers chorus melody and lyrics I22c) Indiv makes meaningful eye contact with therapist I22d) Indiv hops in chair rhythmically I22e) Participants focus on singing indiv I22f) Participants makes meaningful eye contact with therapist |
| Line 23 | We greet the last animal which is Mr. Snake | |
| Line 24 | I give a hint to the group by hissing like a snake | I24a) Therapist give vocal imitation as reminder of the lyrics for chorus |
| Line 25 | Tshepo excitedly shouts out loud "snake" as the rest of the group sing along energetically while making eye contact with me | I25a) Indiv spontaneously shouts answer I25b) Participants sing energetically and loud I25c) Participants make meaningful eye contact with therapist I25d) Indiv remembers chorus lyrics |
| Line 26 | I repeat the chorus section | I26a) Repetition of chorus |
| Line 27 | The participants sing along enthusiastically and seem sure about the animals we need to greet at the correct time | I27a) Participants remember chorus lyrics I28b) Participants sing with confidence |
| Line 28 | All participant look at me throughout the chorus section | I28a) Participants make meaningful eye contact with therapist |

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| Line 29 | I seem to be making a large amount of eye contact with each member in the group throughout the song however they sing with very little facial expressions, it appears more blunted in contrast to their quality of singing which is lively and confidently | I29a) Therapist make meaningful eye contact with each indiv participant I29b) Blunted facial expressions I29c) Participants sing lively and with confidence |
| Line 30 | After the chorus section we return to the verse | I30a) Repetition of verse |
| Line 31 | I slow down the tempo to a moderately fast and calm pace | I31a) Therapist change music to moderately fast and calm |
| Line 32 | The guitar accompaniment changes from a lively and vigorous strumming to a combination of moderately fast and cheerful picking and strumming | I32a) Therapist guitar accompaniment changes to moderately fast and cheerful |
| Line 33 | The participants sing softer and seem calm. They seem to adjust their singing with ease however they are still sitting very still in their chairs with blunted facial expressions | I33a) Participants sing slow and softly I33b) Participants adjust to tempo and dynamic shift with ease I33c) Blunted facial expressions |
| 8:13 | | |
| Line 34 | After repeating the verse I move to the chorus section directly | I34a) Repetition of chorus |
| Line 35 | I slow down the tempo even more and strum loud and almost lazy sounding | I35a) Therapist plays very slow tempo I135b) Therapist plays with a lazy strumming |
| Line 36 | With each prominent strum, I rock my upper body back and forth to which Tshepo copies this movement by nodding his head to the pulse of the music | I36a) Therapist rocks upper body matching pulse of music I35b) Indiv imitates therapist by nodding head to pulse of music |
| Line 37 | The participants sing louder and adjust to the tempo with ease however their facial expressions remain blunted and the energy is very low | I37a) Participants sing loud and slowly I37b) Participants adjust to tempo and dynamic shift with ease I37c) participants engage with low energy I37d) Blunted facial expressions |
| Line 38 | After greeting the first animal I dramatically adjust the tempo and characteristics of my singing and playing to a fast and vigorous playing and singing | I38a) Therapist alternates tempo and dynamics between the lines from slow and soft to loud, fast and vigorous singing and playing |

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| Line 39 | The participants look at me in anticipation as I stop playing and keep silent after the second animal is greeted with blunted facial expressions. They sing with me but the quality of their signing is very flat and low in energy | I39a) Therapist creates anticipation I39b) Participants body posture indicate low energy and little participation I39c) Participants make meaningful eye contact with therapist I39d) Blunted facial expressions I39e) Low energy singing I39f) Flat quality of singing |
| Line 40 | I continue greeting the third animal but adjust my playing and singing to that similar of the first animal being greeted which is slow paced and a lazy way of strumming the guitar | I40a) Therapist strums at very slow tempo and with a lazy strumming |
| Line 41 | The participants sing along loudly and attentively look at me with blunted facial expressions. They sit still in their chairs as they attentively look at me and the guitar | I41a) Participants make meaningful eye contact with therapist I41b) Blunted facial expressions I41c) Physical movement indicate low energy I41d) Participants focus on therapist |
| Line 42 | I make a large amount of eye contact with each participant | I42a) Therapist make meaningful eye contact with each indiv participants |
| Line 43 | I add anticipation before greeting the fourth and last animal | I43a) Therapist add anticipation |
| Line 44 | I suddenly and unexpectedly start to singing the greeting of the last animal fast paced with vigorous strumming | I44a) therapist plays fast paced with vigorous strumming |
| Line 45 | The participants sing along at the same pace and high energy | I45a) Participants match music with high energy singing |
| Line 46 | Albert starts to hop in his chair for a brief second and smilingly looks at Ellen sitting next to him. All the participants sing along so far and seem to remember the lyrics as well as the melody very well | I46a) Indiv participant hops in chair for brief moment I46b) Indiv smiles at other indiv I46c) Indiv makes meaningful eye contact with other indiv I46d) Participants remembers chorus melody and lyrics |
| Line 47 | When the phrase ends I add another anticipation | I47a) Therapist adds musical anticipation |
| Line 48 | I start to sing the verse section | I48a) Repetition of verse |

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| Line 49 | The first line of the verse I sing very slow paced with combination of lazy strumming and picking to which the participants sing along matching my singing with blunted facial expressions but the quality of their voice is confidently They attentively look at me and my guitar | I49a) Therapist sings and strums guitar slowly and lazy I49b) Participants adjust to tempo and dynamic shift with ease I49c) Participants sing slow and lazy I49d) Participants focus on music and therapist I49e) Blunted facial expressions I49f) Participants sing with confidence |
| Line 50 | The second line I sing in a fast pace with vigorous strumming with no picking | I150a) therapist plays and sings fast paced and vigorous |
| Line 51 | Each line alternated in the same manner until the end of the repeat of the verse | I151a) Therapist alternates tempo and dynamics between the lines from fast and vigorous singing and playing to slow and soft to loud |
| Line 52 | The participants hop in their chair of excitement when the music is fast paced with vigorous strumming and sing faster and calmer along with slow and small rocking movements of the upper body when the music is slowly paced and the strumming and picking of guitar is played in a lazy manner | I52a) Participants adjust to tempo and dynamic shift with ease I52a) participants hop energetically in their chairs I52c) Participants body language indicate excitement and eagerness to participate |
| Line 53 | The participant's watch me attentively, particularly during anticipated moments where the participants cannot predict when the song might continue or not or what I might do next. Lisa and Ellen sometimes sing the lyrics before I start to play. The participants seem to know the melody and lyrics very well by memory. They smile at me and each other | I53a) Participants make meaningful eye contact with therapist I53b) Participants dependent on therapist musical cues and body language I53c) Participants remembers verse melody and lyrics well I53d) Participants make meaningful eye contact with therapist I63e) Participants smiles at therapist and each other |
| 8:48 | | |
| Line 54 | I continue to the chorus section | I54a) Repetition of chorus |
| Line 55 | Each line I alternate between a fast tempo with vigorous guitar strumming and a slow paced tempo with a lazy picking and strumming as accompaniment | I55a) Therapist alternates tempo and dynamics between lines from slow and soft to loud, fast and vigorous singing and playing |

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| Line 56 | The first line I start with the slow paced tempo with lazy picking and strumming as accompaniment | I56a) Therapist guitar strumming is slow and lazy sounding |
| Line 57 | I add many unexpected anticipations between the lines | I57a) Therapist adds anticipation |
| Line 58 | The participants hop in their chairs in excitement when the tempo is fast. They all remembers the lyrics as well as the melody perfectly and pronounce each word clearly and with confidence | I58a) Participants hop in chairs in excitement I58b) Participants adjust to tempo and dynamic shift with ease I58c) Participants remembers chorus melody and lyrics very well I58d) Words are pronounced clearly I58e) Participants sing with confidence |
| Line 59 | They sing louder and livelier and make regular eye contact with each other and myself | I59a) Participants sing loud and lively I59b) Participants make meaningful eye contact with therapist and each other |
| Line 60 | Ben's hands flops around as he hop in his chair as he smiles widely and looks at Ellen. When we greet the last animal, Tshepo gets very excited and shouts very loud instead of singing. The participants body language is open and indicates a sense of excitement and eagerness to participate | I60a) Indiv Participant flops hands in the air energetically I60b) Indiv makes meaningful eye contact with other Indiv I60c) Indiv smiles widely I60d) Participants body language indicate excitement, openness and eagerness to participate |
| Line 61 | I move to the verse section again, this time the slower paced tempo is even more slower and I rock my upper body from one side to the other dramatically thus matching the slow tempo and strong pulse | I61a) Repetition of verse I61b) Therapist's music is slow paced I61c) Therapist rocks upper body matching the pulse of the music |
| Line 62 | The participants sing along loudly and excitedly. The overall energy in the room as shifted to high energy | I62a) Participants sing loudly and energetic |
| Line 63 | Tshepo rocks his head from one side to the other matching the pulse of the music. The participants smile at me and attentively look at the guitar | I63a) Participants imitates therapist rocking movement I63b) Participants smile |
| Line 64 | I pause for a few seconds and make eye contact with the participants | I64a) Therapist makes meaningful eye contact with participants I64b) Therapist pauses music |

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| Line 65 | I add anticipation by pretending to be going to play but then don't | I65a) Therapist adds anticipation |
| Line 66 | Suddenly I start to play lively and at a faster tempo which the participants could not predict that easily | I66a) Therapist unpredictable start singing and playing |
| Line 67 | They sing along excitedly and lively | I67a) Participants sing with excitement and lively |
| Line 68 | They hop around in their chairs with high energy | I68a) participants hop in chairs energetically |
| Line 69 | Ben's arms flops on the air as he hops energetically | I69a) Individ participant flops arms in the air energetically |
| Line 70 | The third animal we greet I play the slowly paced and rock my upper body from one side to the other dramatically | I70a) Therapist rocks upper body matching the pulse of the music I70b) Therapist's music is slow paced |
| Line 71 | The participants rock their upper bodies in similar fashion thus matching the strong prominent pulse of the music | I71a) Participants imitate therapist's slow upper body rocking movement |
| Line 72 | The sing along loudly and lively and participate with high energy | I72a) Participants sing lively and loudly I72b) Participants participate with high energy |
| Line 73 | The often look at each other but most of the time they are watching my inviting and excited facial expression and my body language attentively | I73a) Therapist body language and facial expression is inviting and open I73b) Participants focus on therapist I73c) Participants make meaningful eye contact with therapist |
| Line 74 | The last line Ellen sings alone in a fast pace and with a lot of force and confidence. Overall the energy and level of participation is high | I74a) Individ sings loudly I74b) individ sing with confidence at a fast paced tempo I74c) Participants participant with high energy |
| 9:29 | | |
| Line 75 | I move to the chorus section | I75a) Repetition of chorus |
| Line 76 | The tempo is moderately fast but we are now singing very softly that it almost sounds like a whisper | I76a) Music is moderately fast I76b) Participants and therapist sing whisper-like |
| Line 77 | The participants adjust with ease to the dynamic changes | I77a) Participants adjust to tempo and dynamic shift with ease I77b) Participants whisper lyrics |

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| Line 78 | The softer we sing the more I leans into the middle of the circle | I78a) Therapist leans forward to middle of group I78b) Participants make meaningful eye contact with therapist and others |
| Line 79 | The second animal we greet I play loud and at a very fast paced tempo. We make meaningful eye contact with each other as I lean forward | I79a) Therapist shifts music to fast a paced tempo and loud |
| Line 80 | All participants sits up straight as soon as we sing faster and louder | I80a) participants adjust to tempo and dynamics shift with ease |
| Line 81 | They sing along vigorously and confidently and remember the words well. Tshepo shouts very loudly the lyrics every time we sing fast and vigorously. He smiles widely and his body language is open and indicates excitement and eagerness. Albert's smiles widely at me and Ellen | I81a) Participants sing with confidence I81b) Participants remembers chorus lyrics I81c) Indiv shouts lyrics loudly and with force from excitement I81d) Indiv smiles at therapist and other indiv I81e) Indiv makes meaningful eye contact with therapist and other indiv I81f) Indiv body language indicate excitement and eagerness to participate |
| Line 82 | The third animal we greet is soft and gentle to which the participants musically adjust their singing to match the guitar accompaniment and my singing with ease | I82a) Therapist shifts music to soft and gentle I82b) Participants adjust to tempo and dynamic shift with ease |
| Line 83 | We whisper the words again | I83a) Therapist and participants whisper lyrics |
| Line 84 | I add a moment of anticipation before greeting the last animal | I84a) Therapist adds musical anticipation |
| Line 85 | As soon as we start to greet the last animal in a fast and loud and vigorous tempo, Tshepo starts shouting and singing with a lot of force the last line. The rest of the group smile in excitement | I85a) Therapist shifts music to loud and fast paced I85b) Participants adjust to tempo and dynamic shift with ease I85c) Indiv shouts loudly in excitement I85d) Participants cheerfully smile at each other I85e) Participants make meaningful eye contact with each other and therapist |
| 9:45 | | |

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| Line 86 | I move to the verse section | I86a) Repetition of verse |
| Line 87 | The tempo is lively and energetic | I87a) Therapists music is lively and energetic |
| Line 88 | I strum and pick in a fast pace for the first line | I88a) Therapists guitar accompaniment is fast paced |
| Line 89 | The participants sing a long lively and confidently. They sing all the lyrics clearly and remember the melody very well. They look at me attentively and make meaningful eye contact with me. Tshepo smiles widely and imitates my rocking movements | I89a) Participants sing lively and with confidence I89b) Participants remembers verse melody and lyrics I89c) Participants pronounce lyrics clearly I89d) Participants focus on therapist and music I89e) Participants makes meaningful eye contact with therapist I89f) Indiv smiles widely I89g) Indiv imitates therapist's rocking body movement |
| Line 90 | The second line is slow, calm and softly sang and played | I90a) Therapist's dynamics alternate from energetic to calm and soft during |
| Line 91 | The participants sing softly, almost sounds like they are whispering the words of the song | I91a) Participants adjust to tempo and dynamic shift with ease I91b) Participants and therapist sing whisper-like |
| Line 92 | The third line we sing in a fast paced and lively again | I92a) Therapist shifts music to lively and fast paced I92b) Participants adjust to tempo and dynamic shift with ease |
| Line 93 | The last line of the verse is sung calmly and softly at a moderately slow paced tempo to which the participants adjust their voices and energy with ease. The participants make meaningful eye contact with me and attentively stares at me and my guitar | I93a) Therapist shifts music to slow and calm I93b) Participants adjust to tempo and dynamic shift with ease I93c) Participants interested and focus on therapist and music I93d) Participants make meaningful eye contact with therapist |
| Line 94 | I continue to the Chorus section | I94a) Repetition of chorus |
| Line 95 | The first animal we greet I keep the tempo and dynamics the same as the last line of the verse | I95a) Therapist's music is slow and calm |
| Line 96 | Before greeting the second animal I add a moment of anticipation | I96a) Therapist adds musical anticipation |

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| Line 97 | The participants watch me attentively and sing along with high energy and confidence. They smile widely and look at each other often. They wiggle and hop in their chairs matching the pulse of the music | 197a) Participants sing with high energy and enthusiasm 197c) Participants make meaningful eye contact with therapist 197d) Participants smile widely 197e) participants make meaningful eye contact with each other 197f) Participants wiggle and hop in their chairs in excitement matching pulse of the music |
| Line 98 | I stop singing along and only let the group sing by themselves from the middle of the second animals greeting | 198a) Participants sing alone cheerfully |
| Line 99 | The group adjusts with easy between the alternating tempo and dynamic changes between the different animals being greeted by only reading my body language and attentively listening to the music and predicting the tempo and dynamic changes in the music | 199a) Participants adjust to tempo and dynamic shift with ease 199b) Participants predict tempo and dynamic changes by themselves 199c) Participants remembers chorus melody and lyrics by themselves 199d) Therapist uses body language to indicate musical cues 199e) Participants focus on music |
| Line 100 | They also remember the order in which the animals are being greeted correctly | 1100a) Participants remember chorus lyrics by themselves |
| Line 101 | All participants sang with confidence and enthusiasm and predicted and adjusted their singing to the sudden musical shifts with ease | 1101a) Participants sing by themselves with confidence and high energy 1101b) Participants adjust to tempo and dynamic shift with ease |
| 10:26 | | |
| Line 102 | I join the group by continuing to the verse section and singing with them | 1102a) Repetition of verse |
| Line 103 | The whole verse is sang in a lively and energetic but moderately fast paced tempo without any sudden tempo or dynamic changes | 1103b) participants sing lively and energetic |

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| Line 104 | The participants sing along with enthusiasm and confidence. They attentively look at me and my guitar with blunted facial expressions. Albert and Tshepo often hop in their chairs or rock their upper bodies to the rhythm of the pulse | I104a) Participants sing with confidence and enthusiasm I104b) Participants focus on therapist and the music I104c) Blunted facial expressions I104d) Two indiv hop and rock to the pulse of the music |
| Line 105 | All the words of the song is pronounced clearly and correct by all participants | I105a) Participants remember verse lyrics with ease I105b) Participants pronounce lyrics clearly |
| Line 106 | When we get to the chorus section the first animal being greeted starts off softly and then it gradually grows louder in dynamics to which the participants adjust their singing with ease | I106a) Repetition of chorus I106b) Therapists music gradually shifts from soft to loud I106c) Therapists Tempo remains consistent I106d) Participants adjust to tempo and dynamic shift with ease |
| Line 107 | The rest of the chorus section stays the same in terms of tempo and dynamics | I107a) Tempo and dynamics remain consistent |
| Line 108 | The participant sings along with enthusiasm and confidence and pronounces all the words clearly. They remember the lyrics and the melody very well. The attentively look at me and make meaningful eye contact with me | I108a) Participants sing with therapist with confidence I108b) Participants remember chorus lyrics with ease I108c) Participants remembers melody I108d) Participants focus on therapist and music I108e) Participants makes meaningful eye contact with therapist |
| 10:55 | | |
| Line 109 | The first line of the verse is sung in a moderately slow pace | I109a) Repetition of verse I109b) Music is moderately slow paced |
| Line 110 | The participants sing along cheerfully and rock their upper bodies from one side to the other on the main and steady pulse of the music | I110a) Participants sing with therapist cheerfully I110b) Participants rock upper bodies to the pulse of the music |
| Line 111 | The second line of the song is fast paced with vigorous strumming | I111a) Therapist shifts music to fast paced tempo and vigorous strumming of guitar |

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| Line 112 | The participants hop in their chairs in excitement and sing along loudly as they make meaningful eye contact with me. They all smile widely at me | I112a) Participants hops in chairs energetically I112b) Participants sing loudly I112c) Participants make meaningful eye contact with therapist I112d) Participants smile widely |
| Line 113 | The third line is slower and softer | I113a) Music shifts to slow paced tempo and softer |
| Line 114 | The participants immediately lower their voices and adjust their body movements to the main pulse of the music | I114a) Participants adjust to tempo and dynamic shift with ease I114b) Participants adjust physical movements matching tempo and pulse of music I114c) Participants sing softly and slowly |
| Line 115 | The last line of the verse is played and sang loud, lively and vigorously | I115a) Therapist shifts music to fast paced tempo and vigorous strumming of guitar and singing |
| Line 116 | The participants hop in their chairs and sing with confidence. Their singing matches the guitar accompaniment | I116a) Participants adjust to tempo and dynamic shift with ease I116b) Participants adjust physical movements matching tempo and pulse of music I116c) Participants body language indicate excitement and eagerness to participate I116d) Participants sing loudly and with force I116e) Participants quality of voice is strong and energetic |
| Line 117 | I end the song by adding a short ritardando at the end of the last line of the verse and playing a strong and prominent last chord on the guitar to which the Tshelo shout the last words very loudly while smiling at me. Albert smiles widely at Ellen. The participants adjust their singing to the ritardando with ease | I117a) Therapist's music ends with a ritardando I117b) Individ shouts last word of the song loudly and confidently I117c) Participants smiles widely I117d) Individ makes meaningful eye contact with other indiv |
| Session notes | By the end of the session they knew the words of the song very well and sang it fluently and with confidence | |

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| | I only had to go through the words once this time, thereafter they remembered it very well |
| | I was able to play around with tempo and dynamics thus making the song more interesting and exciting |
| | The participants seem to enjoy the different variations of the song as they hopped in their chairs, swung their arms and feet and smiled widely |
| | I also felt that there was a healthy amount of eye contact being made throughout the sessions with the participants and myself as well as with each other |
| | The song learning section was socially very engaging and playful |

Appendix X: Thick descriptions J

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| J | At the circus | |
| 28-Apr-16 | Session 2 with pcs Group B | |
| Time (minutes into session) | Thick description | Code |
| 6:33 | | |
| Line 1 | I point to the first picture symbol which is the symbol for here | J1a) Therapist direct attention to PCS |
| Line 2 | I ask the participants which word the symbol represents | J2a) Therapist ask participants a question about PCS |
| Line 3 | Lisa points to the board and says "the" | J3a) Participant associate PCS with own meaning |
| Line 4 | I explain to her that the symbol represents the word "here" I move to the next picture symbol | J4a) Therapist explain intended PCS meaning |
| Line 5 | Tom starts eagerly and cheerfully singing the first line of the song | J5a) Indiv spontaneously sing J5b) Indiv recognize PCS with ease J5c) Indiv remembers melody |
| Line 6 | I continue with the song by first saying the words of the song as I point to each one | J6a) Therapist direct attention to PCS J6b) Therapist read PCS words out loud |
| Line 7 | The participants remember words such as "lots and lots" with ease. The participants seem interested and excited as they smile widely and sit straight up in excitement | J7a) Participants remember words with absent PCS J7b) Participants remember words from previous song J7c) Participants smile J7d) Participants body language indicate excitement and eagerness to participate |
| Line 8 | Lisa and Tom says most of the words along with me | J8a) Two participants recognize PCS immediately |
| Line 9 | The second time I repeat the verse I added the melody as I point to each picture symbol as we sing it | J9a) Repetition of verse J9b) Therapist verbally introduce melody J9c) Therapist direct attention to PCS |

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| Line 10 | Lisa points to herself using her thumb similar to the picture symbol that represents the word "me" at the end of the verse the ends with picture symbol for the word "me" which she remembers well due to it being an iconic picture symbol | J10a) Individ imitate intended PCS by pointing to herself J10b) Iconicity of PCS seems high |
| Line 11 | Tom sings the loudest, his voice is almost overpowering the other group member's voices however one can see that Lisa and Christopher are mumbling the words of the song with us as their lips are moving. Lisa and Christopher sing with low energy and all the participants attentively read the picture symbols with blunted facial expressions | J11a) Individ singing overpower others J11b) Two indiv participants mumble words J11c) Participants focused on PCS J11d) Participants low energy J11e) Blunted facial expressions |
| Line 12 | After repeating the verse I continue to the chorus section where the animals are being greeted | J12a) Repetition of chorus |
| Line 13 | I verbally ask the members who we greet first | J13a) Therapist ask participants a question about song |
| Line 14 | At first the members seem unsure which animal we greet first when Tom shouts out "elephant" | J14a) Participants forget word with absent PCS J14b) Indiv participant immediately remembers word with absent PCS J14c) Indiv shouts answer cheerfully and with confidence |
| Line 15 | I praise him and while I stick the picture symbol of an elephant on the communication board, Christopher shouts out "elephant king" | J15a) Indiv associated own meaning with intended PCS J15b) Therapist verbally affirm indiv J15c) Therapist add PCS to board |
| Line 16 | We greet Mr. Elephant cheerfully | J16a) Participants and therapist sing together cheerfully |
| Line 17 | Tom sings Mr. Horse instead of Mr. Elephant | J17a) Indiv predicts words incorrect |
| Line 18 | I continue to the next animal being greeted by continuing the song | |
| Line 19 | The next animal we greet is Mr. Horse | |
| Line 20 | As we sing the word "horse", I stick the picture symbol of a horse to the communication board to which the participants emphasize the word "horse" | J20a) Therapist adds PCS to board J20b) Participants emphasize iconic PCS |

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| Line 21 | Before I continue to sing the rest of the song, Tom shouts out excitedly the next animal being greeted which is Mr. Grizzly bear | J21a) Individ predicts words correct J21b) Individ body language indicate excitement and eagerness to participate |
| Line 22 | We continue to sing the song by greeting Mr. Grizzly bear as I stick the picture symbol on the board | J22a) Therapist add PCS to board |
| Line 23 | All of the participants sing along in excitement | J23a) Participants sing with excitement |
| Line 24 | We continue to greet the last animal which is Mr. Snake | J24a) Therapist add PCS to board |
| Line 25 | The group finishes the phrase however I pause before I sing the word "snake" | J25a) Therapist create musical anticipation |
| Line 26 | I put an emphasis on the "s" sound of snake to which the participants copy me and shout out the word "snake" | J26a) Therapist emphasize "s" sound J26b) Participants imitate therapist's vocal sound J26c) Participants shout excitedly animal name |
| Line 27 | We go back to the verse section | J27a) Repetition of verse |
| Line 28 | All the participants sing along loudly and with confidence | J28a) Participants sing loud J28b) Participants sing with confidence |
| Line 29 | They seem more sure about the lyrics of the verse | J29a) Participants recognize PCS with ease |
| Line 30 | Tom's voice is hear the loudest of them all however one can hear the other participants voices as well as they sing along loudly however they stare at the board with blunted facial expressions | J30a) Individ sings louder |
| Line 31 | Throughout the song the participants attentively look at my finger and the picture symbols as I point to it | J31a) Participants focus on PCS J31b) Therapist direct attention to PCS J31c) Blunted facial expressions J31d) Participants sing loudly |
| Line 32 | The participants only made eye contact with me and each other when I asked them questions about the song | J32a) Participants make occasional eye contact with therapist and each other |
| 8:22 | | |
| Line 33 | I stand up to fetch my guitar | |

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| Line 34 | I ask Christopher if he will do the pointing to the picture symbols work for the group when sing the song | J34a) Therapist invite indiv participant to point PCS |
| Line 35 | He immediately puts his left hands index finger on the first picture symbol of the verse | J35a) Participant eager to participate |
| Line 36 | I play a short introduction on the guitar and count to four | |
| Line 37 | The tempo of my plucking and strumming is lively and moderately fast | J37a) Therapist plays moderately fast and lively |
| Line 38 | Smiling widely, Christopher points to the picture symbols correctly as we sing the song | J38a) Indiv participant directs attention to PCS J38b) Indiv smiles |
| Line 39 | The rest of the group, including myself, look and follow Christopher's finger attentively as he points to the appropriate picture symbol | J39a) Therapist and participants focus on PCS |
| Line 40 | Christopher does not sing with however the rest of the participants sing along excitedly and lively | J40a) Pointing indiv does not sing J40b) Participants and therapist sing lively and with excitement |
| Line 41 | Tom sings the loudest and with the most confidence | J41a) Indiv participant sings louder and with confidence |
| Line 42 | As we sing the word "me", Lisa imitates the picture symbol of a stick figure pointing to him/herself using his/her thumb | J42a) Indiv imitates PCS by pointing to herself |
| Line 43 | When we sang the second repeat of the verse I had to remind Christopher that the verse starts from the beginning again | J43a) Repetition of verse J43b) Therapist verbally assist pointing participant by reminding the song form |
| Line 44 | He started pointing at the correct picture symbol immediately | J44a) Indiv immediately directs attention to PCS |
| Line 45 | The rest of the group sang along cheerfully and with high energy and did not seem phased that Christopher did not point to the first two picture symbols of the verse | J45a) Participants recognize PCS by themselves J45b) Participants sing cheerfully J45c) Participants sing with high energy |
| Line 46 | When we reached the chorus section I remind Christopher to point to the picture symbol for "hello" and the first animal being greeted | J46a) Repetition of chorus J46b) Therapist verbally assist pointing indiv |

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| Line 47 | Tom stands up and points to the picture symbol for "hello" as Christopher remains seated and seem a bit confused to what I am asking him to do | J47a) Other indiv assist pointing indiv by modeling pointing |
| Line 48 | I thank Tom for his help and invite Christopher to continue with the pointing to the picture symbols | J48a) Therapist verbally thanks volunteer indiv J48b) Therapist invite indiv to point PCS |
| Line 49 | At first Christopher seems to not understand fully what to do | J49a) Indiv confused by therapist's invitation |
| Line 50 | When I ask him to point to the "hello" picture symbol he waves at me friendly and say "Hello Mr. Elephant" | J50a) Therapist model by pointing to appropriate PCS J50b) Indiv associates intended meaning of PCS with waving movement J50c) Indiv speaks words instead of singing |
| Line 51 | I started to sing the chorus section and as soon as we got to the greeting of the second animal, Christopher started pointing to the appropriate picture symbols | J51a) Indiv participant spontaneously directs attention to PCS |
| Line 52 | All the participants, including Christopher, sang the chorus section loud, lively and with great enthusiasm and confidence as well as with all the correct words | J52a) Participants sing loudly and lively J52b) Participants recognize PCS with ease J52c) Indiv pointing PCS sing cheerfully |
| Line 53 | We attentively followed Christopher's index finger as he points to the picture symbols while smiling widely | J53a) Participants focus on PCS |
| Line 54 | As we go back to the verse section I verbally remind Christopher that we are going to start from the very beginning | J54a) Repetition of verse J54b) Therapist verbally remind pointing indiv of song form J54c) Participants smile widely |
| Line 55 | At first he does not point to the picture symbols but as soon as he hears what part we are singing he immediately starts to point at the appropriate picture symbols as we sing | J55a) Indiv recognize PCS J55b) Indiv participant directs attention to PCS J55c) Pointing indiv forgets to point to verse section |
| Line 56 | He smiles widely as he points to the picture symbols | J56a) Indiv smiles |
| Line 57 | All participants sing along lively and confidently | J57a) Participants sing with enthusiasm and confidence |
| Line 58 | Lisa points to herself using her thumb, similar to the picture symbol as we sing the word "me" | J58a) Indiv imitate PCS by pointing to herself |

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| Line 59 | Christopher forgets to point from the start of the repeat of the verse, instead he turns his back to the board and waves his arms until he realizes he has to point again | J59a) Indiv forgets repeat of the verse section |
| Line 60 | He then finds the appropriate picture symbol and points to it as well continue with the song while the rest of the group continues with the song by singing it correctly | J60a) Indiv directs attention to PCS J60b) Participants Recognize PCS with ease J60c) Participants read PCS by themselves |
| Line 61 | I finish the song with a strong and final strum on the guitar | |
| 9:50 | | |
| Line 62 | I praise Christopher for helping me | J62a) Therapist verbally affirm indiv |
| Line 63 | I ask who wants to go next | J63a) Therapist invite participant to point PCS |
| Line 64 | Tom volunteers | J64a) Indiv volunteer eagerly to participate |
| Line 65 | I play a short introduction on the guitar | |
| Line 66 | The guitar accompaniment is fast paced and energetic | J66a) Therapist plays energetic and at fast paced tempo |
| Line 67 | I start to sing however none of the participants sing along with me, instead they sit and stare at the board with blunted facial expressions | J67a) Therapist sings alone J67b) Participants Focus on PCS J67c) Blunted facial expressions |
| Line 68 | Tom points to the appropriate picture symbols as I sing | J68a) Indiv directs attention to PCS |
| Line 69 | I stop singing | |
| Line 70 | I verbally invite the rest of the group to sing with me | J70a) Therapist verbally invite participants to sing |
| Line 71 | We sing the song again from the beginning | J71a) Repetition of verse |
| Line 72 | I count to four and we start to sing Lively and with a lot of energy | J72a) Participants sing lively and energetic |
| Line 73 | They attentively watch Tom's index finger as he points to the appropriate picture symbols. Tom himself attentively look at the board | J73a) Participants focus on PCS J73b) Indiv dependent on PCS |

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| Line 74 | All participants sing along moderately soft as they sit still and attentively follow Tom's index finger pointing to the appropriate picture symbols however Tom sings the loudest of all the participants. Christopher adjust his upper body in order to see past Tom's body that is covering the board | J74a) Participants focused on PCS J74b) Pointing indiv sing loudest J74c) Participants sing softly J74d) Indiv dependent on PCS to remember words |
| 11:12 | | |
| Line 75 | Lisa puts up her hand and asks if she can be the next one to point the picture symbols | J75a) Indiv eagerly volunteer to point PCS |
| Line 76 | She jumps up excitedly and goes to the communication board | J76a) Participants body language indicate excitement and eagerness to participate |
| Line 77 | I play a short introduction on the guitar in a fast paced tempo and uplifting and lively mood | J77a) Therapist music is fast paced and lively |
| Line 78 | I verbally invite the rest of the group to sing with me | J78a) Therapist verbally invite participants to sing |
| Line 79 | I count to four and we start to sing the verse section | J79a) Repetition of verse |
| Line 80 | All participants excluding Lisa sing along loud and confidently | J80a) Pointing participant do not sing J80b) Participants sing loudly and with confidence |
| Line 81 | Lisa points to the appropriate picture symbols as we sing the song | J81a) Indiv directs attention to PCS |
| Line 82 | Throughout the verse the participant, including myself, watch Lisa's index finger and the picture symbols she is pointing to attentively while the other participants sing along cheerfully. Tom invites Christopher to song with when Christopher stomps singing for no reason. Tom taps him on his shoulder and verbally invites him | J82a) Therapist and participant focus on pointing indiv J82b) Indiv invite other indiv to sing J82c) Indiv sings the loudest J82d) Participants sing cheerfully |
| Line 83 | Near the chorus section I slow down my guitar strumming to ensure Lisa finds the correct picture symbols to point to | J83a) Therapist slow down music to assist pointing indiv |

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| Line 84 | As soon as she finds and starts to point at the picture symbol for the first word of the chorus section which is "hello", I fasten the tempo to the tempo it had been for the verse section | J84a) indiv directs attention to PCS J85a) Therapist speeds up music tempo to fast paced and lively |
| Line 85 | All participants including myself watch her index finger and the picture symbols it is pointing to attentively throughout the chorus section with blunted facial expressions | J85a) Repetition of chorus J85b) Therapist and participant focus on PCS J85c) Blunted facial expressions |
| Line 86 | Before returning to the verse section again, I verbally remind Lisa that she has to start pointing from the very top and beginning of the communication board | J86a) Therapist verbally remind pointing indiv of song form |
| Line 87 | We start singing the first line of the verse | J87a) Repetition of verse |
| Line 88 | Lisa seems confused and only start pointing to the very first picture symbols representing the first line of the verse when we are reach the second line of the verse | J88a) Indiv point to incorrect verse line |
| Line 89 | Near the end of the second verse she catches up and points to the correct and appropriate picture symbol | J89a) Indiv directs attention to correct PCS |
| Line 90 | When we sing the repeat of the verse section she starts pointing on time with the correct picture symbols matching the groups singing | J90a) Pointing indiv match group singing rhythmically when pointing PCS J90b) Indiv directs attention to PCS |
| Line 91 | The participants including myself watch Lisa's index finger and the picture symbols she is pointing to attentively while we sing cheerfully and enthusiastically. Tom sings the loudest of everyone | J91a) Therapist and participants focus on PCS J91b) Participants sing cheerfully and with enthusiasm J92c) Indiv sings loudest |
| Line 92 | Lisa does not sing while pointing | J92a) Pointing indiv does not sing J92b) Pointing indiv focus on PCS |
| Line 93 | I praise Lisa for her help | J93a) Therapist verbally affirm indiv pointing indiv |
| Session notes | The participants seem to remember the words of the song very well | |

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| | Every participants had a turn to point out the picture symbols and did it very well and accurately |
| | The song learning part of the session was socially engaging because each member had the opportunity to lead the song by pointing the picture symbols which provided for individual attention and a leadership within the group however all participants, including myself, made very little eye contact with each other |
| | The participants and myself only looked at the communication board because it was something we were very dependent on the communication board and the picture symbols |
| | I did not find the opportunity to extend or variety the characteristics of the song because the words of the song are being read on the communication board |
| | I also did not feel that there was a lot of spontaneous and playful behavior during the song learning section |
| | I felt musically very limited and stuck and at times even bored |

Appendix Y: Thick descriptions K

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| K | At the circus | |
| 29-Apr-16 | Session 3 without pcs Group A | |
| Time (minutes into session) | Thick description | Code |
| 6:45 | | |
| Line 1 | I ask the group what the song we have been singing in the previous sessions are about | |
| Line 2 | I start to play the introduction of the song at a moderately slow and calm tempo | K2a) Therapist's music is moderately slow and calm |
| Line 3 | Before I start to sing, Ellen starts to sing the first line. She only sings a few words as she seems unsure if she was supposed to start singing yet | K3a) Indiv spontaneously sing line K3b) Indiv unsure of when to sing K3b) Indiv remembers verse lyrics and melody |
| Line 4 | I praise her for remembering and singing | K4a) Therapist verbally affirms indiv for remembering the lyrics |
| Line 5 | I continue playing the introduction at a moderately slow tempo | K5a) Therapist continue music at a moderate slow tempo |
| Line 6 | I speed up the tempo and we start to sing along together | K6a) Therapist and participants sing together at fast tempo |
| Line 7 | The participants sing along softly while some look at either me or the guitar and some often look around in the room. The sing softly and mumble some of the words. I occasionally make eye contact with the individual participants however their overall energy levels are low and their facial expressions seem blunted | K7a) Participants sing softly K7b) Participants occasionally make eye contact with therapist K7c) Robotic response K7d) Participants remember verse lyrics with ease K7e) Blunted facial expressions |

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| Line 8 | When we get to the chorus section, the tempo and lively mood of my playing and singing remains the same as in the verse section. Tshepo gets very excited and taps on his chair a fast and vigorous rhythm for a brief second. | K8a) Music is lively and fast paced K8b) Indiv taps fast and energetic rhythm on his chair |
| Line 9 | I sing along the greetings of the animals but keep quiet when the animal must be named | K9a) Participants invited to sing by themselves |
| Line 10 | The participants manage to remember all the animals we greet in the song in the correct order. | K10a) Participants immediately remember chorus lyrics and melody with ease |
| Line 11 | Tshepo gets very excited and starts to sing loudly | K11a) Indiv expresses emotions of enjoyment and playfulness by singing louder |
| Line 12 | He stomps the chair loudly to the beat of the main pulse of the song a few times and hops in his chair as he does so. He leans forward as to ensure I hear him loud and clearly. He smiles widely as he sing at me | K12a) Indiv participant stomps chair with his hand matching the pulse of the music K12b) Indiv sings loudly animal names in excitement K12c) Indiv smiles widely |
| Line 13 | Albert also hops in his chair for a short while and smiles. Overall the participants are fully engaged and focused on the music They make a healthy amount of eye contact with me and sing with high energy and excitement | K13a) Indiv hops in chair energetically K13b) Indiv smiles K13c) Participants interested and focused on music and therapist K13d) Participants make meaningful eye contact with therapist K13e) Participants sing energetically and excitedly |
| Line 14 | We return to the verse section | K14a) Repetition of verse |
| Line 15 | Tshepo sings along loudly and excitedly while smiling widely and making meaningful eye contact with me | K15a) Indiv express emotions of enjoyment and excitement K15b) Indiv sings loudly K15c) Indiv makes meaningful eye contact with therapist |
| Line 16 | Throughout the repeat of the verse section I gradually speed up the tempo | K16a) Therapist's tempo shift gradually faster K16b) Repetition of verse |
| Line 17 | Tshepo starts to sing louder and hops in his chair again | K17a) Indiv express emotions of enjoyment and excitement K17b) Indiv energetically hops in his chair K17c) Indiv sings louder |

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| Line 18 | Near the end of the repeated verse section I end the verse with a short ritardando. The rest of the group adjusts their singing matching the gradual speed increase of my music. They all look at me attentively. Ellen occasionally looks around in the room. All the group members sing all the lyrics correctly with blunted facial expressions except for Tshepo who is smiling at me | K18a) Therapist ends verse with a ritardando K18b) Participants adjust to tempo and dynamic shift with ease K18c) Indiv distracted by objects in the room K18d) Two indiv make eye contact with therapist K18e) Participants remembers verse lyrics and melody K18f) Two indiv blunted facial expressions K18g) Indiv smiles at therapist |
| 7:45 | | |
| Line 19 | I invite Tshepo to strum the guitar for the verse section | K19a) Repetition of verse K19b) Therapist invite indiv participant to strum guitar |
| Line 20 | He stands up and walks to the guitar | K20a) Indiv is eager to participate |
| Line 21 | He strums the guitar by lightly slapping the guitar strings using four of his fingers | K21a) Indiv slaps guitar strings |
| Line 22 | His strumming is very rhythmical, moderately fast and lively | K22a) Indiv strums guitar physical, moderately fast and lively |
| Line 23 | He also strums the guitar with a lot of force at one point making the sound louder and more vigorous | K23a) Indiv strums with force and loudly |
| Line 24 | He stares at his fingers playing slapping the strings throughout the verse without singing. The tempo gradually goes faster and then slower again but still very fast paced | K24a) Indiv Perseverative strumming K24b) indiv focus on strumming guitar K25c) Indiv strums uneven tempo |
| Line 25 | The rest of the group sing along as he strums the guitar and I press the appropriate chords | K25a) Therapist press chords |
| Line 26 | The rest of the group sing along softly as they seem more interested in watching Tshepo play the guitar than singing. They mumble the words with blunted facial expressions and low energy singing | K26a) Participants sing softly K26b) Participants focus on indiv strumming guitar K26c) Mumbling of words K26d) Blunted facial expressions K26e) Participants low energy singing |

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| Line 27 | After we finish the chorus section I thank Tshepo for helping me play the guitar and invite Ellen to strum the chorus section for us | K27a) Repetition of chorus K27b) Therapist verbally affirms indiv for strumming the guitar K27c) Therapist invite indiv participant to strum guitar |
| Line 28 | She stands up and walks to the guitar | K28a) Indiv is eager to participate |
| Line 29 | She gently strums the guitar using her index finger | K29a) Indiv strums guitar gently |
| Line 30 | She strums a very rhythmical beat | K30a) Indiv strums a steady beat |
| Line 31 | Her tempo and character of strumming is very gently and calm | K31a) Indiv strums guitar gentle and calmly |
| Line 32 | The dynamics of her strumming is moderately soft | K32a) Indiv strums moderately soft |
| Line 33 | Her tempo remains the same throughout the chorus section | K33a) Indiv tempo and dynamics of strumming remain consistent |
| Line 34 | Tshepo sing along enthusiastically while Albert sits still and sings very softly. Ellen's strumming grows louder and confidently gradually. Tshepo starts to sing very loudly and taps the main pulse of the music loudly on his chair after I invite Tshepo and Albert to sing more | K34a) Indiv sings along with enthusiasm K34b) Indiv sings very softly K34c) Indiv strumming gradually grows louder and more confidently K34d) Indiv taps main pulse on his chair loudly and energetically K34e) Indiv sings loudly K34f) Therapist invite participants to sing |
| Line 35 | Ellen blunted stares at her finger as she strums the guitar | K35a) Indiv strumming does not sing K35b) Indiv perseverative strumming K36c) Indiv focus on strumming guitar K36d) Strumming indiv blunted facial expression |
| Line 36 | After the chorus section, I invite Albert to strum the guitar for us for the verse section | K36a) Therapist invite indiv participant to strum guitar K36b) repetition of verse |
| Line 37 | Albert strums the guitar using his index finger | K37a) Indiv is eager to participate |
| Line 38 | He strums at an irregular tempo, often unpredictably going slower and then faster | K38a) Indiv strums irregular unpredictable tempo |
| Line 39 | He also strums some of the strings individually and seems to struggle strumming all the strings simultaneously | K39a) Indiv strums single strings occasionally |

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| Line 40 | Some of the strings he plucks are very loud and some very soft | K40a) Indiv strums irregular and unpredictable dynamics |
| Line 41 | We sing along and try to keep up with the unpredictable tempo | K41a) Participants struggle to match indiv strumming with their voices |
| Line 42 | His tempo and rhythm changes to a more rhythmical and predictable beat during the second line of the repeated verse section to which the group sings along with easier however they sing very softly and with very low energy | K42a) Indiv strumming gradually grow more steady and predictable K42b) Group match singing with strumming K42c) Participants sing softly K42d) Participants low energy of singing |
| 8:58 | | |
| Line 43 | I thank Albert for his participation | K43a) Therapist verbally affirms indiv for strumming the guitar |
| Line 44 | As he walks back to sit down I start to strum the guitar vigorously and fast paced | K44a) Therapist strum guitar vigorously and fast paced tempo |
| Line 45 | I sing the verse section loudly and energetically | K45a) Repetition of verse K45b) Therapist sings loudly and with high energy |
| Line 46 | Tshepo sings very loudly, almost shouts the words of the song and energetically hops in his chair while the rest of the group quietly sits up straight in their chairs in anticipation | K46a) Indiv sings loudly and with high energy K46b) Indiv sings with force K46c) indiv express emotions of enjoyment and playfulness K46d) Participants focus on strumming indiv K46e) Indiv hops in his chair excitedly |
| Line 47 | I add a short rest before I play the third and fourth line of the verse section | K47a) Therapist adds musical anticipation |
| Line 48 | When we sing the third and fourth line of the verse section, the tempo is slow and calm to which the participants adjust their singing with ease | K48a) Music shifts to slow and calm K48b) Participants adjust to tempo and dynamic shift with ease |
| Line 49 | We almost whisper the words instead of singing the words | K49a) Participants and therapist sings softly and whisper-like K49b) Participants remember verse lyrics and melody with ease |

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| Line 50 | I add another short rest before repeating the verse in the same manner | K50a) Repetition of verse K50b) Therapist adds musical anticipation |
| Line 51 | Tshepo sings along very loudly and hops in his chair | K51a) Indiv respond hops in chairs in excitement K51b) Indiv sings loudly and energetically |
| Line 52 | Ellen slowly rocks her upper body from one side to the other during the entire verse section | K52a) Indiv slowly rocks upper body |
| Line 53 | Albert hops often in excitement | K53a) Indiv excitedly hops in chair energetically |
| Line 54 | All participants sing along with enthusiasm and excitement in their voices, Tshepo shouts the lyrics instead of singing it. The participants make eye contact with me and each other regularly and smile widely | K54a) Participants sing with excitement and enthusiasm K54b) Participants remember verse lyrics and melody with ease K54c) Participants body language indicates excitement and eagerness to participate K54d) Participants make meaningful eye contact with therapist and each other K54e) Participants smile widely |
| Line 55 | I continue to the chorus section | K55a) Repetition of chorus |
| Line 56 | The tempo is calm and moderately slow with a combination of plucking and strumming on the guitar | K56a) Therapist's music is moderately slow and calm |
| Line 57 | Tshepo sing along very loudly and almost shouts the words of the song | K57a) Indiv shouts words loudly K57b) Indiv remembers chorus lyrics with ease |
| Line 58 | I gradually increase the tempo of the music near the end of the chorus to a more lively character at a moderately fast tempo to which the participants adjust their singing with ease. Tshepo sings the loudest in a high pitched and playful voice | K58a) Therapist gradually shifts music to a faster paced tempo to moderately fast and lively K58b) Participants adjust to tempo and dynamic shift with ease K58c) Indiv sing in high pitched and playful and silly voice |
| 9:45 | | |
| Line 59 | I explain to the group that we are now going to make the sounds of the animals we greet instead of naming them | |

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| Line 60 | I ask the group what an elephant sounds like; Tshepo immediately makes a trumpeting sound | K60a) Therapist ask participants what the animal sounds like K60b) Indiv spontaneously models vocal sound |
| Line 61 | I praise him for his participation | K61a) Therapist verbally affirms indiv for imitating an animal sounds |
| Line 62 | We start singing the chorus section | K62a) Repetition of chorus |
| Line 63 | We sing at a moderately slow and calm pace | K63a) Music is moderately slow and calm K63b) Therapist and participants sing moderately slow and calm |
| Line 64 | When we get to the part where we have to sing the word "elephant", I am the only one to make the trumpeting sound of an elephant instead | K64a) Therapist imitates animal sound alone |
| Line 65 | Tshepo was the only one who joined me with making the animal sounds at first however Albert joined in and made movements using his hands when we greeted Mr. Horse. | K65a) Indiv participant make animal vocal sounds with therapist K65b) Other indiv join therapist and indiv with vocal imitation of animal sound K65c) Indiv imitate physical movements associated with animal in song |
| Line 66 | Tshepo copied Albert's movement of pretending to have hooves like a horse when we sing hallo to Mr. Horse. Tshepo loudly imitates the sound of a horse while smiling widely. Albert also smiles widely | K66a) Indiv imitate other indiv physical movements associated with animal in song K66b) Indiv participants make meaningful eye contact with therapist and other indiv K66c) Two indiv smile widely K66d) Two indiv participate with enthusiasm and high energy |
| Line 67 | The participants, especially Tshepo, roared like grizzly bears enthusiastically along with hand movements imitating that of grizzly bears claws | K67a) Indiv imitate physical movements associated with animal in song K67b) Indiv imitate vocal sound of animal |
| Line 68 | The last animal we greeted was Mr. Snake | |

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| Line 69 | We made a hissing sounds and Tshepo shouted out loudly "snake". All the participants made a healthy amount of eye contact with me and each other | K69a) Individ immediately remember chorus lyrics K69b) Participants emphasize "s" vocal sound K69c) Participants makes meaningful eye contact with therapist and each other |
| Line 70 | We repeated this activity again but this time Tshepo was the only participant to sing loudly and do his own snake movements energetically | K70a) Repetition of chorus I K70c) Individ imitate vocal sounds loudly and energetically |
| Line 71 | Ellen sang softly and Albert occasionally made hand movements as he sang very softly with blunted facial expressions however all participants made regular eye contact with me | K71a) Individ sing softly K72b) Individ occasionally make hand gestures K72c) Two indiv blunted facial expressions K72d) Participants makes meaningful eye contact with therapist |
| 10:43 | | |
| Line 72 | I move to the verse section again | K72a) Repetition of verse |
| Line 73 | The guitar accompaniment is a combination of picking and strumming at a lively and moderately fast tempo | K73a) Therapist's guitar accompaniment is lively and moderately fast |
| Line 74 | All participants sing along with me | |
| Line 75 | The sing softly but all the words are clearly pronounced and al are looking at me | K75a) Participants sing softly K75b) Participants remember verse lyrics with ease K75c) Participants make meaningful eye contact with therapist K75d) Participants pronounce words clearly |
| Line 76 | I modulate to a different key for the repeat of the verse section | K76a) Repetition of verse K76b) Therapist modulates to different key |
| Line 77 | The participants adjust with ease to the new key | K77a) Participants adjust to tempo and dynamic shift with ease |
| Line 78 | I gradually increase the tempo of the music to which the participants sing along with ease as well | K78a) Therapist gradually fastens the tempo K78b) Participants adjust to tempo and dynamic shift with ease |
| 11:30 | | |

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| Line 79 | I invite the participants to sing the song for a last time with me | K79a) Repetition of verse K79b) Therapist invite indiv participant to sing |
| Line 80 | I explain to them that at the chorus section twice as we will sing the greetings of the animals and then during the repeat we will imitate the sounds they make | K80a) Therapist verbally explain that lyrics change to animal vocal sounds |
| Line 81 | I play a short introduction to the song at a lively and moderately fast tempo | K81a) Therapist's music is lively and moderately fast paced |
| Line 82 | All the participants sing along in the same manner during the verse section however they sing with blunted facial expressions and look around the room almost seeming bored. The quality of their singing is low in energy and the words are mumbled however one can hear that they do not know the lyrics well | K82a) Participants sing lively K82b) Participants remember verse lyrics K82c) Blunted facial expressions K82d) Participants seem distracted by objects in the room K82d) Participants flat quality of singing K82e) Mumbling of words K82f) Therapist uses body language to indicate musical cues |
| Line 83 | When we get to chorus section, the tempo and character of the song remains the same as in the verse section | K83a) Repetition of chorus K83b) Tempo and dynamics remains consistent |
| Line 84 | The participants sing along softly and monotonic | K84a) Participants sing softly K84b) Participants monotonic singing |
| Line 85 | Tshepo misunderstands my instructions and imitates the sounds of the animals at first with a lot of enthusiasm and confidence while the rest of the group sings the animal names softly with blunted facial expressions while Tshepo smiles widely | K85a) Indiv misunderstand therapist instructions to sing animal names K85b) Indiv imitate vocal sound of animal K85c) Indiv imitates vocal sound with confidence K85d) Participants sings softly K85e) Participants blunted facial expressions K85f) Indiv smiles |
| Line 86 | I decide to not correct him as he is doing it very enthusiastically and appears to be enjoying imitating the sounds and jumps up to do matching hand movements along with his sounds | K86a) Indiv participants body language indicate excitement and eagerness to participate K86b) Indiv participant jumps up in excitement K86c) Indiv imitates animal movement energetically |

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| Line 87 | When we get to the repeat of the chorus section I verbally remind the participants that we are now going to imitate the sounds of the animals instead of singing their names | K87a) Repetition of chorus K87b) Therapist verbally remind participants of lyrical changes to vocal sounds for chorus |
| Line 88 | When we greet the first animal Tshepo imitates an elephant very well energetically and with confidence however Albert and Ellen seem confused and sang the elephants name very softly and unsure of what to do | K88a) Two participants confused about lyrical change K88b) Indiv participant respond to music through high energy and confident physical movement K88c) Two participants softly sing K88d) Two indiv unsure of instructions to imitate animal vocal sounds K88e) Indiv makes vocal imitation of animal sounds |
| Line 89 | I continue to strum the guitar but ask Ellen to show me how an elephant makes and what it sounds like | K89a) Therapist invite indiv to imitate animal vocal sound |
| Line 90 | She makes a loud and slow trumpeting sound as she lifts her right arm in the air imitating the trunk of an elephant as she makes eye contact with me | K90a) Indiv eagerly responds with physical and vocal imitation of animal K90b) Indiv makes eye contact with therapist |
| Line 91 | I acknowledge and praise Ellen for her participation | K91a) Therapist verbally affirms indiv for imitation of an animal sound |
| Line 92 | We greet the next animal which I then sing is a horse | |
| Line 93 | I verbally invite the participants to show me their best imitations of a horse | K93a) Therapist invite participants to make vocal imitations of animals |
| Line 94 | They all imitate the sound of a horse loudly, especially Tshepo, while they add arm movements imitating a horse kicking | K94a) Participants eagerly answer therapist with physical and vocal imitations of animals in the song K94b) Indiv imitates vocal sounds very loudly |
| Line 95 | I do the exact same with the next animal which is a grizzly bear | K95a) Participants respond with physical movements and vocal imitations of animal in song |

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| Line 96 | The participants growl loudly and claw with their hands in the air as if their hands are bear claws. The overall energy in the room has shifted to a more engaging and energetic level. Tshepo smiles widely at me while Albert and Ellen looks at me with blunted facial expressions however their vocal sounds are done with confidence and high energy | K96a) Participants take part in activity with enthusiasm and over exaggerated vocal sounds K96b) Indiv smiles K96c) Participants blunted facial expressions K96d) Participant vocal imitations are done loudly and with confidence K96e) Participants engage with high energy |
| Line 97 | The last animal is Mr. Snake to which they imitate hissing sounds; Tshepo frowns as he over exaggerates the hissing sound of a snake. He makes meaningful eye contact with me. | K97a) Participants exaggerates imitation of vocal animal sound playfully K97b) Indiv frowns K97c) Indiv makes meaningful eye contact with therapist |
| Line 98 | I praise them for their accurate animal sounds and continue to the verse section | K98a) Therapist verbally affirms participants for accurate vocal imitation of animal sounds K98b) Repetition of verse |
| Line 99 | The first line I play lively but at a moderately fast pace | K99a) Therapist's music is lively and moderately fast paced |
| Line 100 | The second line I play vigorous, loud and in a very fast tempo to which the participants sing along with ease. They look at me attentively while singing all the word accurately and melodically however their quality of voice is low in energy | K100a) Therapist shifts music to vigorous strumming and singing at a fast paced tempo K100b) Participants remember verse lyrics K100c) Participants adjust to tempo and dynamic shift with ease K100d) Participants make meaningful eye contact with therapist K100e) Participants focus on therapist K100f) Participants remembers melody K100g) Participants sing with low energy |
| Line 101 | I add a sudden rest after the second line | K101a) therapist adds anticipation |
| Line 102 | The participants sing along and adjust their quality of voices accordingly to the character, tempo and dynamics of the guitar strumming and my quality of voice | K102a) Participants adjust to tempo and dynamic shift with ease |

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| Line 103 | I continue with the rest of the song in the same manner, ending the last line with a short ritardando to which the participants adjust the tempo of their singing accordingly. We are interrupted by a teacher coming into the room and talking to me to which the participants look at her during the last line | K103a) Therapist ends song with a ritardando K103b) Participants adjust to tempo and dynamic shift with ease K103c) Participants distracted by outside element |
| Session notes | Overall all participants participated in every part of the song learning section of the session | |
| | Tshepo brought an energetic quality to the group which helped me a lot as two of the other participants were absent from school that day | |
| | The participants made a healthy amount of eye contact with each other and myself | |
| | The sound of the animals they had to imitate facilitated social engagement with each other as they looked at each other and copied each other's body movements and sounds | |
| | I was able to use the music in a more flexible manner by changing the tempo and dynamics as well as to modulate and play around with the character and overall mood of the music | |
| | This allowed us to create different versions of the song and the making sure the repetition of the same song remained exciting and interesting | |

Appendix Z: Thick descriptions L

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| L | At the circus | |
| 29-Apr-16 | Session 3 with pcs Group B (Only Lisa and Tom attended) | |
| Time (minutes into session) | Thick description | Code |
| 8:13 | | |
| Line 1 | I ask the participants if they can remember the song we sang in the previous session | L1a) Therapist ask participants a question about song |
| Line 2 | Lisa points to the board and say some of the words whose picture symbols are on the communication board out loud. Tom spontaneously and clearly starts saying the first line of the verse section as I point to the picture symbols | L2a) participants directs attention to PCS L2b) Participants immediately remembers PCS with ease L2c) Participants focus on PCS L2d) indiv spontaneously say words L2e) Indiv pronounce words clearly |
| Line 3 | I start to sing at a moderately fast tempo as I point at the picture symbols matching the words of the song | L3a) Therapist directs attention to PCS L3b) Therapist sings at a moderately fast paced tempo |
| Line 4 | Tom and Lisa sing with me, Tom mumbles the words but sing louder than Lisa. Lisa starts drinking water. Both attentively stare at the board with blunted facial expressions and participation has a very low in energy | L4a) Indiv sings louder L4b) Indiv mumbles words L4c) Indiv distracted with water bottle L4c) Blunted facial expressions L4d) Participants engage with low energy |
| Line 5 | I ask her to finish and then take both Tom and Lisa's water bottles away | L5a) Therapist removes distractions |
| Line 6 | I explain to them that they can drink water after the session | |
| Line 7 | I continue to the chorus section | |
| Line 8 | I ask the participants what animal do we greet first | |

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| Line 9 | Tom shouts out enthusiastically "elephant". Lisa immediately shouts out "hello" as she reads on the board. Lisa waves at the board as she says hello | L9a) Indiv immediately remembers word with ease L9b) Indiv participates with excitement L9c) Indiv remembers PCS with ease L9d) Indiv participant imitates PCS by waving hello |
| Line 10 | I praise him as I stick the picture symbol of an elephant on the board. While I stick the picture symbol on the board, Lisa loudly and playfully imitates the sound of an elephant and waves her arm like a trunk of an elephant while smiling. While Lisa imitate an elephant, Tom shouts out loud the next animal being greeted | L10a) Therapist verbally give praise to participant L10b) Therapist directs attention to PCS L10c) Indiv predicts animal being greeted L10d) Indiv participant imitate the trunk of an elephant L10e) Indiv imitate vocal sound of animal being greeted L10f) Indiv imitate sound loudly and playfully L10g) Indiv smiles |
| Line 11 | I start to sing the second line for the second animal being greeted and when the part comes where the animal must be named, I keep quiet and allow the participants to sing the animals names, which they did confidently and loudly. I sing moderately slowly without guitar accompaniment. The participants seem eager and excited to participate. Lisa smiles widely as she sings with me | L11a) Therapist invites participants to read PCS by themselves L11b) Participants remember word L11c) Therapist direct attention to PCS L11d) Participants sing with confidence and loud L11e) Therapist sings moderately slow L11f) Participants body language indicate eagerness and excitement to participate L11g) Indiv smiles |
| Line 12 | I do the same with the third animal | L12a) Therapist invite participants to remember words by themselves |
| Line 13 | Tom sings loudly "grizzly bear" as he swings his arms and hands in the air, pretending to have claws like a grizzly bear | L13a) Indiv participant imitate movement of a grizzly bear L13b) Indiv sings loudly L13c) Participants immediately remembers words L13d) Therapist directs attention to PCS |
| Line 14 | The last animal I help the group by putting emphasis on the "s" sound in snake. Before singing the animal's name, Tom shouts out the name of the animal spontaneously and with high energy to which Lisa excitedly agrees with him by also shouting out the animal's name. Both Tom and Lisa make eye contact with me and only occasionally look at the board | L14a) Therapist emphasize "s" sound L14b) Indiv remembers lyrics from memory L14c) Participants smile L14d) Participants make meaningful eye contact with therapist L14e) Group agrees with intended PCS meaning |

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| Line 15 | The participants made hissing sounds and shouted out the word "snake" excitedly and with high energy and engaging body language by sitting slightly bent forward | L15a) Participants imitate therapist vocal sound L15b) Participants participate with high energy and excitement L15c) Participants body language indicates eagerness to participate |
| Line 16 | Tom imitated a snake slithering using both his arms | L16a) Indiv imitates PCS of slithering snake |
| Line 17 | I fetch my guitar | |
| Line 18 | I asked Tom to do the pointing to picture symbols for Lisa and I | L18a) Therapist invite indiv participant to point PCS |
| Line 19 | I play a short introduction and we start to sign the verse of the song lively and cheerful at a moderately fast paced tempo | L19a) Repetition of verse L19b) Therapist's music is lively and cheerful L19c) Therapist's music is a moderately fast paced tempo |
| Line 20 | Tom sings loudly but sometimes stomps singing as he is focusing on pointing at the picture symbols | L20a) Pointing indiv sings loudly L20b) indiv distracted by directing to PCS |
| Line 21 | Lisa sing very softly and in the middle of the verse stomps singing at all | L21a) Indiv sings softly L21b) Indiv stomps singing mid-verse |
| Line 22 | The music was lively and moderately fast paced however no eye contact is being made between myself and the participants as we all attentively stare at the board with blunted facial expressions | L22a) Music is lively and moderately fast L22b) Therapist and participants focus on PCS L22c) No eye contact between therapist and participants L22d) Blunted facial expressions |
| Line 23 | I stop the music before we continue with the chorus section to verbally invite Lisa to sing along with me | L23a) Therapist pauses music L23b) Therapist verbally invite indiv participant to sing |
| Line 24 | I play a short introduction on the guitar and we start with the chorus section at a moderately fast tempo | L24a) Repetition of chorus L24b) Therapist plays moderately fast |
| Line 25 | Tom sings along with me loudly while he points at the board however Lisa only stares at the board and occasionally at me with a blunted facial expressions | L25a) Pointing indiv sings with therapist loudly L25b) Sitting indiv has blunted facial expression L25c) Sitting indiv does not sing L25d) Pointing indiv directs attention to PCS |
| Line 26 | When we greet Mr. Elephant Lisa lifts up her arm and imitates the trunk of an elephant enthusiastically | L26a) Indiv participant imitate the trunk of an elephant L26b) Indiv enthusiastically participate |

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| Line 27 | She also makes a trumpeting sound while smiling and making meaningful eye contact with me | L27a) Individ imitate vocal sound of animal being greeted L27b) Individ smiles L27c) Individ makes meaningful eye contact with therapist |
| Line 28 | We continue to greet the rest of the animals with only Tom and I singing, Lisa occasionally softly sing with us and stares at the board | L28a) Therapist and pointing individ sing together L28b) Individ sings softly L28c) Individ focus on PCS |
| Line 29 | I occasionally have to verbally invite Tom to sing as well | L29a) Therapist verbally invite pointing individ to sing |
| Line 30 | We move to the verse section | L30a) Repetition of verse |
| Line 31 | Only Tom sings very loudly and energetic with me while he points to the picture symbols on the board. The music is lively and fast however both Lisa and Tom and myself look at the board with blunted facial expressions | L31a) Pointing individ sings loudly and energetic with therapist L31b) Individ direct attention to PCS L31c) Therapist blunted facial expression L31d) Participants blunted facial expressions |
| Line 32 | At the second line of the verse I fasten the tempo gradually until we reach the end of the verse singing very loud and at a very fast paced tempo. Lisa gives a giggle when I finish the verse and smiles at me warmly | L32a) Therapist gradually speeds up to a fast pace L32b) Music gradually grows louder L32c) Individ giggles and smiles L32d) Individ makes meaningful eye contact with therapist |
| Line 33 | I then invite Lisa to come to the communication board and to point the picture symbols for the song | L33a) Therapist invite individ participant to point PCS |
| Line 34 | She enthusiastically agrees and walks to the communication board | L34a) Individ eager to direct attention to PCS |
| Line 35 | I play a short introduction on the guitar with a lively and energetic quality to it | L35a) Therapist play guitar lively and energetic |
| Line 36 | The tempo was moderately fast paced | L36a) Tempo of music is moderately fast L36b) Repetition of verse |
| Line 37 | Tom sang with me very loudly and enthusiastically as he swung his legs to the rhythm of the music. His quality of voice is energetic and lively | L37a) Participants swings legs fast L37b) Individ sings loudly and with enthusiasm L37c) Individ sings energetic and lively |
| Line 38 | Lisa pointed the picture symbol correctly and on time as we sang in a fast pace | L38a) Individ accurately direct attention to PCS |

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| Line 39 | Lisa did not however sing at all but focus very hard on pointing to the correct picture symbols | L39a) Pointing indiv does not sing L39b) Pointing indiv focus on PCS |
| Line 40 | At the chorus section the first line and greeting of the first animal stayed softly and still fast paced but a bit slower than the verse section | L40a) Repetition of chorus L40b) Music is slow paced and sung softly by therapist and participants |
| Line 41 | Throughout the first line the dynamics changed gradually to louder and louder | L41a) Dynamics gradually shift to louder and faster paced |
| Line 42 | Tom sang the rest of the chorus section loudly with me, imitating a horse movement using his hands as hooves kicking in the air | L42a) Indiv and therapist sing loudly together L42b) Indiv imitates the movement of a horse |
| Line 43 | Lisa continued to point to the appropriate picture symbols as we sang | L43a) Indiv directs attention to PCS |
| Line 44 | When we returned to the verse section I fastened the tempo gradually to a very fast and lively tempo | L44a) Repetition of verse L44b) Therapist gradually shift music to a lively and fast pace |
| Line 45 | Lisa smiled as she tried to keep up with the pointing to the picture symbols | L45a) Pointing indiv smiles L45b) Indiv directs attention to PCS |
| Line 46 | Tom sang along and swung his legs vigorously | L46a) Sitting indiv respond with high energy movements L46b) Sitting indiv sing loudly L46c) Participants adjust to musical shift with ease |
| Line 47 | During the repeat of the verse I added a sudden rest and created a sense of anticipation | L47a) Repetition of verse L47b) Therapist add musical anticipation |
| Line 48 | Lisa smiled at me as she waits for me to finish the verse | L48a) Pointing indiv smiles L48b) Pointing indiv curious of music L48c) Indiv makes meaningful eye contact with therapist |
| Line 49 | Tom swung his legs vigorously until the very end of the verse | L49a) Sitting indiv participant responds with high energy movements |
| Line 50 | Lisa did her best to keep up with the pointing to the picture symbols and managed to keep up very well | L50a) Indiv correctly directs attention to PCS L50b) Pointing indiv adjust to unpredictable tempo change |
| 11:56 | | |

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| Line 51 | I explain to the group that we are going to sing the song again but this time nobody will be pointing to the picture symbols on the communication board and the must read it by themselves | L51a) Therapist verbally invite participants to read PCS by themselves |
| Line 52 | I play a short introduction on the guitar and count to four | L52a) Therapist play short introduction |
| Line 53 | As I count to four Lisa counts on her fingers with me | L53a) Indiv counts to four with therapist |
| Line 54 | We start to sing the verse. Lisa continues to point to the picture symbols despite me asking her to not point | L54a) Repetition of verse L54b) Indiv directs attention to PCS |
| Line 55 | The guitar strumming is lively, fast paced and energetic | L55a) Therapist's strumming is lively, fast paced and energetic |
| Line 56 | All participants sing along enthusiastically | L56a) Participants sing with therapist with enthusiasm L56b) Participants sing fast paced and lively |
| Line 57 | As we get to the third line of the verse section, I speed up the tempo and strum more vigorously | L57a) Therapist strums guitar vigorously and sings at a fast pace |
| Line 58 | The participants sing louder and energetically. Tom does not look at the board at all, he seem to remember the lyrics from memory. Instead he looks at Lisa and me while smiling widely. Lisa sings along but attentively focus on pointing to the correct picture symbols while also smiling widely | L58a) Participants quality of voice adjust and match to musical shift with ease L58b) Participants sing fast paced, energetic and loud L58c) Indiv remembers lyrics from memory L58d) Indiv makes meaningful eye contact with therapist and participant L58e) Indiv smiles widely L58f) Indiv directs attention to PCS L58g) Indiv focus on PCS |
| Line 59 | Tom swings his legs | L59a) indiv respond with high energy movements |
| Line 60 | I pause the music for a short while after the first verse | L60a) Therapist pause music |
| Line 61 | We sing the repeat of the verse in the similar manner except I add a sudden short pause after the second line of the verse | L61a) Repetition of verse L61b) Music is lively energetic and fast paced L61c) Therapist add unpredicted anticipation |
| Line 62 | I create a sense of anticipation when I suddenly continue with the song by singing louder and strumming vigorously at a fastened tempo | L62a) Therapist strum guitar and sings vigorously at a fast tempo |

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| Line 63 | Lisa and Tom sing along loudly and enthusiastically. They occasionally look at the board however they seem more interested and curious to see how the music will change | L63a) Participants sing loudly and excitedly L63b) Participants less dependent on PCS L63c) Participants interest and focus on therapist and music L63d) Participants make meaningful eye contact with therapist |
| Line 64 | Lisa occasionally points to the picture symbols on the communication board | L64a) Indiv occasionally directs attention to PCS |
| Line 65 | Tom seems to remember the words of the song by memory | L65a) Indiv remember lyrics by memory |
| Line 66 | We continue to the chorus section | L66a) Repetition of chorus |
| Line 67 | Between each greeting of each animal I add anticipation | L67a) Therapist adds unpredictable anticipations between verses |
| Line 68 | In response to the sudden rests in the music, Tom swings his legs vigorously and energetic and Lisa sings along and points to the picture symbols on the communication board. They both look at me and my guitar curiously while smiling widely and giggling in between the verses | L68a) indiv respond with high energy movements L68b) Other indiv occasionally directs attention to PCS L68c) Two indiv participants cheerfully sings with therapist L68d) Participants focus on therapist and seem curious of music L86e) Participants smile L86f) Participants adjust to musical shifts and sudden pauses with ease L86g) Participants makes meaningful eye contact with therapist |
| Line 69 | Tom sings along very loudly | L69a) Indiv sings loudly |
| Line 70 | We sing the verse section again | L70a) Repetition of verse |
| Line 71 | The first two lines we sing fast paced and lively | L71a) music is fast paced and lively |
| Line 72 | The last two lines of the song I slow down the tempo and dynamics of the music to a clam and almost lazy type of playing and singing | L72a) Therapist shifts music suddenly to slow tempo and soft and calm character L72b) Therapist sings and strums lazily |
| Line 73 | The participants stop singing as soon as the music slows down and I have to verbally invite them to sing with me | L73a) Participants does not adjust well to sudden musical shift L73c) Therapist verbally invite participants to sing |

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| Line 74 | They do however rock their upper bodies from one side to the other to the main pulse of the song while attentively looking at me | L74a) Participants rock bodies to pulse of music L74b) Participants focused on therapist L74c) Participants make meaningful eye contact with therapist |
| Line 75 | The same happens with the second repeat of the verse however even during the parts where the music is fast paced and lively, none of the participants sing along | L75a) Participants does not adjust well to sudden musical shift L75b) Repetition of verse L75c) Therapist's music is fast paced and lively |
| Line 76 | The rock their upper bodies from one side to the other to the main pulse of the song | L76a) Participants rock bodies to pulse of music |
| 13:39 | | |
| Line 77 | I verbally invite Lisa to help me strum the guitar | L77a) Therapist invite indiv participant to strum guitar |
| Line 78 | I show her how to strum the guitar using her index finger | L78a) Therapist models guitar strumming |
| Line 79 | She started strumming a very basic but rhythmical and steady rhythm at a moderately fast and lively tempo. Lisa attentively focus on the guitar | L79a) Indiv strum guitar rhythmically with steady beat L79b) Indiv strumming is lively and moderately fast L79c) Indiv focus on strumming guitar |
| Line 80 | I counted to 4 and we started to sing along at Lisa's strumming pace | L80a) therapist verbally count music in L80b) Participants and therapist sing together matching indiv strumming |
| Line 81 | Tom sang very loudly, occasionally clapping his hands on the rhythm | L81a) Sitting indiv sings loudly L81b) Indiv participant occasionally claps hands matching the pulse of the music |
| Line 82 | Lisa kept the same beat for the entire verse | L82a) Indiv strums beat steady |
| Line 83 | I then invited Tom to strum the guitar for the repeat of the verse section | L83a) Therapist invite indiv participant to strum guitar L83b) Repetition of verse |
| Line 84 | Tom jumped up and started strumming the guitar vigorously, fast and loud | L84a) Indiv body language indicate excitement and eagerness to participate L84b) Indiv strums guitar with force and at a presto tempo L84c) Indiv engages with high energy |

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| Line 85 | His strumming was less steady as he was almost lightly hitting the strings using both his hands | L85a) Indiv tempo and rhythm of strumming is disorganized and unpredictable L85b) Indiv use all fingers of both hands to strum guitar |
| Line 86 | Lisa did not sing at all, instead she attentively looked Tom as he strums the guitar vigorously and laughed out loud. I struggle to match his strumming with my singing but manage at times | L86a) Therapist struggle to match indiv music with voice L86b) Sitting indiv focus on other indiv strumming L86c) Sitting indiv smiles and laughs loudly L86d) Sitting indiv does not sing |
| Line 87 | I sang along the chorus section by matching his strumming with my voice | L87a) Repetition of chorus L87b) Therapist match indiv strumming with voice L87b) Therapist sings loud and with force |
| Line 88 | I invited Lisa to strum the guitar again | L88a) Therapist invite indiv participant to strum guitar L88b) Repetition of verse |
| Line 89 | She played in the same steady and rhythmical manner she had played before. Lisa attentively look at her finger as she strums the guitar. She does not sing with | L89a) Indiv strum guitar rhythmically with steady beat L89b) Indiv strumming is lively and moderately fast L89c) Strumming indiv focus on strumming |
| Line 90 | Tom enthusiastically sang with me loudly and with high energy. He attentively looks at me and Lisa's playing while smiling widely and seems to remember all the lyrics from memory. | L90a) Sitting indiv sing with therapist with enthusiasm and energetically L90b) Sitting indiv makes healthy eye contact with therapist L90c) Sitting indiv focus on other indiv strumming L90d) Sitting indiv remembers lyrics from memory L90e) Sitting indiv smiles widely |
| Line 91 | I praised Lisa for helping me and she went back to her chair | L91a) Therapist verbally affirm indiv |
| Line 92 | I moved directly into the goodbye song | |
| Session notes | The song learning part went well to an extent | |
| | The participants remembered the words quite well and were able to point to the correct picture symbols on time on the communication board however I struggled with the participation of the participants | |

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| | Unfortunately only two of the members of the group were at school that day (Tom and Lisa) |
| | Lisa had to constantly be verbally invited to sing and participate verbally |
| | She would sing one line of the song and then stop singing for the rest of the verse |
| | Tom sang very loud and sometimes might have overpowered Lisa's singing |
| | Tom and Lisa were both very eager to point the picture symbols on the board and to strum the guitar |
| | They both were able to adjust their pointing to picture symbols according to the tempo of the music which I changed often and without warning |

Appendix AA: Recollection of song

Table 1

| Recollection of song | | | | | |
|--|--------------------------------|---------------------------------|---------------------------------|-----------------------------------|---|
| <u>Forgetting of song form</u> | <u>Forgetting of song form</u> | <u>Remembering of song form</u> | <u>Remembering song form</u> | <u>Remembering of song theme</u> | <u>Remembering of song theme</u> |
| E114a) Pointing indiv does not go back to verse section | | | G40d) Indiv remembers song form | H102a) Indiv remembers song theme | I2a) Indiv immediately remembers song theme |
| E121b) Indiv does not go back to verse section | | | | | |
| H97b) Indiv forgets to repeat verse section | | | | | |
| H101a) Indiv forgets to point to chorus section | | | | | |
| H104a) Indiv participant forgets to point chorus section | | | | | |
| J55c) Pointing indiv forgets to point to verse section | | | | | |

| | | | | | |
|---|--|--|--|--|--|
| J59a) Indiv forgets repeat of the verse section | | | | | |
| J88a) Indiv point to incorrect verse line | | | | | |

Appendix AB: Recollection of lyrics

Table 1

| Recollection of lyrics | | | | | |
|---|---|---|--|---|---|
| <u>Remembering of lyrics</u> | <u>Remembering of lyrics</u> | <u>Recollection of emphasized lyrics</u> | <u>Recollection of emphasized lyrics</u> | <u>Participant predict words</u> | <u>Participant predict words</u> |
| C81a) Participants remember most lyrics from memory | B94a) Indiv participant remembers verse words | | B35c) Participants remember emphasized words in verse most | J17a) Indiv predicts words incorrect | |
| E79c) Participants remember lyrics from memory | B119a) Participants remember most lyrics by memory of verse | | B48a) Participants remember emphasized words in verse | J21a) Indiv predicts words correct | |
| E138b) Remember lyrics from memory | G32f) Participants remembers chorus lyrics and melody with ease | | B58b) Participants remember emphasized words in chorus | L10c) Indiv predicts animal being greeted | |

| | | | | | |
|--|---|--|--|--|--|
| L14b) Indiv remembers lyrics from memory | G40e) Indiv remembers chorus melody and lyrics | | B85b) Participants remember emphasized words of chorus | | |
| L58c) Indiv remembers lyrics from memory | G43a) Indiv immediately remembers chorus lyrics | | B95c) Participants remember emphasized words of verse | | |
| L65a) Indiv remembers lyrics by memory | G46c) Participants remembers chorus lyrics and melody with ease | | B114b) Participants remembers emphasized words of verse | | |
| L90d) Sitting indiv remembers lyrics from memory | G50a) Participants remembers chorus lyrics | | D8b) Participants remember emphasized words of verse | | |
| | G62b) Participants remembers verse lyrics with ease | | D22a) Two participants remembers emphasized words of verse | | |
| | G72b) Participants remembers verse melody and lyrics with ease | | D33b) Indiv remembers emphasized words of verse | | |
| | G78b) Participants remember chorus lyrics and melody with ease | | D35b) Participants remember emphasized words of verse | | |

| | | | | | |
|--|---|--|--|--|--|
| | G84c) Participants remembers chorus melody and lyrics very well | | D53b) Indiv remembers emphasized words of verse | | |
| | D2a) Indiv participant immediately verse remembers lyrics | | D99a) Different participants remembers emphasized words of verse | | |
| | D16b) Indiv remembers chorus lyrics | | D117c) Participants remembers emphasized words of chorus | | |
| | D41a) Indiv participant immediately remembers chorus lyrics | | D123b) Participants Remembers emphasized words of verse | | |
| | D46a) Indiv participant immediately remembers chorus words | | D129d) Participants remember emphasized lyrics of verse | | |
| | D68c) Indiv remembers verse lyrics | | D163d) Participants remembers emphasized words of chorus | | |
| | D81c) Indiv remembers chorus words | | F101c) Participants remember emphasized words of chorus | | |

| | | | | |
|--|--|--|--|--|
| D113b) Indiv remembers chorus lyrics | | | | |
| D145b) Indiv remembers chorus lyrics | | | | |
| D132d) Indiv remembers verse words | | | | |
| D151a) Participants immediately remember verse words | | | | |
| D154b) Indiv participant remembers verse lyrics and melody | | | | |
| D160e) Indiv remembers verse lyrics | | | | |
| D167c) Indiv remembers chorus lyrics | | | | |
| D173b) Participants immediately remember verse | | | | |

| | | | | | |
|--|---|--|--|--|--|
| | words | | | | |
| | F3a) Indiv remembers word from chorus | | | | |
| | F6c) Participants remembers verse melody and lyrics with ease | | | | |
| | F12a) Two indiv remembers chorus lyrics with ease | | | | |
| | F17b) Participants remembers chorus lyrics and melody with ease | | | | |
| | F37a) Indiv remembers chorus lyrics | | | | |
| | F50c) Participants remembers verse lyrics and melody | | | | |
| | F76b) Participants remembers verse melody and lyrics with ease | | | | |

| | | | | | |
|--|---|--|--|--|--|
| | F83b) Indiv remembers verse lyrics | | | | |
| | F91a) Participants remembers chorus melody and lyrics with ease | | | | |
| | F105a) Participants immediately remembers verse melody and lyrics with ease | | | | |
| | F127a) Participants remembers chorus melody and lyrics with ease | | | | |
| | F133c) Indiv remembers chorus melody and lyrics with ease | | | | |
| | F148a) Participants remember chorus lyrics and melody with ease | | | | |
| | F149a) Participants remembers chorus lyrics with ease | | | | |

| | | | | | |
|--|---|--|--|--|--|
| | I6b) Participants remembers most verse lyrics well | | | | |
| | I13c) Participant remembers verse lyrics | | | | |
| | I16b) Indiv remembers chorus melody and lyrics | | | | |
| | I19b) Indiv remembers chorus lyrics and melody | | | | |
| | I20b) Participants remembers chorus melody and lyrics | | | | |
| | I22b) Indiv remembers chorus melody and lyrics | | | | |
| | I25d) Indiv remembers chorus lyrics | | | | |
| | I27a) Participants remember chorus lyrics | | | | |

| | | | |
|---|--|--|--|
| I46d) Participants remembers chorus melody and lyrics | | | |
| I53c) Participants remembers verse melody and lyrics well | | | |
| I58c) Participants remembers chorus melody and lyrics very well | | | |
| I81b) Participants remembers chorus lyrics | | | |
| I89b) Participants remembers verse melody and lyrics | | | |
| I99c) Participants remembers chorus melody and lyrics by themselves | | | |
| I100a) Participants remember chorus lyrics by themselves | | | |
| I105a) Participants remember verse | | | |

| | | | | | |
|--|--|--|--|--|--|
| | lyrics with ease | | | | |
| | I108b) Participants remember chorus lyrics with ease | | | | |
| | K3b) Indiv remembers verse lyrics and melody | | | | |
| | K7d) Participants remember verse lyrics with ease | | | | |
| | K10a) Participants immediately remember chorus lyrics and melody with ease | | | | |
| | K18e) Participants remembers verse lyrics and melody | | | | |
| | K49b) Participants remember verse lyrics and melody with ease | | | | |
| | K54b) Participants remember verse lyrics and melody | | | | |

| | | | | | |
|--|--|--|--|--|--|
| | with ease | | | | |
| | K57b) Individ remembers chorus lyrics with ease | | | | |
| | K69a) Individ immediately remember chorus lyrics | | | | |
| | K75b) Participants remember verse lyrics with ease | | | | |
| | K82b) Participants remember verse lyrics | | | | |
| | K100b) Participants remember verse lyrics | | | | |

Table 2

| Recollection of lyrics | | | | | |
|-------------------------|-------------------------|---|---|--|--|
| <u>Lyrics forgotten</u> | <u>Lyrics forgotten</u> | <u>Recollection of words with PCSS absent</u> | <u>Recollection of words with PCSS absent</u> | <u>Forgetting of words with absent PCS</u> | <u>Forgetting of words with absent PCS</u> |

| | | | | | |
|--|---|--|--|---|--|
| | B87a) Participants forgets first animal greeted | C14c) Participants remember words with PCS absent | | A60b) Participants forget words with PCS absent | |
| | D112b) Indiv forgets order of animals being greeted, shouts out wrong animal | E8b) Participants remember words with absent PCS | | E47b) Indiv forget words with PCS absent | |
| | D138c) Participants forgets order of animals being greeted, shouts out wrong animal names | H63a) Indiv participant immediately remember words with absent PCS | | J14a) Participants forget word with absent PCS | |
| | D139a) Indiv forgets order of animal being greeted, shouts out wrong animal name | J7a) Participants remember words with absent PCS | | | |
| | | J14b) Indiv participant immediately remembers word with absent PCS | | | |

Table 3

| | | | |
|-------------------------------|-------------------------|---------------------------------|---------------------------------|
| Recollection of lyrics | | | |
| <u>Unsure of lyrics</u> | <u>Unsure of lyrics</u> | <u>Recollection of previous</u> | <u>Recollection of previous</u> |

| | | <u>song lyrics</u> | <u>song lyrics</u> |
|---|--|---|--|
| A48d) Participants unsure about the words | B32b) Participants unsure of chorus words | H45c) Indiv participant immediately remember words of previous song | G9a) Participants immediately remember lyrics similar to previous song |
| A65a) Participants unsure of words | B35a) Participants unsure of verse words | H63c) Indiv remembers previous songs words | G63a) Participants remember lyrics from previous song |
| E19a) Participants unsure of words | B91c) Participants unsure of chorus lyrics | H88a) Indiv sing previous songs words | |
| E21a) Participants unsure of words | B120c) Unsure of some verse words | H100a) Indiv sing previous songs words | |
| H38b) Participants unsure of words | G10c) Participants unsure of verse lyrics | H118a) Indiv sings previous songs words on purpose | |
| H62a) Participants unsure of words | G21a) Unsure of verse words | J7b) Participants remember words from previous song | |
| H67b) Participants unsure of words | D5a) Unsure about verse lyrics | | |
| H76a) Participants unsure of words | D22b) Participants unsure of chorus lyrics | | |
| | D29a) Unsure about chorus lyrics | | |

| | | | |
|--|---|--|--|
| | D49b) Participants unsure of chorus lyrics | | |
| | D169d) Participants unsure of some chorus words | | |
| | F13a) Individ unsure of chorus lyrics | | |
| | I6a) Unsure of some verse lyrics | | |
| | K3b) Individ unsure of when to sing | | |

Appendix AC: Recollection of melody

Table 1

| Recollection of melody | | | | | |
|------------------------------------|--------------------------------|-------------------------------------|---|---|---|
| <u>Remembering of melody</u> | <u>Remembering of melody</u> | <u>Unsure of melody</u> | <u>Unsure of melody</u> | <u>Recollection of previous song melody</u> | <u>Recollection of previous song melody</u> |
| A73b) Participants remember melody | B94b) Individ remembers melody | A56b) Participants unsure of melody | B18b) Participants unsure of verse melody | | G10b) Participants remember melody from previous song |

| | | | | | |
|---|--|---------------------------------------|---|--|---|
| A75b) Participants remember melody | B114a) Participants remembers melody | A68a) Participants unsure of melody | B32c) Unsure of chorus melody | | H72a) Participants remember melody from previous song |
| C7b) Participants unsure about melody | G32f) Participants remembers lyrics and melody with ease | A62c) Participants unsure of melody | B119d) unsure of verse melody | | |
| C11a)Participants remember melody | G40e) Indiv remembers melody and lyrics | C7b) Participants unsure about melody | D49c) Participants unsure of chorus melody | | |
| E3c) Indiv remembers melody | G45c) Participants remembers lyrics and melody with ease | | D117f) Participants unsure of chorus melody | | |
| E5a)Participants remember melody | G50c) Participants remember melody | | | | |
| E18c) Participants remember melody | G62a) Participants remember melody | | | | |
| E21d) Participants remembers melody | G72b) Participants remember melody and lyrics with ease | | | | |
| E24b) Participants remember melody well | G78b) Participants remember lyrics and melody with ease | | | | |

| | | | | | |
|---|--|--|--|--|--|
| C39b) Participants remember melody | G84c) Participants remembers melody and lyrics very well | | | | |
| E53e) Participants remembers melody with ease | D29b) Participants immediately remembers melody | | | | |
| H72a) Participants remember melody | D54b) Indiv remembers melody better | | | | |
| H122c) Indiv remembers melody | D123c) participants remember melody | | | | |
| H135b) Participants remembers melody | D132c) Indiv remembers melody | | | | |
| J5c) Indiv remembers melody | D151c) Participants remembers melody | | | | |
| | D169e) Participants remembers melody | | | | |
| | F6a) Participants remembers melody and lyrics with ease | | | | |
| | F17b) Participants remembers lyrics and melody with ease | | | | |

| | | | | | |
|--|---|--|--|--|--|
| | F50c) Participants remembers lyrics and melody | | | | |
| | F76b) Participants remember melody and lyrics with ease | | | | |
| | F91a) Participants remember melody and lyrics with ease | | | | |
| | F105a) Participants immediately remembers melody and lyrics with ease | | | | |
| | F127a) Participants remembers melody and lyrics with ease | | | | |
| | F133c) Indiv remembers melody and lyrics with ease | | | | |
| | F148a) Participants remember the lyrics and melody with ease | | | | |
| | I13d) Participants remembers melody | | | | |

| | | | |
|--|--|--|--|
| I16b) Indiv remembers melody and lyrics | | | |
| I19b) Indiv remembers lyrics and melody | | | |
| I20b) Participants remembers melody and lyrics | | | |
| I22b) Indiv remembers melody and lyrics | | | |
| I46d) Participants remembers melody and lyrics | | | |
| I53c) Participants remembers melody and lyrics well | | | |
| I58c) Participants remembers melody and lyrics very well | | | |
| I89b) Participants remembers melody and lyrics | | | |

| | | | | | |
|--|---|--|--|--|--|
| | I99c) Participants remembers melody and lyrics by themselves | | | | |
| | I108c) Participants remembers melody | | | | |
| | K3b) Indiv remembers lyrics and melody | | | | |
| | K10a) Participants immediately remember lyrics and melody with ease | | | | |
| | K18e) Participants remembers lyrics and melody | | | | |
| | K49b) Participants remember lyrics and melody with ease | | | | |
| | K54b) Participants remember lyrics and melody with ease | | | | |
| | K100f) Participants remembers melody | | | | |

Appendix AD: Cross-modal interpretation of music

Table 1

| Cross-modal interpretation of music | |
|---|--|
| <u>Interpretation of music through movement</u> | <u>Interpretation of music through movement</u> |
| A87a) Indiv taps to the pulse of the music | B63a) Indiv makes arm movements matching the pulse of the music |
| C36a) Indiv participant claps hands to the pulse of the music | B66a) Indiv swings legs matching the pulse of the music |
| C76d) Indiv jumps up in excitement | B67a) Indiv moves arms matching pulse of the music |
| C84b) Indiv participant associates music with playing of instrument | B76a) Indiv participant hop in their chairs and seem to want to jump up |
| C84c) Indiv participant taps rhythm of song on his lap vigorously | B77a) Participant emphasize syllables of word by swinging arms to the pulse of the music |
| C86a) Participants spontaneously move bodies to pulse of music | B107b) Participants swing legs and arms at a fast pace |

| | |
|---|--|
| C89b) Indiv participant associates music with playing of instrument | B121b) Indiv swings legs energetically |
| C98b) Indiv participants associates music with playing of instruments | G12a) Indiv respond to music by physically cupping hands in front of mouth and singing |
| C99c) Indiv stomps feet on floor to rhythm of music | G22a) Indiv respond to music by physically cupping hands in front of mouth and sing |
| C102a) Indiv participant jumps up in excitement | H29d) Indiv hops in chair briefly |
| C104b) Indiv participant associates music with playing of instruments | H30d) Indiv sings with hands cupped in front of mouth |
| C104b) Indiv participant finish musical phrase on imaginary guitar | G32d) indiv rocks upper body |
| C104c) Indiv participant finish musical phrase on imaginary guitar | G40c) Indiv sings with hands cupped in front of mouth |
| C104d) Indiv dances | G47a) Indiv cups hands in front of mouth |
| E46a) Indiv participant hops to the pulse of the music | G53a) Indiv cups hands in front of mouth |

| | |
|---|---|
| E59b) Indiv respond to music by rhythmically tapping of finger on PCS | G56c) Two indiv hop in their chairs to the pulse of the music |
| E66a) Indiv participant make hand big gestures | G58f) Indiv sings with cupped hands in front of mouth |
| E76a) Two participants hop in chairs | G64a) Indiv cups hands in front of mouth |
| E76b) Two indiv respond with high energy movements | G64d) Indiv rocks upper body matching the pulse of the music |
| E77a) Two indiv respond with high energy movements | G71c) Indiv participant hops in chair energetically |
| E79a) Participants respond with high energy movements | G79a) Indiv respond to music by physically wiggling fingers |
| E80c) Participants hop in chairs to pulse of music | G81a) Indiv cups hands in front of mouth |
| E109c) Participants hop in chairs | G82b) Indiv cups hands in front of mouth |
| E110b) Indiv participant indicate using hand gestures | G84e) Indiv cups hands in front of mouth |
| E118b) Indiv sings louder | G88) Indiv cup hands in front |

| | |
|---|--|
| with cupped hands | of mouth |
| E118a) Indiv cups hands in front of mouth | G90a) Participants rock upper body gently |
| E119a) Indiv hops in chair with high energy | D6a) Indiv rocks upper body matching the pulse of the music |
| E125a) Indiv taps feet to the beat of the music | D12b) Indiv participant rocks upper body matching the pulse of the music |
| E137a) Two participants cup hands in front of mouths | D37a) Two participants rock upper bodies matching the pulse of the music briefly |
| E139a) Participants move bodies to the beat of music | D56a) Indiv participant rocks upper body matching the pulse of the music |
| E143a) Indiv participants cup hands in front of mouth | D89d) Participant hop in chairs |
| H43b) Participants swing legs | D108a) Two participant hop in their chairs |
| H70b) Indiv participant swing legs vigorously | D109a) Indiv participant waves arms |
| H112a) Indiv stands up spontaneously for a brief moment in excitement | D110a) Indiv participant nods head to pulse of the music |

| | |
|--|---|
| H141a) Participants rock upper bodies energetically | D115a) Participant wave arms and legs |
| L37a) Participants swings legs fast | D115b) Participants hop in chairs energetically to the pulse of the music |
| L46a) Sitting indiv respond with high energy movements | D117h) High energy and fast paced physical movements |
| L49a) Sitting indiv participant responds with high energy movements | D125b) Participants clap hands, wave arms and swing legs |
| L59a) indiv respond with high energy movements | D130a) Participants nod their heads and swing legs to the pulse of the music |
| L68a) indiv respond with high energy movements | D134a) Participant excitedly hop in chairs |
| L74a) Participants rock bodies to pulse of music | D142a) Indiv participant claps hands |
| L76a) Participants rock bodies to pulse of music | D143a) Indiv participant swings and kick legs energetically |
| L81b) Indiv participant occasionally claps hands matching the pulse of the music | D152a) Indiv participant wave their arms and swing their legs fast and with high energy |

| | |
|------------------------|--|
| E61b) Indiv waves arms | D157a) Indiv participant swings arms and hops in chair |
| | D161b) Participants respond by hopping in their chairs energetically |
| | D173c) Participant excitedly and energetically hop in chairs and wave arms |
| | D181a) Participant swing arms and legs excitedly |
| | F8a) Indiv swings arms energetically |
| | F9a) Indiv excitedly stands up briefly |
| | F12b) Indiv waves arms cheerfully |
| | F18a) Participants jump up from chairs in excitement |
| | F19a) Participants swing legs and arms energetically |
| | F25a) Indiv waves arms matching the pulse of the music |

| | |
|--|--|
| | F31a) Participants hop excitedly and energetically in their chairs |
| | F31b) Participants swing legs vigorously matching the pulse of the song |
| | F32a) Participants wave arms vigorously matching the pulse of the music |
| | F36b) Participants physically stop movement in anticipation of music |
| | F39b) Participants wave arms and swings legs excitedly |
| | F40a) Participants physical movements matches lively and cheerful characteristics of music |
| | F49a) Indiv moves arms matching the pulse of the music |
| | F54a) Indiv swings legs vigorously and fast matching the pulse of the music |

| | |
|--|--|
| | F56c) Participants swing legs and wave arms slowly matching the pulse of the music |
| | F59b) Participants swing limbs with high energy matching the pulse of the music |
| | F69a) Participants swing legs with high energy matching the pulse of the music |
| | F77a) Two indiv swing arms matching the pulse of the music |
| | F80a) Participants energetically and vigorously swing legs matching the pulse of the music |
| | F87b) Participants swing legs and wave arms energetically |
| | 96b) Participants swing arms and legs energetically |
| | F101a) Participants swing arms and legs energetically |

| | |
|--|---|
| | F109b) Participants swing arms and legs matching the pulse of the music |
| | F115c) Participants swings arms and legs energetically and vigorously |
| | F115d) Participants swing arms and legs matching the pulse of the music |
| | F126b) Participants swing arms and legs energetically matching the pulse of the music |
| | F135a) Participants swing their arms and legs energetically and excitedly |
| | F142c) Participants swings arms and legs energetically to the pulse of the music |
| | F152d) Participants swing arms and legs energetically |
| | F159b) Participants swing arms and legs energetically matching the pulse of the music |

| | |
|--|---|
| | F163c) Participants swings arms and legs energetically |
| | F164b) Participants hop in their chairs energetically and with excitement |
| | I13b) Indiv hops in chair |
| | I22d) Indiv hops in chair rhythmically |
| | I46a) Indiv participant hops in chair for brief moment |
| | I52a) participants hop energetically in their chairs |
| | I58a) Participants hop in chairs in excitement |
| | I60a) Indiv Participant flops hands in the air energetically |
| | I68a) participants hop in chairs energetically |
| | I69a) Indiv participant flops arms in the air energetically |
| | I69a) Indiv participant flops arms in the air energetically |

| | |
|--|---|
| | I97f) Participants wiggle and hop in their chairs in excitement matching pulse of the music |
| | I104d) Two indiv hop and rock to the pulse of the music |
| | I110b) Participants rock upper bodies to the pulse of the music |
| | I112a) Participants hops in chairs energetically |
| | I114b) Participants adjust physical movements matching tempo and pulse of music |
| | I116b) Participants adjust physical movements matching tempo and pulse of music |
| | K8b) Indiv taps fast and energetic rhythm on his chair |
| | K12a) Indiv participant stomps chair with his hand matching the pulse of the music |

| | |
|--|--|
| | K13a) Indiv hops in chair energetically |
| | K17b) Indiv energetically hops in his chair |
| | K34d) Indiv taps main pulse on his chair loudly and energetically |
| | K46e) Indiv hops in his chair excitedly |
| | K51a) Indiv respond hops in chairs in excitement |
| | K53a) Indiv excitedly hops in chair energetically |
| | K52a) Indiv slowly rocks upper body |
| | K70b) Indiv respond excitedly to music through physical imitation of animal |
| | K86b) Indiv participant jumps up in excitement |
| | K88b) Indiv participant respond to music through high energy and confident physical movement |

| | |
|--|---|
| | K95a) Participants respond with physical movements and vocal imitations of animal in song |
| | K72b) Indiv occasionally make hand gestures |

Appendix AE: Therapist's musical role

Table 1

| Therapist's musical role | | | |
|--|---|---|--|
| <u>Therapist dynamics</u> | <u>Therapist dynamics</u> | <u>Therapist tempo</u> | <u>Therapist tempo</u> |
| A31a) Therapist sing softly | B3a) Therapist strums guitar softly | A24b) Therapist sing slowly and clearly | B4a) Therapist strums guitar slowly |
| C4a) Therapist sings loud and lively | B16a) Therapist strums guitar softly and gentle | A70b) Therapist plays moderately slow | B39a) Therapist increase tempo of guitar strumming |
| C80a) Therapist and participants sing loudly and energetic | B40a) Therapist increase dynamics of singing and guitar strumming | A71a) Therapist strum chords on main pulse slowly | B47c) Therapist plays moderately fast |
| E89c) Participants and therapist sing loud and lively together | B41a) Therapist sings and strums louder | A78a) Therapist strum main pulse slowly | B50a) Therapist decrease tempo |

| | | | |
|---|---|---|---|
| L87b) Therapist sings loud and with force | B103c) Therapist plays loud and energetic | C94a) Therapist strums guitar gently and slowly paced | B50b) Therapist sings slow |
| L72a) Therapist shifts music suddenly to slow tempo and soft and calm character | B106b) Therapist sings and strums loudly | E34b) Therapist plays moderately fast | B91f) Therapist's music is lively and moderately fast paced |
| E145a) Therapist shifts dynamics from loud to soft and gentle | B110c) Therapist plays loud and energetic | E41b) Therapist plays moderately fast | B103b) Therapist add crescendo |
| E141b) Therapist alternates dynamics from soft to loud during verse lines | B110a) Therapist sings softly | E41b) Therapist plays moderately fast | B110b) Therapist add decrescendo |
| E86a) Therapist shifts music to softer but still at a moderately fast paced tempo | B117a) Therapist sings gentle and moderately soft | E131a) Therapist strums guitar moderately fast and lively | B116a) Therapist slow down tempo |
| E84a) Therapist shifts music to loud and forceful | G6a) Therapist picks strings guitar slowly and softly | E72b) Therapist strums the guitar moderately fast | G6a) Therapist picks strings guitar slowly and softly |
| E82b) Therapist shifts music to softer but still at moderately fast tempo | G7a) Therapist sings softly and gentle | E120b) Moderately fast paced strumming and singing | G60a) Guitar accompaniment shift to slower and calmer |
| | G35a) Therapist lowers voice | H27a) Therapist sing slow and calmly | G70a) Therapist fastens tempo and plays with enthusiasm and high energy |
| | D18a) Therapist strums guitar softly | H41a) Therapist slows down music | D3a) Therapist strums guitar slowly and gentle |

| | | | |
|--|--|--|---|
| | D18b) Therapist gradually increases volume of guitar strumming | H130a) Guitar strumming is a moderately fast tempo | D4a) Therapist sings slowly and gentle |
| | D31a) Therapist strums guitar and sings softly | H140a) Guitar strumming is a moderately fast tempo | D10a) Therapist strums guitar and sings fast and lively |
| | D105a) Therapist sings playfully and loud | J37a) Therapist plays moderately fast and lively | D31b) Therapist strums guitar slower |
| | D120a) Therapist sings softly and slowly | J66a) Therapist plays energetic and at fast paced tempo | D52b) Therapist strums guitar and sings slower |
| | D121a) Therapist strums guitar softly and slowly | J77a) Therapist music is fast paced and lively | D104b) Therapist plays fast paced |
| | D124b) Therapist sings and strums fast and loud | J83a) Therapist slow down music to assist pointing indiv | D120a) Therapist sings softly and slowly |
| | D128a) Therapist sings softly and slowly | J85a) Therapist speeds up music tempo to fast paced and lively | D121a) Therapist strums guitar softly and slowly |
| | D128b) Therapist strums guitar softly and slowly | L3b) Therapist sings at a moderately fast paced tempo | D124b) Therapist sings and strums fast and loud |
| | D134b) Therapist strums and sings loud, fast and vigorously | L11e) Therapist sings moderately slow | D128a) Therapist sings softly and slowly |
| | D135a) Therapist sings softly and slowly | L19c) Therapist's music is a moderately fast paced tempo | D128b) Therapist strums guitar softly and slowly |

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| | D135b) Therapist strums guitar softly and slowly | L62a) Therapist strum guitar and sings vigorously at a fast tempo | D134b) Therapist strums and sings loud, fast and vigorously |
| | D146b) Therapist sings softly and slowly | L72a) Therapist shifts music suddenly to slow tempo and soft and calm character | D135a) Therapist sings softly and slowly |
| | D171a) Therapist sings softly and gentle | E86a) Therapist shifts music to softer but still at a moderately fast paced tempo | D135b) Therapist strums guitar softly and slowly |
| | D175a) Therapist sings softly and gentle | E82b) Therapist shifts music to softer but still at moderately fast tempo | D141a) Therapist fastens tempo |
| | F14b) Therapist adjust dynamics gradually from soft to loud | E122a) Therapist shifts music to a moderately slow pace | D149a) Therapist fastens tempo |
| | F28a) Therapist suddenly shift music to fast and lively tempo and loud dynamics | H44b) Therapist slows down the tempo | D150a) Therapist sings fast and hastily |
| | F43a) Therapist's singing is soft and gentle | H69a) Therapist sings and plays at a moderately slow pace | D146b) Therapist sings softly and slowly |
| | F55b) Therapist alternates music between fast paced and vigorous strumming and singing to slow paced and calm strumming | H89a) Therapist slows down music to a slower pace | D158a) Therapist strums guitar and sings in slow pace and gentle |

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| | F62a) Therapist sings softly and gentle | L24b) Therapist plays moderately fast | D162b) Therapist sings and strums guitar at moderately slow pace |
| | F74a) Therapist sings and plays soft, slower and gentle | L32a) Therapist gradually speeds up to a fast pace | D166a) Therapist plays at a fast pace |
| | F107a) Therapist suddenly shifts music to fast and vigorous | L44b) Therapist gradually shift music to a lively and fast pace | D178a) Therapist strums and sings vigorously and fast paced |
| | F110b) Therapist's expectantly alternate between fast and slow tempo | L55a) Therapist's strumming is lively, fast paced and energetic | F2a) Therapist plays slow and gentle |
| | F141b) Therapist adjust to tempo and dynamic shift with ease | L57a) Therapist strums guitar vigorously and sings at a fast pace | F5a) Therapist sings slowly and calmly paced |
| | F162b) Therapist sings loudly and strums guitar with force | J83a) Therapist slow down music to assist pointing indiv | F14a) Therapist slows down music |
| | I38a) Therapist alternates tempo and dynamics between the lines from slow and soft to loud, fast and vigorous singing and playing | | F21a) Therapist sings slowly and gentle |
| | I55a) Therapist alternates tempo and dynamics between lines from slow and soft to loud, fast and vigorous singing and playing | | F28a) Therapist suddenly shift music to fast and lively tempo and loud dynamics |

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| | I79a) Therapist shifts music to fast a paced tempo and loud | | F51a) Therapist suddenly shifts music to a fast and vigorous tempo |
| | I82a) Therapist shifts music to soft and gentle | | F55b) Therapist alternates music between fast paced and vigorous strumming and singing to slow paced and calm strumming |
| | I85a) Therapist shifts music to loud and fast paced | | F61a) Therapist adds ritardando to end verse |
| | I90a) Therapist's dynamics alternate from energetic to calm and soft during | | F66a) Therapist strums and sings fast paced and vigorously |
| | I106b) Therapist's music gradually shifts from soft to loud | | F74a) Therapist sings and plays soft, slower and gentle |
| | K45b) Therapist sings loudly and with high energy | | F78a) Therapist shifts music to fast paced and lively |
| | B103a) Therapist sings softly | | F81b) Therapist shifts music to slow and gentle |
| | D124a) Therapist's suddenly shift tempo and dynamics to loud and fast tempo | | F86a) Therapist suddenly plays with high energy and fast paced |
| | | | F90a) Therapist strums lazy and slowly |

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| | | | F95a) Therapist's music is fast paced and vigorously sung and strum |
| | | | F97a) Therapist shifts music to a slow and lazy pace |
| | | | F100a) Therapist strums and sings fast and vigorously |
| | | | F102a) Therapist shifts music to slow and gentle |
| | | | F115a) Therapist plays fast and energetically |
| | | | F123a) Therapist sings slowly |
| | | | F125b) Therapist unexpectedly sings at a fast and lively tempo |
| | | | F131a) Therapist sings slow |
| | | | F134b) Therapist sings and strums at a fast pace and vigorously |
| | | | F138a) Therapist plays slow and calmly |
| | | | F141b) Therapist adjust to tempo and dynamic shift with ease |

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| | | | F141d) Therapist sings and strums guitar fast paced and energetically |
| | | | F143a) Therapist plays slowly and lively |
| | | | F147a) Therapist unexpectedly shifts music to slow and gentle paced tempo |
| | | | F147b) Therapist unexpectedly shifts music to lively and moderately fast paced |
| | | | F154a) Therapist plays at a slow paced tempo |
| | | | F157a) Therapist plays energetic and fast paced |
| | | | F160a) Therapist sings slowly |
| | | | F160b) Therapist suddenly shifts music to a slow paced tempo |
| | | | F162a) Therapist suddenly shifts music to fast and energetically paced tempo |
| | | | I3a) Therapist plays introduction moderately fast and calmly |

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| | | | I11a) Therapist strums guitar lively and fast paced |
| | | | I31a) Therapist change music to moderately fast and calm |
| | | | I32a) Therapist guitar accompaniment changes to moderately fast and cheerful |
| | | | I35a) Therapist plays very slow tempo |
| | | | I38a) Therapist alternates tempo and dynamics between the lines from slow and soft to loud, fast and vigorous singing and playing |
| | | | I44a) therapist plays fast paced with vigorous strumming |
| | | | I49a) Therapist sings and strums guitar slowly and lazy |
| | | | I40a) Therapist strums at very slow tempo and with a lazy strumming |
| | | | I44a) therapist plays fast paced with vigorous strumming |
| | | | I49a) Therapist sings and strums guitar slowly and lazy |

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| | | | I150a) therapist plays and sings fast paced and vigorous |
| | | | I151a) Therapist alternates tempo and dynamics between the lines from fast and vigorous singing and playing to slow and soft to loud |
| | | | I55a) Therapist alternates tempo and dynamics between lines from slow and soft to loud, fast and vigorous singing and playing |
| | | | I56a) Therapist guitar strumming is slow and lazy sounding |
| | | | I61b) Therapist's music is slow paced |
| | | | I70b) Therapist's music is slow paced |
| | | | I79a) Therapist shifts music to fast a paced tempo and loud |
| | | | I85a) Therapist shifts music to loud and fast paced |
| | | | I88a) Therapist's guitar accompaniment is fast paced |

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| | | | I92a) Therapist shifts music to lively and fast paced |
| | | | I93a) Therapist shifts music to slow and calm |
| | | | I95a) Therapist's music is slow and calm |
| | | | I106c) Therapist's Tempo remains consistent |
| | | | I111a) Therapist shifts music to fast paced tempo and vigorous strumming of guitar |
| | | | I115a) Therapist shifts music to fast paced tempo and vigorous strumming of guitar and singing |
| | | | I117a) Therapist's music ends with a ritardando |
| | | | K5a) Therapist continue music at a moderately slow tempo |
| | | | K16a) Therapist's tempo shift gradually faster |
| | | | K18a) Therapist ends verse with a ritardando |

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| | | | K44a) Therapist strum guitar vigorously and fast paced tempo |
| | | | K73a) Therapist's guitar accompaniment is lively and moderately fast |
| | | | K78a) Therapist gradually fastens the tempo |
| | | | K81a) Therapist's music is lively and moderately fast paced |
| | | | K99a) Therapist's music is lively and moderately fast paced |
| | | | K100a) Therapist shifts music to vigorous strumming and singing at a fast paced tempo |
| | | | K103a) Therapist ends song with a ritardando |
| | | | F20b) Therapist shift music to gentle and slow |
| | | | F67a) Therapist's music remains fast paced and vigorous |

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| | | | K56a) Therapist's music is moderately slow and calm |
| | | | K58a) Therapist gradually shifts music to a faster paced tempo to moderately fast and lively |
| | | | D124a) Therapist's suddenly shift tempo and dynamics to loud and fast tempo |

Table 2

| Therapist's musical role | | | |
|---|---|--|---|
| <u>Therapist interpretation of music through movement</u> | <u>Therapist interpretation of music through movement</u> | <u>Therapist's quality of participation</u> | <u>Therapist's quality of participation</u> |
| H131a) Therapist rocks upper body matching the pulse of the music | B11a) Therapist rocks upper body to pulse of the music | A83a) Therapist strum guitar fuller | B5a) Therapist put emphasis on beat one and three |
| | B79a) Therapist imitate animal movement | C4a) Therapist sings loud and lively | B12a) Therapist sings calmly and slowly |
| | F22a) Therapist rocks upper body matching the pulse of the music | H123b) Guitar accompaniment shifts to gentle and calmer | B16a) Therapist strums guitar softly and gentle |
| | F45a) Therapist rocks upper body matching slow tempo of the music | C80a) Therapist and participants sing loudly and energetic | B26a) Therapist emphasize key words |

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| | F75a) Therapist rocks upper body matching the pulse of the music | H30a) Therapist sings alone | B32b) Therapist sings cheerful and lively |
| | F104a) Therapist rocks upper body matching the pulse of the music | C94a) Therapist strums guitar gently and slowly paced | B40b) Therapist plays and sings lively |
| | F139a) Therapist rocks upper body matching the pulse of the music | C96a) Therapist matches participants singing with guitar | B41a) Therapist sings and strums louder |
| | F155a) Therapist rock upper body matching the pulse of the music | E34a) Therapist plays guitar with both hands | B47a) Therapist strum guitar with enthusiasm |
| | I36a) Therapist rocks upper body matching pulse of music | C60b) Therapist ends musical phrase | B47b) Therapist plays emphasized syncopated beat |
| | I61c) Therapist rocks upper body matching the pulse of the music | E54a) Therapist pause music | B110d) Therapist creates musical anticipation |
| | I70a) Therapist rocks upper body matching the pulse of the music | E73a) Therapist strums the guitar lively | B116b) Contrasting guitar accompaniment style |
| | | E89c) Participants and therapist sing loud and lively together | B117a) Therapist sings gentle and moderately soft |
| | | E131a) Therapist strums guitar moderately fast and lively | G7a) Therapist sings softly and gentle |

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| | | E122b) Guitar accompaniment changes | G18a) Therapist strums guitar gently |
| | | E144b) Guitar accompaniment shift to calm and gentle | G36a) Therapist creates anticipation |
| | | E147a) Therapist plays and sings cheerfully | G70a) Therapist fastens tempo and plays with enthusiasm and high energy |
| | | H27a) Therapist sing slow and calmly | D3a) Therapist strums guitar slowly and gentle |
| | | H60a) Therapist sings with enthusiasm | D4a) Therapist sings slowly and gentle |
| | | H79a) Therapist sings calmly | D10a) Therapist strums guitar and sings fast and lively |
| | | H95b) Therapist sings with enthusiasm | D24b) Therapist pauses music |
| | | H95a) Therapist match strumming tempo and singing with indiv PCS pointing | D33d) Therapist sings alone |
| | | H111a) Therapist sings alone | D68a) therapist sings lively |
| | | H120b) Participants and therapist sing together with enthusiasm | D72a) Therapist sings alone |

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| | | H121c) Therapist strum guitar energetically | D79a) Therapist sings alone |
| | | H124a) Guitar accompaniment shifts to calming and gentle | D89a) Therapist sings alone |
| | | H129a) Therapist strum guitar lively and energetic | D97a) Therapist matches quality of indiv strumming using voice |
| | | H139a) Therapist strums guitar lively and energetic | D104a) Therapist strums guitar vigorously |
| | | J25a) Therapist create musical anticipation | D105a) Therapist sings playfully and loud |
| | | J37a) Therapist plays moderately fast and lively | D111b) Therapist pauses music |
| | | J66a) Therapist plays energetic and at fast paced tempo | D118a) Therapist creates musical anticipation |
| | | J77a) Therapist music is fast paced and lively | D122a) Therapist quality of voice is calm and gentle |
| | | J85a) Therapist speeds up music tempo to fast paced and lively | D126a) Therapist sings alone |
| | | L19b) Therapist's music is lively and cheerful | D127a) Therapist pauses music |

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| | | L35a) Therapist play guitar lively and energetic | D128c) Therapist quality of voice is calm and gentle |
| | | L47b) Therapist add musical anticipation | D131a) Therapist adds musical anticipation |
| | | L60a) Therapist pause music | D134b) Therapist strums and sings loud, fast and vigorously |
| | | L61c) Therapist add unpredicted anticipation | D133a) Therapist suddenly continues with song |
| | | L62a) Therapist strum guitar and sings vigorously at a fast tempo | D135c) Therapist quality of voice is calm and gentle |
| | | L67a) Therapist adds unpredictable anticipations between verses | D136a) Therapist adds musical anticipation |
| | | L72b) Therapist sings and strums lazily | D153a) Therapist adds musical anticipation |
| | | C100a) Therapist delays music between the verse and chorus section | D155a) Therapist matches indiv participants singing |
| | | L87b) Therapist sings loud and with | D160a) Therapist adds musical |

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| | | force | anticipation |
| | | L72a) Therapist shifts music suddenly to slow tempo and soft and calm character | D164a) Therapist adds musical anticipation |
| | | L75c) Therapist s music is fast paced and lively | D165a) Therapist extends anticipation |
| | | L23a) Therapist pauses music | D161a) Therapist match indiv participants enthusiastically and energetic singing |
| | | L5a) Therapist removes distractions | D171a) Therapist sings softly and gentle |
| | | J67a) Therapist sings alone | D172a) Therapist adds musical anticipation |
| | | | D172b) Therapist strums and sings vigorously and fast paced |
| | | | D176a) Therapist adds musical anticipation |
| | | | D178a) Therapist strums and sings vigorously and fast paced |
| | | | F2a) Therapist plays slow and gentle |
| | | | F15a) Therapist s guitar strumming changes to |

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| | | | double time |
| | | | F29a) Therapist strums guitar vigorously |
| | | | F34a) Therapist adds musically anticipation |
| | | | F38a) Therapist singing and playing matches indiv singing |
| | | | F42a) Therapist adds musical anticipation |
| | | | F55b) Therapist alternates music between fast paced and vigorous strumming and singing to slow paced and calm strumming |
| | | | F57a) Therapist adds musical anticipation |
| | | | F62a) Therapist sings softly and gentle |
| | | | F66a) Therapist strums and sings fast paced and vigorously |
| | | | F71a) Therapist adds musical anticipation |

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| | | | F73a) Therapist's guitar accompaniment changes |
| | | | F81b) Therapist shifts music to slow and gentle |
| | | | F86a) Therapist suddenly plays with high energy and fast paced |
| | | | F90a) Therapist strums lazy and slowly |
| | | | F95a) Therapist's music is fast paced and vigorously sung and strum |
| | | | F97a) Therapist shifts music to a slow and lazy pace |
| | | | F100a) Therapist strums and sings fast and vigorously |
| | | | F102a) Therapist shifts music to slow and gentle |
| | | | F107a) Therapist suddenly shifts music to fast and vigorous |
| | | | F103a) Therapist's guitar accompaniment changes |

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| | | | F113c) Therapist adds musical anticipation |
| | | | F115a) Therapist plays fast and energetically |
| | | | F125a) Therapist adds musical anticipation |
| | | | F128a) therapist adds musical anticipation |
| | | | F134a) Therapist adds musical anticipation |
| | | | F134b) Therapist sings and strums at a fast pace and vigorously |
| | | | F134c) Therapist unexpectedly starts to sing |
| | | | F141d) Therapist sings and strums guitar fast paced and energetically |
| | | | F146a) Therapist sings and strums guitar lively and strong |

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| | | | F147a) Therapist unexpectedly shifts music to slow and gentle paced tempo |
| | | | F157b) Therapist suddenly shifts music to a vigorous and energetic character |
| | | | F162b) Therapist sings loudly and strums guitar with force |
| | | | F166a) Therapist strums a strong final chord to end the song |
| | | | I3a) Therapist plays introduction moderately fast and calmly |
| | | | I11a) Therapist strums guitar lively and fast paced |
| | | | I14a) Therapist pause music |
| | | | I31a) Therapist change music to moderately fast and calm |
| | | | I32a) Therapist guitar accompaniment changes to moderately fast and cheerful |

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| | | | I135b) Therapist plays with a lazy strumming |
| | | | I38a) Therapist alternates tempo and dynamics between the lines from slow and soft to loud, fast and vigorous singing and playing |
| | | | I39a) Therapist creates anticipation |
| | | | I43a) Therapist add anticipation |
| | | | I44a) therapist plays fast paced with vigorous strumming |
| | | | I49a) Therapist sings and strums guitar slowly and lazy |
| | | | I47a) Therapist adds musical anticipation |
| | | | I40a) Therapist strums at very slow tempo and with a lazy strumming |
| | | | I44a) therapist plays fast paced with vigorous strumming |
| | | | I47a) Therapist adds musical anticipation |

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| | | | I49a) Therapist sings and strums guitar slowly and lazy |
| | | | I150a) therapist plays and sings fast paced and vigorous |
| | | | I151a) Therapist alternates tempo and dynamics between the lines from fast and vigorous singing and playing to slow and soft to loud |
| | | | I55a) Therapist alternates tempo and dynamics between lines from slow and soft to loud, fast and vigorous singing and playing |
| | | | I56a) Therapist guitar strumming is slow and lazy sounding |
| | | | I57a) Therapist adds anticipation |
| | | | I64b) Therapist pauses music |
| | | | I65a) Therapist adds anticipation |
| | | | I82a) Therapist shifts music to soft and gentle |

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| | | | I84a) Therapist adds musical anticipation |
| | | | I87a) Therapist's music is lively and energetic |
| | | | I90a) Therapist's dynamics alternate from energetic to calm and soft during |
| | | | I92a) Therapist shifts music to lively and fast paced |
| | | | I93a) Therapist shifts music to slow and calm |
| | | | I95a) Therapist's music is slow and calm |
| | | | I96a) Therapist adds musical anticipation |
| | | | I111a) Therapist shifts music to fast paced tempo and vigorous strumming of guitar |
| | | | I115a) Therapist shifts music to fast paced tempo and vigorous strumming of guitar and singing |
| | | | K2a) Therapist's music is moderately slow and calm |

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| | | | K44a) Therapist strum guitar vigorously and fast paced tempo |
| | | | K47a) Therapist adds musical anticipation |
| | | | K50b) Therapist adds musical anticipation |
| | | | K76b) Therapist modulates to different key |
| | | | K81a) Therapist's music is lively and moderately fast paced |
| | | | K99a) Therapist's music is lively and moderately fast paced |
| | | | K100a) Therapist shifts music to vigorous strumming and singing at a fast paced tempo |
| | | | K101a) therapist adds anticipation |
| | | | F20b) Therapist shift music to gentle and slow |
| | | | F67a) Therapist's music remains fast paced and vigorous |
| | | | K56a) Therapist's music is moderately slow and calm |

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| | | | K58a) Therapist gradually shifts music to a faster paced tempo to moderately fast and lively |
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Appendix AF: Characteristics of the music

Table 1

| Characteristics of the music | | | | | |
|--|---|---|---|---|--|
| <u>Tempo</u> | <u>Tempo</u> | <u>Rhythm</u> | <u>Rhythm</u> | <u>Dynamics</u> | <u>Dynamics</u> |
| A21a) Participants sing softly and slowly | G20a) The music is moderately slow | C50b) Indiv participant struggle to keep steady beat | D43a) Indiv participant says words rhythmical | A16a) Participants sing softly | B18a) Participants sing with therapist softly |
| A27a) Participants sing softly and slowly | D77a) Indiv participant strums fast paced | C51b) Slow uneven tempo strumming | D46b) participants says words rhythmically | A21a) Participants sing softly and slowly | B21a) Participants sing softly |
| C47a) Indiv participant strums guitar slowly, loudly and clearly | D85b) Indiv participant strums loud and at a presto tempo | C53a) Indiv participant strums guitar in a steady beat | D96b) Indiv participant plays scattered rhythm | A27a) Participants sing softly and slowly | B32a) Participants sing/mumble words softly |
| C48a) Participants spontaneously sing song slowly and loudly | D93a) Indiv participant strums guitar slowly and gentle | C58a) Indiv participant strums guitar softly, gentle and rhythmical | K22a) Indiv strums guitar rhythmically moderately fast and lively | A32a) Participants sing softly with therapist | B48b) Participants sing louder and pronounce words clearer |
| C51b) Indiv strums at a slow and uneven tempo | D94a) Indiv participant strums guitar fast and lively | C70c) Indiv keeps steady beat | | A37a) Participants sing softly | B63c) Two participants sing very softly |

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| C70a) Indiv participant strums guitar moderately loud and slowly paced | D96a) Indiv participant fastens tempo | C84c) Indiv participant taps rhythm of song on his lap vigorously | | A57a) Participants sing moderately loud | B75a) Participants sing emphasize words loudly |
| C74a) Indiv participant strums slowly | D114a) Therapist and participants sing together fast paced and lively | C99c) Indiv stomps feet on floor to the rhythm of music | | A60c) Participants sing softly | B84b) Participants sing louder |
| C75a) participants sing slowly | D126b) Tempo too fast for participants to sing | E27a) Participants remember rhythm of song | | A64a) Participant sings loudly and spontaneously | B91a) Participants sing moderately soft |
| E3c) Indiv participant sings slowly | D151b) Participants sing fast and hastily with therapist | E59b) Indiv respond to music by rhythmically tapping of finger on PCS | | A75a) Participants sing softly | B93a) Indiv participant sings loudest in group |
| E43c) Participants sing at moderately fast tempo | D160d) Indiv participant sings with confidence and fast paced | E80c) Participants hop in chairs to pulse of music | | A79a) Participants sing louder | B96a) Participants sing moderately soft |
| E60b) Indiv sings loud and with confidence | F6a) Participants sing slowly | E125a) Indiv taps feet to the beat of the music | | C6d) Participants sing louder | B104c) Participants adjust their singing to lively and louder |
| E62a) Participants sing loudly | F46a) Participants sing slowly and gentle | E139a) Participants move bodies to the beat of music | | C14a) Participants sing loud and lively | B113a) Participants sing loudly and cheerfully |
| E147b) Music is moderately fast | F52a) Indiv sings faster than the intended tempo | H108b) Indiv points rhythmically | | C17a) Participants sing loud | B114c) Participants sing loudly and energetically |

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| E147c) Song ends with gradual ritardando | F56b) Participants sing slowly and gentle | H117a) Indiv direct attention to PCS rhythmically | C19b) Participants sing loudly | B118a) Participants match therapist gentle and moderately soft singing |
| H46a) Participants sing louder and faster matching indiv participants singing | F58a) Therapist and participants match indiv fast paced and vigorous singing | J90a) Pointing indiv match group singing rhythmically when pointing PCS | C22c) Participants sing loudly | B119e) Indiv sings the loudest |
| H84c) Music is energetic and fast paced | F93b) Indiv sings ahead spontaneously and fast paced | L79a) Indiv strum guitar rhythmically with steady beat | C29c) Participants sing loudly and with excitement | B120d) Participants sing emphasized words loud and clear |
| H91a) Participants sing softly and slowly | F94a) Therapist and participants sing fast paced and energetically | L82a) Indiv keeps the beat steady | C34a) Participants sing loudly | B121a) Indiv participant sings louder than group |
| L22a) Music is lively and moderately fast | F97c) Participants sing slowly and lazy | L85a) Indiv tempo and rhythm of strumming is disorganized and unpredictable | C47a) Indiv participant strums guitar slowly, loudly and clearly | G23a) Indiv sings the loudest |
| L36a) Tempo of music is moderately fast | F112b) Indiv sings energetically and fast paced | L89a) Indiv strum guitar rhythmically with steady beat | C47a) Participants spontaneously sing song slowly and loudly | H27a) Participants sing loudly and with confidence |
| L40b) Music is slow paced and sung softly by therapist and participants | F141c) Indiv sings fast paced and loudly with high energy | | C54b) Participants sing louder | G29a) Participants and therapist sing loudly and with confidence together |

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|--|--|--|--|--|---|
| L41a) Dynamics gradually shift to louder and faster paced | F144a) Participants sing slow and lively | | | C58a) Indiv participant strums guitar softly, gentle and rhythmical | G47b) Indiv sings louder |
| L56b) Participants sing fast paced and lively | I4a) Music is moderately fast and lively | | | C59b) Participants sing softly | G53b) Indiv sings louder and energetically |
| L58b) Participants sing fast paced, energetic and loud | I33a) Participants sing slow and softly | | | C65a) Indiv participant sings softly | G56b) Participants sing loudly |
| L61b) Music is lively energetic and fast paced | I37a) Participants sing loud and slowly | | | C66b) Individual sings alone softly | G58a) Participants sing loudly and more energetically |
| L71a) music is fast paced and lively | I49c) Participants sing slow and lazy | | | C70a) Indiv participant strums guitar moderately loud and slowly paced | G72a) participants sing loudly |
| L79b) Indiv strumming is lively and moderately fast | I74b) indiv sing with confidence at a fast paced tempo | | | C71b) Participants sing softly | G75a) Indiv softly sings verse |
| L82a) Indiv strums beat steady | I76a) Music is moderately fast | | | C76a) Participants sing loudly | G78a) Participants sing loudly |
| L84b) Indiv strums guitar with force and at a presto tempo | I99b) Participants predict tempo and dynamic changes by themselves | | | C80a) Therapist and participants sing loudly and energetic | G81b) Indiv sings loudly and playfully |

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|---|---|--|--|--|--|
| L85a) Indiv tempo and rhythm of strumming is disorganized and unpredictable | I107a) Tempo and dynamics remain the same | | | C87a) Participants sing louder | G82a) Indiv imitates animal vocal sound loudly and energetically |
| | I109b) Music is moderately slow paced | | | C95a) Indiv participant spontaneously sings loud and energetic | G84f) Indiv sings loudly and playfully |
| | I113a) Music shifts to slow paced tempo and softer | | | C102b) Indiv participant sings loudly | G86a) Participants sing loudly and with confidence |
| | I114c) Participants sing softly and slowly | | | C105a) Participants sing excitedly and loud | G88b) Indiv sings loudest |
| | K8a) Music is lively and fast paced | | | E15a) Participants sing louder | D5b) Participants sing very softly |
| | K22a) Indiv strums guitar rhythmically moderately fast and lively | | | E65b) Indiv shouts lyrics loudly | D11b) Participants sing softly |
| | K25c) Indiv strums uneven tempo | | | E75a) Participants sing loud and with enthusiasm | D19a) Indiv participant sings with therapist softly |
| | K33a) Indiv tempo and dynamics of strumming remain consistent | | | E81a) Participants sing loudly and energetic | D28a) Participants sing softly |

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|--|--|--|--|--|---|
| | K30a) Indiv strums a steady beat | | | E83b) Participants sing softly | D33a) Indiv Participants sing softly with therapist |
| | K38a) Indiv strums irregular unpredictable tempo | | | E85b) Participants sing loudly and excitedly | D39a) Indiv participant sings louder |
| | K42a) Indiv strumming gradually grow more steady and predictable | | | E89c) Participants and therapist sing loud and lively together | D53a) Indiv sings softly with therapist |
| | K48a) Music shifts to slow and calm | | | E93b) Indiv sings loudest | D71a) Two participants sing softly with therapist |
| | I99b) Participants predict tempo and dynamic changes by themselves | | | E117a) Indiv sings louder and playful | D81b) Indiv sings loudly and lively |
| | K63a) Music is moderately slow and calm | | | E118b) Indiv sings louder with cupped hands | D85b) Indiv participant strums loud and at a presto tempo |
| | K63b) Therapist and participants sing moderately slow and calm | | | E127g) participants sing loudly and with high energy | D116a) Participants sing loudly and with excitement |
| | K83b) Tempo and dynamics remain the same | | | E136c) Participants sing loudly and lively | D124a) Sudden tempo and dynamic change to loud and fast tempo |

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|--|--|--|--|---|---|
| | | | | E143b) Indiv sings louder | D129a) Participants sing softly with therapist |
| | | | | H38a) Participants sing softly | D148a) Participants sing loudly and with high energy |
| | | | | H39b) participants sing unclear and softly | D148b) Indiv participant sings louder |
| | | | | H45b) Participants sing softly | D163a) Participants sing lively and loud with therapist |
| | | | | H45d) Indiv participant sings with loud and energetic | D169c) Emphasized words are sung the loudest |
| | | | | H46a) Participants sing louder and faster matching indiv participants singing | D173a) Participants sing loudly |
| | | | | H62b) Participants sing softly | D180a) Participants sing loud and vigorously |
| | | | | H63b) Indiv participant sings with loud and with force | F7a) Indiv sings the loudest |
| | | | | H66c) participants sing softly | F24b) Indiv sings loudly and overpowering |

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|--|--|--|--|---|---|
| | | | | H70a) Indiv sing loudly and energetically | F37b) Indiv sings loudly and with confidence |
| | | | | H71b) Participants sing softly | F50b) Two indiv gradually sing louder |
| | | | | H73a) Participants sing gradually louder | F50a) Indiv sings loudest |
| | | | | H76b) Participants gradually sings louder | F57c) Indiv sings loudly, energetic and vigorously |
| | | | | H76c) Indiv sings louder in high pitched voice | F82b) Participants sing lively and loudly |
| | | | | H83a) Indiv participant sing softly and with high energy | F96a) Participants sing loudly and energetically |
| | | | | H86b) Participants sing louder | F101b) Participants sing loudly |
| | | | | H91a) Participants sing softly and slowly | F127c) Participants sing loudly and energetically |
| | | | | H96a) Participants sing softly | F133b) Indiv sings with force and very loud |
| | | | | H99a) Two participants sing with therapist with enthusiasm and louder | F141c) Indiv sings fast paced and loudly with high energy |

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|--|--|--|--|--|--|
| | | | | H106a) Indiv sings softly | F156a) Participants sing lively, loud and with enthusiasm |
| | | | | H122b) Indiv sings loudest of all | F159c) Participants sing loudly |
| | | | | H133a) Participants sing with therapist loud and lively | F163b) Participants sing loudly and excitedly |
| | | | | H133b) Indiv sing loudest | F165a) Participants sing over exaggerated last word loudly and with enthusiasm |
| | | | | J28a) Participants sing loud | I13e) Participants sings softly with low energy and flat voices |
| | | | | J30a) Indiv sings louder | I17b) therapist and participants sings cheerfully and loud |
| | | | | J31d) Participants sing loudly | I19c) Indiv sings with confidence and loud |
| | | | | J41a) Indiv participant sings louder and with confidence | I20a) therapist and participants sing cheerfully, loud with high energy |
| | | | | J52a) Participants sing loudly and lively | I25b) Participants sing energetically and loud |
| | | | | J74c) Participants sing softly | I33a) Participants sing slow and softly |

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|--|--|--|--|---|---|
| | | | | J74b) Pointing indiv sing loudest | I37a) Participants sing loud and slowly |
| | | | | J80b) Participants sing loudly and with confidence | I59a) Participants sing loud and lively |
| | | | | J82c) Indiv sings the loudest | I62a) Participants sing loudly and energetic |
| | | | | J92c) Indiv sings loudest | I72a) Participants sing lively and loudly |
| | | | | L4a) Indiv sings louder | I74a) Indiv sings loudly |
| | | | | L10g) Indiv imitate sound of PCS loudly and playfully | I81c) Indiv shouts lyrics loudly and with force from excitement |
| | | | | L11d) Participants sing with confidence and loud | I85c) Indiv shouts loudly in excitement |
| | | | | L13b) Indiv sings loudly | I112b) Participants sing loudly |
| | | | | L20a) Pointing indiv sings loudly | I113a) Music shifts to slow paced tempo and softer |
| | | | | L21a) Indiv sings softly | I114c) Participants sing softly and slowly |
| | | | | L25a) Pointing indiv sings with therapist loudly | I116d) Participants sing loudly and with force |

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|--|--|--|--|---|---|
| | | | | L28b) Individ sings softly | I117b) Individ shouts last word of the song loudly and confidently |
| | | | | L31a) Pointing individ sings loudly and energetic with therapist | K7a) Participants sing softly |
| | | | | L32b) Music gradually grows louder | K11a) Individ expresses emotions of enjoyment and playfulness by singing louder |
| | | | | L37b) Individ sings loudly and with enthusiasm | K12b) Individ sings loudly animal names in excitement |
| | | | | L40b) Music is slow paced and sang softly by therapist and participants | K15b) Individ sings loudly |
| | | | | L41a) Dynamics gradually shift to louder and faster paced | K17c) Individ sings louder |
| | | | | L42a) Individ and therapist sing loudly together | K23a) Individ strums with force and loudly |
| | | | | L46b) Sitting individ sing loudly | K26a) Participants sing softly |

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|--|--|--|--|--|---|
| | | | | L58b) Participants sing fast paced, energetic and loud | K32a) Indiv strums moderately soft |
| | | | | L63a) Participants sing loudly and excitedly | K34b) Indiv sings very softly |
| | | | | L69a) Indiv sings loudly | K34c) Indiv strumming gradually grows louder and more confidently |
| | | | | L81a) Sitting indiv sings loudly | K34e) Indiv sings loudly |
| | | | | | K40a) Indiv strums irregular and unpredictable dynamics |
| | | | | | K42c) Participants sing softly |
| | | | | | K46a) Indiv sings loudly and with high energy |
| | | | | | K49a) Participants and therapist sings softly and whisper-like |
| | | | | | K51b) Indiv sings loudly and energetically |
| | | | | | K71a) Indiv sing softly |
| | | | | | K75a) Participants sing softly |

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| | | | | | K84a) Participants sing softly |
| | | | | | K85d) Participants sings softly |
| | | | | | K88c) Two participants softly sing |
| | | | | | K94b) Indiv imitates vocal sounds very loudly |
| | | | | | K96d) Participant vocal imitations are done loudly and with confidence |

Appendix AG: Vocal Participation

Table 1

| Vocal Participation | | | |
|--|---|---|--|
| <u>Participant speaking of words instead of singing</u> | <u>Participant speaking of words instead of singing</u> | <u>Participant quality of singing</u> | <u>Participant quality of singing</u> |
| A27b) Participants speak words | D42a) Indiv participant says animal name clearly | A62b) Participants sing with monotonic tone quality | B19b) Low energy participation and singing |
| A28b) Participants speak words with monotonic voice tone | D43a) Indiv participant says words rhythmical | A68e) Participants sing with monotonic tone quality | B21b) Participants sing more melodically |

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|---|---|---|--|
| C27a) Speaking of lyrics instead of singing | D46b) participants say words rhythmically | A79b) Participants sing melodically | B31a) Two participants sing with therapist with enthusiasm |
| E26a) Speaking or words instead of singing | D113a) Indiv participant softly say correct animal name | A85b) Participants sing melodic | B36c) Low energy participation and singing |
| L2d) indiv spontaneously say words | D2b) Indiv verbally says first line | C6a) Participants quality of singing is lively and melodic | B43a) Monotonic singing |
| C88c) Indiv greets animal using spoken language | K57a) Indiv shouts words loudly | C14a) Participants sing loudly and lively | B43b) Participants quality of voice has low energy |
| A48c) Group speaks the words softly | | C47b) Indiv monotonic singing | B48d) Monotonic singing |
| E65b) Indiv shouts lyrics loudly | | C49d) Participants sing melodic | B63e) Two indiv sing more melodic |
| | | C50c) participants dragged singing | B74a) Participants sing with enthusiasm and high energy |
| | | C50d) Participants struggle to match singing with music | B84a) Participants sing with enthusiasm |
| | | C51a) Group matches singing to indiv participants strumming | B88a) Indiv monotonic singing |
| | | C59d) Participants sing with low energy | B89a) Participants sing calmly |
| | | C77a) Two indiv Participants change pitch of voices to higher | B94c) Indiv singing is playful |
| | | C77b) Two indiv sing more playfully | B96b) Participants flat tone quality of singing |
| | | C80a) Therapist and participants sing loudly and energetic | B98a) Indiv adjusts quality of voice to higher pitched |

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| | | C80b) High energy singing and participation | B104c) Participants adjust their singing to lively and louder |
| | | C95a) Indiv participant spontaneously sings loud and energetic | B113a) Participants sing loudly and cheerfully |
| | | C95b) Participants sing with high energy and excitement | B118a) Participants match therapist gentle and moderately soft singing |
| | | C95a) Indiv participant spontaneously sings loud and energetic | B119c) Participants monotonic singing |
| | | C95b) Participants sing with high energy and excitement | B120a) Participants sing monotonic |
| | | C102c) Indiv sing and moves with high energy | H21d) Participants singing is low in energy and engagement |
| | | E6b) Participants sing with monotonic tone quality | G23b) Indiv singing is playful and energetic |
| | | E9a) Participants sing with monotonic tone quality | G32a) Participants sing with low energy |
| | | E14c) Participants sing with a robotic tone quality | G32b) Participants quality of singing is flat |
| | | E14b) Participant sing melodic | G32i) Indiv sings with high energy |
| | | E15b) Participants sing melodic | G52a) Participants sing with flat quality of voices |
| | | E18b) Participants sing with confidence | G53b) Indiv sings louder and energetically |
| | | E21e) Participants sing with a flat quality of voice | G58a) Participants sing loudly and more energetically |

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|--|--|--|--|
| | | E21f) Participants sing with a robotic tone quality | G61a) Participants sing with low energy |
| | | E25a) Participants sing with monotonic tone quality | G62c) Participants monotonic singing |
| | | E43b) Participants sing cheerfully | G64b) Indiv sings louder and playfully |
| | | E53f) Participants quality of singing is livelier | G76a) Therapist and participants cheerfully sing answer together |
| | | E60a) Indiv participant sings with excitement | G81b) Indiv sings loudly and playfully |
| | | E60b) Indiv sings loud and with confidence | G84f) Indiv sings loudly and playfully |
| | | E65a) Indiv participant sing with excitement | G88c) Indiv sings playfully and melodic |
| | | E65b) Indiv shouts lyrics loudly | D36a) Indiv singing quality is monotonic |
| | | E67b) Participants sings with low energy | D36a) Indiv singing quality is monotonic |
| | | E67c) Participants quality of singing is flat | D55b) Two indiv low energy singing |
| | | E75a) Participants sing loud and with enthusiasm | D55a) Two participants tone quality is flat |
| | | E81a) Participants sing loudly and energetic | D68b) Indiv sings lively with therapist |
| | | E85b) Participants sing loudly and excitedly | D81b) Indiv sing loudly and lively |
| | | E89c) Participants and therapist sing loud and lively together | D106b) Participants sing with excitement |

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| | | E90a) Indiv participants change pitch of voices to higher | D107c) High energy participation and singing |
| | | E90b) Indiv participants sing playful and silly | D114a) Therapist and participants sing together fast paced and lively |
| | | E93a) Indiv participant sings in high pitched voice | D116a) Participants sing loudly and with excitement |
| | | E94a) Participants sing with enthusiasm and high energy | D117a) Participants sing with confidence and in a playful manner |
| | | E95a) Other Indiv participant match other indiv singing in high pitched voice | D148a) Participants sing loudly and with high energy |
| | | E106a) Participants sing with enthusiasm and high energy | D151b) Participants sing fast and hastily with therapist |
| | | E107a) Two participants sing with high pitched voices | D156a) Participants sing with therapist and indiv participant cheerfully |
| | | E108a) Two participants sing lively and with enthusiasm | H27a) Participants sing loudly and with confidence |
| | | E109a) Two participants singing overpowers others singing | G29a) Participants and therapist sing loudly and with confidence together |
| | | E109b) Participants sing cheerfully | G46a) Participants sing with confidence |
| | | E117a) Indiv sings louder and playful | G86a) Participants sing loudly and with confidence |

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|--|--|--|--|
| | | E117b) Indiv sings spontaneous and with high energy | D117a) Participants sing with confidence and in a playful manner |
| | | E123a) Indiv continues singing with high pitched voice | D117b) Participants sing with confidence |
| | | E127g) participants sing loudly and with high energy | D154c) Indiv participant sings with confidence |
| | | E136a) Indiv singing with high pitched voice | D160d) Indiv participant sings with confidence and fast paced |
| | | E136c) Participants sing loudly and lively | D163a) Participants sing lively and loud with therapist |
| | | E138a) Participants singing is spontaneous, lively and energetic | D169a) Participants change pitch of voices to higher |
| | | H38c) Participants quality of singing is low in energy | D180a) Participants sing loud and vigorously |
| | | H39a) Participants sing with monotonic tone quality | F7b) Indiv sings with confidence |
| | | H45d) Indiv participant sings with loud and energetic | F9b) Indiv sings with enthusiasm |
| | | H63b) Indiv participant sings with loud and with force | F10b) Participants participate with high energy |
| | | H67a) Participants sing with monotonic tone quality | F11a) Participants singing is lively energetic and melodic |
| | | H67c) Participants quality of singing is low in energy | F16a) Participants sing with high energy and enthusiasm |

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|--|--|--|--|
| | | H70a) Indiv sing loudly and energetically | F24b) Indiv sings loudly and overpowering |
| | | H73b) Indiv singing overpowers other | F37b) Indiv sings loudly and with confidence |
| | | H76c) Indiv sings louder in high pitched voice | F46a) Participants sing slowly and gentle |
| | | H76e) Indiv singing portrays emotions of silliness and joy | F50d) Participants sing energetically and melodically |
| | | H77b) Indiv monotonic singing | F56b) Participants sing slowly and gentle |
| | | H83a) Indiv participant sing softly and with high energy | F57c) Indiv sings loudly, energetic and vigorously |
| | | H92a) Indiv singing overpowers others | F58a) Therapist and participants match indiv fast paced and vigorous singing |
| | | H116b) indiv singing overpowers others | F76a) Participants sing lively and with enthusiasm |
| | | H120c) Indiv singing overpowers others | F82b) Participants sing lively and loudly |
| | | H133a) Participants sing with therapist loud and lively | F83c) Indiv sings energetically and spontaneously |
| | | H134c) Participants sing cheerfully | F94a) Therapist and participants sing fast paced and energetically |
| | | H135a) Participants sing melodic | F96a) Participants sing loudly and energetically |
| | | J11a) Indiv singing overpower others | F97c) Participants sing slowly and lazy |
| | | J14c) Indiv shouts answer cheerfully and with confidence | F112b) Indiv sings energetically and fast paced |

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| | | J16a) Participants and therapist sing together cheerfully | F127c) Participants sing loudly and energetically |
| | | J20b) Participants emphasize iconic PCS | F133a) Individ shouts lyrics in a low pitched voice |
| | | J23a) Participants sing with excitement | F133b) Individ sings with force and very loud |
| | | J26c) Participants shout excitedly animal name | F140a) Participants sing lively and enthusiastically |
| | | J40b) Participants and therapist sing lively and with excitement | F141c) Individ sings fast paced and loudly with high energy |
| | | J45b) Participants sing cheerfully | F144a) Participants sing slow and lively |
| | | J45c) Participants sing with high energy | F151a) Participants quality of voices are lively and energetic |
| | | J50c) Individ speaks words instead of singing | F156a) Participants sing lively, loud and with enthusiasm |
| | | J52a) Participants sing loudly and lively | F158b) Participants sing energetic and vigorously |
| | | J52c) Individ pointing PCS sing cheerfully | F161b) Participants sings lively and with confidence |
| | | J57a) Participants sing with enthusiasm and confidence | F163b) Participants sing loudly and excitedly |
| | | J72a) Participants sing lively and energetic | F164a) Therapist and participants exaggerates final chord by extending the word playfully |
| | | J82d) Participants sing cheerfully | F165a) Participants sing over exaggerated last word loudly and with enthusiasm |

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| | | J91b) Participants sing cheerfully and with enthusiasm | I8b) Participants low energy and flat quality of singing |
| | | L31a) Pointing indiv sings loudly and energetic with therapist | I13e) Participants sings softly with low energy and flat voices |
| | | L37b) Indiv sings loudly and with enthusiasm | I17b) therapist and participants sings cheerfully and loud |
| | | L37c) Indiv sings energetic and lively | I20a) therapist and participants sing cheerfully, loud with high energy |
| | | L56b) Participants sing fast paced and lively | I25b) Participants sing energetically and loud |
| | | L58a) Participants quality of voice adjust and match to musical shift with ease | I29c) Participants sing lively and with confidence |
| | | L63a) Participants sing loudly and excitedly | I45a) Participants match music with high energy singing |
| | | L68c) Two indiv participants cheerfully sings with therapist | I46b) Indiv smiles at other indiv |
| | | L80b) Participants and therapist sing together matching indiv lively strumming | I49c) Participants sing slow and lazy |
| | | L90a) Sitting indiv sing with therapist with enthusiasm and energetically | I59a) Participants sing loud and lively |
| | | A37c) Participants sing with low energy | I62a) Participants sing loudly and energetic |

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|--|--|--|--|
| | | | I67a) Participants sing with excitement and lively |
| | | | I72a) Participants sing lively and loudly |
| | | | I76b) Participants and therapist sing whisper-like |
| | | | I77b) Participants whisper lyrics |
| | | | I81c) Individ shouts lyrics loudly and with force from excitement |
| | | | I83a) Therapist and participants whisper lyrics |
| | | | I85c) Individ shouts loudly in excitement |
| | | | I89a) Participants sing lively and with confidence |
| | | | I91b) Participants and therapist sing whisper-like |
| | | | I97a) Participants sing with high energy and enthusiasm |
| | | | I98a) Participants sing alone cheerfully |
| | | | I101a) Participants sing by themselves with confidence and high energy |
| | | | I103b) participants sing lively and energetic |
| | | | I104a) Participants sing with confidence and enthusiasm |

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|--|--|--|---|
| | | | I110a) Participants sing with therapist cheerfully |
| | | | I116d) Participants sing loudly and with force |
| | | | I116e) Participants quality of voice is strong and energetic |
| | | | K6a) Therapist and participants sing together at fast tempo |
| | | | K12b) Indiv sings loudly animal names in excitement |
| | | | K13e) Participants sing energetically and excitedly |
| | | | K26e) Participants low energy singing |
| | | | K42d) Participants low energy of singing |
| | | | K46a) Indiv sings loudly and with high energy |
| | | | K46b) Indiv sings with force |
| | | | K49a) Participants and therapist sing softly and whisper-like |
| | | | K51b) Indiv sings loudly and energetically |
| | | | K54a) Participants sing with excitement and enthusiasm |
| | | | K58c) Indiv sing in high pitched and playful and silly voice |

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|--|--|--|--|
| | | | K63b) Therapist and participants sing moderately slow and calm |
| | | | K82a) Participants sing lively |
| | | | K82d) Participants flat quality of singing |
| | | | K84b) Participants monotonic singing |
| | | | K100g) Participants sing with low energy |
| | | | K41a) Participants struggle to match indiv strumming with their voices |
| | | | K42b) Group match singing with strumming |

Appendix AH: PCSS identification

Table 1

| PCSS identification | | | | | |
|--|--|---|--|---|--|
| <u>Own meaning PCS associations</u> | | <u>Recognition of PCS</u> | | <u>Dependence on PCS</u> | |
| A5b) Participant associates PCS with own meaning | | A9a) Participants recognize PCS with ease | | A86a) Participants dependent on PCS to remember words | |

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|--|--|--|--|---|--|
| A6a) group agrees with associated PCS meaning | | A16b) Participants remember PCS with ease | | C17b) Participants dependent on PCS to remember words | |
| C8a) Indiv associates own PCS meaning with movement | | A26a) Participants recognize PCS with ease | | C22e) Participants dependent on PCS to remember words | |
| C9b) Indiv Associate PCS with movement | | A28a) Participants recognize PCS with ease | | C50e) Indiv dependent on PCS to remember words | |
| A41b) Indiv Associate PCS with movement | | A38a) Participants remember PCS | | C54d) Participants dependent on PCS to remember words | |
| C37b) Indiv Associate PCS with movement | | A47a) Indiv recognize PCS with ease | | C66c) Indiv dependent on PCS to remember words | |
| J3a) Participant associate PCS with own meaning | | A49a) Participants recognize PCS with ease | | C67a) Indiv dependent on PCS to remember words | |
| J15a) Indiv associated own meaning with intended PCS | | A51a) Participants recognize PCS with ease | | C85a) Participants dependent on PCS to remember words | |
| | | A53a) Participants recognize PCS with ease | | C99a) Participants dependent on PCS to remember words | |

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|--|--|--|--|---|--|
| | | A55b) Participants recognize PCS with ease | | E19b) Participants dependent on PCS to remember words | |
| | | A60a) Participants remember PCS with ease | | E20b) Participants dependent on PCS to remember words | |
| | | A64b) Individ recognize PCS with ease | | E21b) Participants dependent on PCS to remember words | |
| | | A79c) Participants recognize PCS with ease | | E53b) Participants dependent on PCS to remember words | |
| | | | | E62c) Participants dependent on PCS to remember words | |
| | | C6b) Participants remember PCS with ease | | E78b) Individ dependent on PCS to remember words | |
| | | C7a) Participants remember PCS with ease | | J74d) Individ dependent on PCS to remember words | |
| | | C14b) Participants recognize PCS with ease | | H85c) Participants dependent on PCS to remember words | |

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|--|--|--|--|---|--|
| | | C17d) Participants immediately remember PCS | | H86a) Participants focus and dependent on PCS to remember words | |
| | | C18a) Indiv participant recognize PCS immediately | | H91c) Participants dependent on PCS to remember words | |
| | | C19a) Participants recognize PCS immediately | | H110a) Indiv dependent on PCS to remember words | |
| | | C22a) Participants recognize PCS immediately | | H115a) Indiv dependent on PCS to remember words | |
| | | C26a) Participants immediately remembers PCS | | H134a) Participants occasionally dependent on PCS to remember words | |
| | | C29e) Participants immediately recognize PCS with ease | | H137b) Participants dependent on PCS to remember words | |
| | | E55b) Participants recognize PCS by themselves | | L10c) Indiv independent on PCS to remember words | |
| | | C39d) Participants immediately remember PCS with ease | | | |

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|--|--|--|--|--|--|
| | | C54c) Participants recognize PCS with ease | | | |
| | | C59c) Participants recognize PCS with ease | | | |
| | | C67b) Participants remember PCS with ease | | | |
| | | E3a) Indiv participant immediately recognize PCS | | | |
| | | E5d) Participants immediately recognize PCS | | | |
| | | E17a) Participant immediately recognize PCS | | | |
| | | E18d) Participants recognize PCS with ease | | | |
| | | E20a) Participants recognize PCS immediately | | | |
| | | E24a) Participants remembers PCS with ease | | | |

| | | | | | |
|--|--|---|--|--|--|
| | | E37a) Indiv participant immediately remembers PCS with ease | | | |
| | | E53c) Participants remember PCS with ease | | | |
| | | H9a) Indiv recognize PCS and direct attention to PCS | | | |
| | | H11a) Indiv recognize PCS with ease | | | |
| | | H13b) Indiv recognize PCS with ease | | | |
| | | H15a) Indiv recognize PCS with ease | | | |
| | | H19a) Indiv recognize PCS with ease | | | |
| | | H21c) Indiv recognize PCS with ease | | | |
| | | H23c) Indiv recognize PCS with ease | | | |
| | | H50a) Participants immediately recognize PCS | | | |

| | | | | | |
|--|--|---|--|--|--|
| | | H52a) Participants immediately recognize PCS | | | |
| | | H55a) Indiv recognize PCS | | | |
| | | H58c) Indiv immediately recognize PCS | | | |
| | | H71c) Participants recognize PCS easier | | | |
| | | H77c) Indiv recognize PCS with ease | | | |
| | | J55a) Indiv recognize PCS | | | |
| | | H85b) Participants recognize PCS with ease | | | |
| | | H122d) Indiv recognize PCS with ease | | | |
| | | J5b) Indiv recognize PCS with ease | | | |
| | | J8a) Two participants recognize PCS immediately | | | |
| | | J29a) Participants recognize PCS with ease | | | |

| | | | | | |
|--|--|---|--|--|--|
| | | J45a) Participants recognize PCS by themselves | | | |
| | | J52b) Participants recognize PCS with ease | | | |
| | | J60b) Participants Recognize PCS with ease | | | |
| | | L2b) Participants immediately recognize PCS with ease | | | |
| | | L9a) Indiv immediately recognize word with ease | | | |
| | | L9c) Indiv remembers PCS with ease | | | |
| | | L11b) Participants recognize PCS | | | |
| | | L13c) Participants immediately recognize PCS | | | |
| | | A85a) Participants recognize PCS with ease | | | |

Table 2

| PCSS identification | | | | | |
|---|--|---------------------------------------|--|--|--|
| <u>Participants read PCS by themselves</u> | | <u>High iconicity</u> | | <u>Participant non-verbal modelling</u> | |
| C82a) Participants read PCS by themselves | | A9b) Iconicity of word seems higher | | E33a) Other indiv participant assist indiv participant by modelling PCS pointing | |
| J60c) Participants read PCS by themselves | | A15d) Iconicity of word seems higher | | E40a) Other indiv participant assist indiv participant by modelling PCS pointing | |
| H84b) Participants read PCS by themselves | | A16c) Iconicity of words seems higher | | E33a) Other indiv participant assist indiv participant by modelling PCS pointing | |
| H127b) Participants read PCS by themselves | | A26c) Iconicity of word seems high | | J47a) Other indiv assist pointing indiv by modelling pointing | |
| C101b) Participants read PCS by themselves | | A28e) Iconicity of word seems high | | | |
| | | A55c) Iconicity of words seem high | | | |

| | | | | | |
|--|--|--------------------------------------|--|--|--|
| | | A60d) Iconicity of words seem high | | | |
| | | A79d) Iconicity of words seem higher | | | |
| | | C9c) Iconicity of words seem higher | | | |
| | | C29d) Iconicity of word seem higher | | | |
| | | C87b) Iconicity of words seem higher | | | |
| | | H11b) Iconicity of PCS seems higher | | | |
| | | H15c) Iconicity of PCS seems higher | | | |
| | | H19b) Iconicity of PCS seems higher | | | |
| | | H21b) Iconicity of PCS seems higher | | | |
| | | H23d) Iconicity of PCS seems higher | | | |
| | | H50b) Iconicity of PCS seems higher | | | |

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|--|--|---|--|--|--|
| | | H52c) Iconicity of PCS seems higher | | | |
| | | H55b) Iconicity of PCS seems higher | | | |
| | | H58d) Iconicity of PCS seems higher | | | |
| | | H74b) Iconicity of chorus PCS seem higher | | | |
| | | H93b) Indiv remember iconic PCS | | | |
| | | H138b) Iconicity of PCS for chorus seems high | | | |
| | | J10b) Iconicity of PCS seems high | | | |

Table 3

| | | | | | |
|---|--|-----------------------------|--|---|--|
| PCSS identification | | | | | |
| <u>Therapist invites participants to read PCS by themselves</u> | | <u>Intended PCS meaning</u> | | <u>PCS recognition dependent on therapist</u> | |

| | | | | | |
|--|--|--|--|---|--|
| L11a) Therapist invites participants to read PCS by themselves | | A10c) group agrees with intended PCS meaning | | C29b) Therapist direct attention to PCS | |
| L12a) Therapist invite participants to read PCS by themselves | | A47c) Group agrees with intended meaning | | C33a) Therapist direct attention to PCS | |
| L51a) Therapist verbally invite participants to read PCS by themselves | | A49b) Participants spontaneously sing intended PCS meaning | | C28b) Therapist direct attention to PCS | |
| E129a) Therapist invites participants to read PCS by themselves | | A27b) Individ spontaneously says intended PCS meaning | | C25a) Therapist direct attention to PCS | |
| | | A52c) Participants spontaneously shout intended PCS meaning | | C21a) Therapist direct attention to PCS | |
| | | A53b) Participants spontaneously shout intended PCS meaning | | C16a) Therapist direct attention to PCS | |
| | | C8b) Individ sing intended PCS meaning | | C3a) Therapist direct attention to PCS | |
| | | C19b) Participants spontaneously shouts intended PCS meaning | | A3a) Therapist direct attention to PCS | |
| | | C76e) Two indiv shouts out intended word of PCS meaning | | A8a) Therapist direct attention to PCS | |

| | | | | | |
|--|--|---|--|---|--|
| | | C88a) Indiv participant imitates intended PCS | | A11b) Therapist direct attention to PCS | |
| | | C88b) Indiv participant associates intended PCS with movement of greeting | | A14a) Therapist direct attention to PCS | |
| | | H7a) Therapist gives intended meaning of PCS | | A15b) Therapist direct attention to PCS | |
| | | H10b) Therapist verbally says intended PCS meaning | | A20a) Therapist direct attention to PCS | |
| | | H21a) Indiv verbally identify intended PCS meaning | | A25a) Therapist direct attention to PCS | |
| | | H50b) Participants shouts intended PCS meaning | | A30a) Therapist direct attention to PCS | |
| | | H52b) Participants shouts intended PCS meaning | | A31b) Therapist direct attention to PCS | |
| | | H56b) Therapist verbally give intended PCS meaning | | A33b) Therapist direct attention to PCS | |
| | | L9d) Indiv associates intended PCS with waving movement | | A42b) Therapist direct attention to PCS | |
| | | J4a) Therapist explain intended PCS meaning | | A44a) Therapist direct attention to PCS | |

| | | | | | |
|--|--|--|--|--|--|
| | | J15a) Indiv associated own meaning with intended PCS | | A46a) Therapist direct attention to PCS | |
| | | J50b) Indiv associates intended meaning of PCS with waving movement | | A55a) Therapist direct attention to PCS | |
| | | J58b) Indiv associates intended meaning of PCS with movement | | A61b) Therapist direct attention to PCS | |
| | | L9e) Indiv associates intended PCS with movement of waving movement | | A72a) Therapist occasionally direct attention to PCS | |
| | | L13a) Indiv participant imitate movement of a grizzly bear | | A77b) Therapist direct attention to PCS | |
| | | L14e) Group agrees with intended PCS meaning | | A82a) Therapist occasionally direct attention to PCS | |
| | | L16a) Indiv Associate intended PCS with movement of a slithering snake | | A83b) Therapist occasionally direct attention to PCS | |
| | | L26a) Indiv participant imitate the trunk of an elephant | | C38b) Therapist direct attention to PCS | |

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|--|--|--|--|---|--|
| | | L42b) Individ imitates the movement of a horse | | C49b) Therapist direct attention to PCS | |
| | | | | C58b) Therapist direct attention to PCS | |
| | | | | C64b) Therapist direct attention to PCS | |
| | | | | C70b) Therapist direct attention to PCS | |
| | | | | E4a) Therapist direct attention to PCS | |
| | | | | E5c) Therapist direct attention to PCS | |
| | | | | E10c) Therapist direct attention to PCS | |
| | | | | E12a) Therapist direct attention to correct PCS | |
| | | | | E17b) Therapist direct attention to PCS | |
| | | | | E18a) Therapist direct attention to PCS | |
| | | | | E23a) Therapist direct attention to | |

| | | | | | |
|--|--|--|--|---|--|
| | | | | PCS | |
| | | | | H23a) Therapist direct attention to PCS | |
| | | | | E114c) Pointing indiv dependent on therapist directing attention to PCS | |
| | | | | H2a) Therapist directs attention to PCS | |
| | | | | H10b) Therapist direct attention to PCS | |
| | | | | H12a) Therapist and indiv direct attention to PCS | |
| | | | | H14a) Therapist direct attention to PCS | |
| | | | | H16a) Indiv and therapist direct attention to PCS | |
| | | | | H18a) Therapist direct attention to PCS | |
| | | | | H20a) Therapist direct attention to PCS | |
| | | | | H27b) Therapist direct attention to PCS | |

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|--|--|--|--|--|--|
| | | | | H29a) Therapist direct attention to PCS | |
| | | | | H49a) Therapist directs attention to PCS | |
| | | | | H51a) Therapist directs attention to PCS | |
| | | | | H53a) Therapist directs attention to PCS | |
| | | | | H58a) Therapist directs attention to PCS | |
| | | | | H41b) Therapist direct attention to PCS | |
| | | | | H80a) Therapist alternate directing attention to PCS and strumming of guitar | |
| | | | | J1a) Therapist direct attention to PCS | |
| | | | | J6a) Therapist direct attention to PCS | |
| | | | | J9c) Therapist direct attention to PCS | |
| | | | | J31b) Therapist direct attention to PCS | |

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|--|--|--|--|--|--|
| | | | | L3a) Therapist directs attention to PCS | |
| | | | | L10b) Therapist directs attention to PCS | |
| | | | | L11c) Therapist direct attention to PCS | |
| | | | | L13d) Therapist directs attention to PCS | |

Table 4

| PCSS identification | | | | | |
|---|--|---|--|--|--|
| <u>PCS recognition dependent on participant</u> | | <u>Incorrect directing of attention to PCS by participant</u> | | <u>Therapist asks participants PCS related questions</u> | |
| C97a) Indiv participant directs attention to PCS | | C101a) Indiv participant points incorrect PCS | | E2a) Therapist ask participants a question about PCS board | |
| H107a) Indiv participant directs attention to PCS | | E47a) Indiv participant direct attention to incorrect PCS | | E98a) Therapist ask participants a question about PCS | |

| | | | | | |
|--|--|---|--|--|--|
| E10b) Indiv participant spontaneously direct attention to PCS | | E48a) Indiv participant direct attention to incorrect PCS | | H3a) Therapist ask participants a question about PCS | |
| H105a) Other Indiv spontaneously direct attention to PCS | | E11a) Indiv participant direct attention to incorrect PCS | | J2a) Therapist ask participants a question about PCS | |
| H108a) Indiv participant directs attention to PCS | | | | J13a) Therapist ask participants a question about song | |
| H113b) Indiv stands up and start pointing spontaneously to PCS | | | | | |
| E44a) Indiv participant direct attention to PCS | | | | | |
| E45a) Indiv participant direct attention to PCS | | | | | |
| E46b) Indiv participant direct attention to PCS | | | | | |
| H116a) Indiv participant directs attention to PCS | | | | | |

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|---|--|--|--|--|--|
| H117a) Indiv direct attention to PCS rhythmically | | | | | |
| E49b) Indiv participant direct attention to PCS | | | | | |
| E50a) Indiv participant direct attention to correct PCS | | | | | |
| E50b) Indiv participant corrects pointing mistake from previous verse | | | | | |
| E51a) Indiv participant direct attention to correct PCS | | | | | |
| E57a) Indiv participant direct attention to PCS | | | | | |
| E58b) Indiv direct attention to PCS | | | | | |
| E59a) Indiv directs attention to appropriate PCS | | | | | |
| E64a) Indiv participant spontaneously direct | | | | | |

| | | | | | |
|--|--|--|--|--|--|
| attention to PCS | | | | | |
| E112a) Indiv direct attention to PCS | | | | | |
| E113a) Indiv direct attention to PCS | | | | | |
| H8a) Indiv spontaneously direct attention to PCS | | | | | |
| E126a) Indiv direct attention to PCS | | | | | |
| H9a) Indiv recognize PCS and direct attention to PCS | | | | | |
| H10a) Indiv direct attention to PCS | | | | | |
| H12a) Therapist and indiv direct attention to PCS | | | | | |

| | | | | | |
|--|--|--|--|--|--|
| H13a) Indiv direct attention to PCS | | | | | |
| H16a) Indiv and therapist direct attention to PCS | | | | | |
| H95c) Indiv participant direct attention to PCS | | | | | |
| H120d) Indiv participant direct attention to PCS | | | | | |
| H122a) Indiv participant direct attention to PCS | | | | | |
| J38a) Indiv participant directs attention to PCS | | | | | |
| J44a) Indiv immediately directs attention to PCS | | | | | |
| J51a) Indiv participant spontaneously directs attention to PCS | | | | | |
| J55b) Indiv participant directs attention to PCS | | | | | |
| J60a) Indiv directs attention to PCS | | | | | |

| | | | | | |
|---|--|--|--|--|--|
| J68a) Indiv directs attention to PCS | | | | | |
| J81a) Indiv directs attention to PCS | | | | | |
| J84a) indiv directs attention to PCS | | | | | |
| J89a) Indiv directs attention to correct PCS | | | | | |
| J90b) Indiv directs attention to PCS | | | | | |
| L2a) Indiv directs attention to PCS | | | | | |
| L25d) Pointing indiv directs attention to PCS | | | | | |
| L31b) Indiv directs attention to PCS | | | | | |
| L34a) Indiv eager to direct attention to PCS | | | | | |
| L38a) Indiv accurately directs attention to PCS | | | | | |
| L43a) Indiv directs attention to PCS | | | | | |

| | | | | | |
|---|--|--|--|--|--|
| L45b) Indiv directs attention to PCS | | | | | |
| L50a) Indiv correctly directs attention to PCS | | | | | |
| L54b) Indiv directs attention to PCS | | | | | |
| L58f) Indiv directs attention to PCS | | | | | |
| L64a) Indiv occasionally directs attention to PCS | | | | | |
| L68b) Other indiv occasionally directs attention to PCS | | | | | |
| H108a) Indiv participant directs attention to PCS | | | | | |

Table 5

| PCSS identification | |
|--|--|
| <u>Therapist's add PCS to communication board</u> | |
| J15c) Therapist add PCS to board | |

| | |
|-----------------------------------|--|
| J20a) Therapist adds PCS to board | |
| J22a) Therapist add PCS to board | |
| J24a) Therapist add PCS to board | |

Appendix A1: Focused attention

Table 1

| Focused attention | | | | | |
|-------------------------------------|--|--|---|--|--|
| <u>Focused attention on PCS</u> | | <u>Focused attention on music</u> | <u>Focused attention on music</u> | <u>Focused attention on therapist and guitar</u> | <u>Focused attention on therapist and guitar</u> |
| A2b) Participants focused on PCS | | L48b) Pointing indiv curious of music | B76d) Participant curious and interested in music | C104c) Participants interested and focused on therapist and guitar | B6a) Participants focus on therapist |
| A2a) Participants interested in PCS | | L63c) Participants interest and focus on therapist and music | B76e) Participants focus on therapist and music | A84b) Participants focus on guitar | B9b) Participants focus on therapist |

| | | | | | |
|--------------------------------------|--|---|---|---|--|
| A5d) Participants focused on PCS | | L68d) Participants focus on therapist and seem curious of music | B82c) Participants focus on therapist and music | E134b) Participants focus on therapist | B12b) Participants focus on therapist |
| A14b) Participants focused on PCS | | | B91e) Indiv focus on therapist and music | C81d) Focus on therapist | B76e) Participants focus on therapist and music |
| A13a) Participants interested in PCS | | | B97c) Participants focus on music | L63c) Participants interest and focus on therapist and music | B82c) Participants focus on therapist and music |
| A19b) Participants interested in PCS | | | B122b) Participants focus and interested in music | L68d) Participants focus on therapist and seem curious of music | B91e) Indiv focus on therapist and music |
| A20b) Participants focused on PCS | | | G8e) Participants focus on therapist and music | L74b) Participants focused on therapist | G8e) Participants focus on therapist and music |
| A29a) Participants interested in PCS | | | G29b) Participants focus on therapist and music | | G29b) Participants focus on therapist and music |
| A30b) Participants focused on PCS | | | G66a) Participants focus on therapist and music | | G33b) Participants focus on therapist |
| A33a) Participants focused on PCS | | | H87b) Participants focus on therapist and music | | G36b) Participants focused and interested in therapist |

| | | | | | |
|-----------------------------------|--|--|---|--|---|
| A36a) Participants focused on PCS | | | D119b) Participants focus on music | | G66a) Participants focus on therapist and music |
| A42a) Participants focused on PCS | | | D154f) Participants interested and focused on therapist and music | | H87b) Participants focus on therapist and music |
| A52b) Indiv interested in PCS | | | D172e) Participants focus on therapist and music | | D154f) Participants interested and focused on therapist and music |
| A61a) Participants focused on PCS | | | D175b) Participants focus on therapist and music | | D163c) Participants focus on therapist |
| A62d) Participants focused on PCS | | | F10c) Participants focus on therapist and the music | | D165b) Participants focus on therapist |
| A66a) Participants focused on PCS | | | F26c) Participants focused on music and therapist | | D172e) Participants focus on therapist and music |
| A76a) Participants focused on PCS | | | F36a) Participants focused on therapist and music | | D175b) Participants focus on therapist and music |
| A80a) Indiv focus on PCS | | | F47a) Participants focus on therapist and music | | F10c) Participants focus on therapist and the music |

| | | | | |
|-----------------------------------|--|--|--|--|
| A80b) Indiv interested in PCS | | | F70b) Participants focus on therapist and music | F26c) Participants focused on music and therapist |
| A84a) Participants focus on PCS | | | F106a) Participants focus on therapist and music | F36a) Participants focused on therapist and music |
| J31a) Participants focus on PCS | | | I5b) Participants focus on therapist and music | F47a) Participants focus on therapist and music |
| C10a) Participants focused on PCS | | | I49d) Participants focus on music and therapist | F70b) Participants focus on therapist and music |
| C13b) indiv interested in PCS | | | I89d) Participants focus on therapist and music | F85a) Indiv focus on therapist in anticipation |
| C22f) Participants focused on PCS | | | I93c) Participants interested and focus on therapist and music | F106a) Participants focus on therapist and music |
| C38a) Participants focus on PCS | | | I99e) Participants focus on music | F120a) Participants focus on therapist |
| C39e) Participants focused on PCS | | | I104b) Participants focus on therapist and the music | F124b) Participants focus on therapist in anticipation |

| | | | | | |
|---|--|--|--|--|--|
| C54a) Participants focus on PCS | | | I108d) Participants focus on therapist and music | | F132b) Participants focus on therapist with curiosity and anticipation |
| J11c) Participants focused on PCS | | | | | F130b) Participants focus on therapist with curiosity and anticipation |
| J39a) Therapist and participants focus on PCS | | | | | I5b) Participants focus on therapist and music |
| E7a) Participants focus on PCS | | | | | I41d) Participants focus on therapist |
| E13c) Indiv and group focus on PCS | | | | | I49d) Participants focus on music and therapist |
| E17c) Participants focused on PCS | | | | | I73b) Participants focus on therapist |
| E23b) Participants focus on PCS | | | | | I89d) Participants focus on therapist and music |
| E27c) Participants focused on PCS | | | | | I93c) Participants interested and focus on therapist and music |

| | | | | |
|-------------------------------------|--|--|--|---|
| E44b) Participants focus on PCS | | | | I104b) Participants focus on therapist and the music |
| E45b) Indiv focus on PCS | | | | I108d) Participants focus on therapist and music |
| E52a) Participants focus on PCS | | | | K24b) indiv focus on strumming guitar |
| E53a) Participants focus on PCS | | | | K36c) Indiv focus on strumming guitar |
| E62c) Participants focus on PCS | | | | K100e) Participants focus on therapist |
| E67a) Indiv direct attention to PCS | | | | D134b) Participants look at therapist in anticipation |
| E78a) Indiv focus on PCS | | | | |
| E113b) Indiv focus on PCS pointing | | | | |
| E126b) Indiv focus on pointing PCS | | | | |
| E127c) Indiv focus on pointing PCS | | | | |
| J53a) Participants | | | | |

| | | | | | |
|---|--|--|--|--|--|
| focus on PCS | | | | | |
| H5a) indiv interested in PCS | | | | | |
| H42b) Participants Focus on PCS | | | | | |
| H43a) Participants focus on PCS | | | | | |
| H54a) Participants focus on PCS | | | | | |
| H64a) Participants focus on PCS | | | | | |
| H65a) Therapist focus on PCS | | | | | |
| H71a) Participants focus on PCS | | | | | |
| H81a) Participants focus on PCS | | | | | |
| H86a) Participants focus and dependent on PCS to remember words | | | | | |
| H86a) Participants focus and dependent on PCS | | | | | |

| | | | | |
|--|--|--|--|--|
| H91b) Two Participants focus on PCS | | | | |
| H96b) Participants focus on PCS | | | | |
| H106b) Indiv focus on PCS | | | | |
| H111b) Indiv focus on directing attention to PCS | | | | |
| H137a) Participants focus on PCS | | | | |
| J67b) Participants Focus on PCS | | | | |
| J73a) Participants focus on PCS | | | | |
| J74a) Participants focused on PCS | | | | |
| J85b) Therapist and participant focus on PCS | | | | |
| J91a) Therapist and participants focus on PCS | | | | |

| | | | | | |
|--|--|--|--|--|--|
| J92b) Pointing indiv focus on PCS | | | | | |
| L2c) Participants focus on PCS | | | | | |
| L20b) indiv focus on directing to PCS | | | | | |
| L22b) Therapist and participants focus on PCS | | | | | |
| L28c) Indiv focus on PCS | | | | | |
| L39b) Pointing indiv focus on PCS | | | | | |
| L58g) Indiv focus on PCS | | | | | |
| H111b) Indiv focus on directing attention to PCS | | | | | |

Table 2

| Focused attention | | | | | |
|--------------------------------------|--------------------------------------|---|--|---------------------------------------|---------------------------------------|
| <u>Focused attention on pointing</u> | <u>Focused attention on pointing</u> | <u>Focused attention on strumming indiv</u> | <u>Focused attention on strumming individual</u> | <u>Focus on co-ordination of task</u> | <u>Focus on co-ordination of task</u> |
| | | | | | |

| <u>individual</u> | <u>individual</u> | | | | |
|---|-------------------|--|--|--|--|
| J82a) Therapist and participant focus on pointing indiv | | L86b) Sitting indiv focus on other indiv strumming | D71c) Participants focus on indiv strumming of guitar | C50a) Indiv participant struggle to multi-task reading PCS, sing and strum guitar | |
| | | L90c) Sitting indiv focus on other indiv strumming | D88a) Participants focus on indiv participants strumming | H111c) Indiv participant struggle to multi-task reading PCS, sing and point to PCS | |
| | | | D89b) Participants focus on indiv strumming | | |
| | | | K26b) Participants focus on indiv strumming guitar | | |
| | | | K46d) Participants focus on strumming indiv | | |

Table 3

| Focused attention | | | |
|-------------------|-------------------|-----------------------------------|-----------------------------------|
| <u>Lost focus</u> | <u>Lost focus</u> | <u>Focused attention on indiv</u> | <u>Focused attention on indiv</u> |

| | | <u>singing</u> | <u>singing</u> |
|--|---|----------------|---|
| C76f) Two indiv lost interest and focus | B44a) Indiv seems distracted by other objects in the room | | I22e) Participants focus on singing indiv |
| H39c) Participants seem distracted | B91d) Participants distracted by objects in the room | | |
| H77d) Participants distracted by objects in the room | D5c) Participants distracted by objects in the room | | |
| H91e) Indiv loss of interest and focus | D70b) Participants distracted by objects in the room | | |
| H93c) Indiv distracted by objects in the room | K18c) Indiv distracted by objects in the room | | |
| H99b) Indiv loss of focus and attention | K82d) Participants seem distracted by objects in the room | | |
| L4c) Indiv distracted with water bottle | K103c) Participants distracted by outside element | | |

Appendix AJ: Rehearsal of song

Table 1

| Rehearsal of song | |
|--|--|
| <u>Repetition of verse with therapist</u> | <u>Repetition of verse with therapist</u> |
| A12b) Repetition of verse | B10a) Repetition of verse |
| A15c) Repetition of verse | B20b) Repetition of verse |
| A18b) Repetition of verse | B27a) Repetition of verse |
| A31c) Repetition of verse | B33c) Repetition of verse |
| A36b) Repetition of verse | B38b) Repetition of verse |
| A39b) Repetition of verse | B45b) Repetition of verse |
| A58b) Repetition of verse | B92a) Repetition of verse |
| A65c) Repetition of verse | B97a) Repetition of verse |
| A734a) Repetition of verse | B115a) Repetition of verse |
| A81b) Repetition of verse | G11a) Repetition of verse |
| C11b) Repetition of verse | G18b) Repetition of verse |
| A23b) Repetition of verse | G59a) Repetition of verse |
| C32a) Repetition of verse | G65a) Repetition of verse |
| C39a) Repetition of verse | G69b) Repetition of verse |

| | |
|----------------------------|----------------------------|
| C57b) Repetition of verse | G85a) Repetition of verse |
| C79b) Repetition of verse | G89a) Repetition of verse |
| C94b) Repetition of verse | D9a) Repetition of verse |
| E10a) Repetition of verse | D15a) Repetition of verse |
| E14a) Repetition of verse | D30a) Repetition of verse |
| E22a) Repetition of verse | D51a) Repetition of verse |
| E43a) Repetition of verse | D72b) Repetition of verse |
| E49a) Repetition of verse | D149b) Repetition of verse |
| E63a) Repetition of verse | D170a) Repetition of verse |
| E70a) Repetition of verse | F20a) Repetition of verse |
| E92a) Repetition of verse | F43b) Repetition of verse |
| E105a) Repetition of verse | F55a) Repetition of verse |
| E121a) Repetition of verse | F72a) Repetition of verse |
| E144a) Repetition of verse | F81a) Repetition of verse |
| H25a) Repetition of verse | F102b) Repetition of verse |
| H40a) Repetition of verse | F110a) Repetition of verse |
| H44a) Repetition of verse | F137a) Repetition of verse |
| H561a) Repetition of verse | F153a) Repetition of verse |

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|----------------------------|----------------------------|
| H66a) Repetition of verse | I10a) repetition of verse |
| H75a) Repetition of verse | I30a) Repetition of verse |
| H77a) Repetition of verse | I48a) Repetition of verse |
| H79b) Repetition of verse | I61a) Repetition of verse |
| H89b) Repetition of verse | I86a) Repetition of verse |
| H97a) Repetition of verse | I102a) Repetition of verse |
| H110b) Repetition of verse | I109a) Repetition of verse |
| H120a) Repetition of verse | K14a) Repetition of verse |
| H123a) Repetition of verse | K16b) Repetition of verse |
| H128a) Repetition of verse | K19a) Repetition of verse |
| J9a) Repetition of verse | K36b) repetition of verse |
| J27a) Repetition of verse | K45a) Repetition of verse |
| J43a) Repetition of verse | K50a) Repetition of verse |
| J54a) Repetition of verse | K72a) Repetition of verse |
| J71a) Repetition of verse | K76a) Repetition of verse |
| J79a) Repetition of verse | K79a) Repetition of verse |
| J87a) Repetition of verse | K98b) Repetition of verse |
| L19a) Repetition of verse | B65b) Repetition of chorus |

| | |
|----------------------------|-----------------------------|
| L30a) Repetition of verse | B99a) Repetition of chorus |
| L36b) Repetition of verse | G41a) Repetition of chorus |
| L44a) Repetition of verse | G73a) Repetition of chorus |
| L47a) Repetition of verse | D36a) Repetition of chorus |
| L54a) Repetition of verse | D103a) Repetition of chorus |
| L61a) Repetition of verse | D111a) Repetition of chorus |
| L70a) Repetition of verse | D135d) Repetition of chorus |
| L75b) Repetition of verse | D162a) Repetition of chorus |
| L83b) Repetition of verse | F27a) Repetition of chorus |
| L88b) Repetition of verse | F65a) Repetition of chorus |
| A54b) Repetition of chorus | F89a) Repetition of chorus |
| A62a) Repetition of chorus | F117a) Repetition of chorus |
| A67a) Repetition of chorus | F145a) Repetition of chorus |
| A77a) Repetition of chorus | I26a) Repetition of chorus |
| C52a) Repetition of chorus | I34a) Repetition of chorus |

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|-----------------------------|-------------------------------------|
| C61b) Repetition of chorus | I54a) Repetition of chorus |
| C72b) Repetition of chorus | I75a) Repetition of chorus |
| C100b) Repetition of chorus | I94a) Repetition of chorus |
| E16a) Repetition of chorus | I106a) Repetition of chorus |
| E70b) Repetition of chorus | K27a) Repetition of chorus |
| E82a) Repetition of chorus | K55a) Repetition of chorus |
| E120a) Repetition of chorus | K62a) Repetition of chorus |
| E141a) Repetition of chorus | K70a) Repetition of chorus |
| H48a) Repetition of chorus | K83a) Repetition of chorus |
| H68a) Repetition of chorus | K87a) Repetition of chorus |
| H84a) Repetition of chorus | B8b) Repetition of verse line |
| H87a) Repetition of chorus | B36a) Repetition of two verse lines |
| H121a) Repetition of chorus | B58a) Repetition of chorus line |
| H136b) Repetition of chorus | B64a) Repetition of chorus line |

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|----------------------------|---------------------------------|
| J12a) Repetition of chorus | B68a) Repetition of chorus line |
| J46a) Repetition of chorus | B73a) Repetition of chorus line |
| J85a) Repetition of chorus | B81a) Repetition of chorus line |
| L24a) Repetition of chorus | B83b) Repetition of chorus line |
| L40a) Repetition of chorus | B86b) Repetition of chorus line |
| L66a) Repetition of chorus | |
| L87a) Repetition of chorus | |

Appendix AK: Seeing and doing

Table 1

| Seeing and doing | | | |
|--|--|---|---|
| <u>Participant physical imitation of PCS</u> | | <u>Participant physical imitation of therapist and others</u> | <u>Participant physical imitation of therapist and others</u> |
| L13a) Indiv participant imitate movement of a grizzly bear | | E125a) Indiv copies other indiv cupping of hands singing | B24a)Indiv Participant physically imitating other indiv |

| | | | |
|---|--|--|--|
| | | | unrelated movement |
| C24a) Participant imitate PCS by swimming like a shark | | E135a) Participants imitate physical body movement of therapist | B54a) Group imitates indiv participants movement with enthusiasm |
| C37a) Indiv participant imitates PCS by pointing to himself | | C84a) Indiv participant imitates therapist movement of strumming guitar | B80a) Two participants imitate therapist's movement |
| C103a) Indiv participant imitated PCS by waving movement | | C89a) Indiv participant imitates therapist movement of strumming guitar | D66a) Indiv participant imitate therapist's strumming |
| E91a) Indiv participant imitate movement of a crab | | C98a) Indiv participant imitates therapist guitar playing | D107b) Participants imitating physical movements from each other |
| H23b) Indiv imitate PCS by pointing to herself | | C104a) Indiv participant imitates therapist movement of playing guitar | F33a) Participants imitate vigorous body movements from each other |
| H136a) Indiv participant imitate the trunk of an elephant | | E57b) Indiv participant imitates therapist by directing attention to PCS | F48a) Indiv imitates therapist rocking movement with nodding of head |
| J10a) Indiv imitate intended PCS by pointing to herself | | H132a) Participants imitate therapist rocking movements | F68b) Participants imitate therapist by pretending to play guitar |
| J42a) Indiv imitates PCS by pointing to herself | | | F136a) Indiv copies therapist's playing of the guitar with |

| | | | |
|---|--|--|---|
| | | | physical imitation |
| J58a) Indiv imitate PCS by pointing to herself | | | I35b) Indiv imitates therapist by nodding head to pulse of music |
| L10d) Indiv participant imitate the trunk of an elephant | | | I63a) Participants imitates therapist rocking movement |
| L26a) Indiv participant imitate the trunk of an elephant | | | I71a) Participants imitate therapist's slow upper body rocking movement |
| L42b) Indiv imitates the movement of a horse | | | I89g) Indiv imitates therapist's rocking body movement |
| C8a) Indiv participant imitates PCS by pointing downwards | | | K66a) Indiv imitate other indiv physical movements associated with animal in song |
| C9b) Indiv participant imitates PCS by pointing to himself | | | |
| A41a) Indiv participant imitates PCS by pointing to himself and imitate swimming fish | | | |
| L9d) Indiv participant imitates PCS by waving hello | | | |
| L16a) Indiv imitates PCS of slithering snake | | | |

Table 2

| Seeing and doing | | | |
|--|--|---|--|
| <u>Participant vocal imitation of therapist and others</u> | <u>Participant vocal imitation of therapist and others</u> | <u>Participant vocal imitation of PCS</u> | |
| L15a) Participants imitate therapist vocal sound | G39a) Participants imitate vocal sound of therapist | H58b) Indiv imitate vocal sound of animal being greeted | |
| J26b) Participants imitate therapist's vocal sound | | L10e) Indiv imitate vocal sound of animal being greeted | |
| | | L27a) Indiv imitate vocal sound of animal being greeted | |
| | | H58b) Indiv imitate vocal sound of animal being greeted | |
| | | H74a) Indiv imitate vocal sound of animal being greeted | |

Appendix AL: Word concept formulation

Table 1

| Word concept formulation | | | | | |
|---|---|--|---|--|---|
| <u>Lyrics associated with real life events/memories</u> | <u>Lyrics associated with real life events/memories</u> | <u>Association of intended meaning of lyrics with movement</u> | <u>Association of intended meaning of lyrics with movement</u> | <u>Association of intended meaning of lyrics with vocal sounds</u> | <u>Association of intended meaning of lyrics with vocal sounds</u> |
| | B2a) Two individuals associated with real life memories | | B28a) Indiv Associate intended lyrics with movement of an animal | | K65a) Indiv participant make animal vocal sounds with therapist |
| | B53b) Indiv participant associates song with animal in real life | | B53a) Indiv participant imitate animal movement | | K65b) Other indiv join therapist and indiv with vocal imitation of animal sound |
| | B55b) Indiv participant verbally makes own interpretation and description of animal | | B113b) Two Indiv imitate animal movement | | B71a) Indiv imitate animal verbal sounds |
| | B55a) Indiv verbally associates lyrics with real life animal | | B113c) Two Indiv associate imitation of animal movement with song | | H30b) Indiv imitate vocal sound of animal |

| | | | | | |
|--|--|--|--|--|--|
| | B57b) Indiv associates animal with color | | G30a) Indiv imitate movement of animal | | G32e) Indiv imitate movement and vocal sound of animal |
| | B72a) Indiv participant associates song with animal in real life | | G32e) Indiv imitate movement and vocal sound of animal | | G34a) Indiv imitates physical movement and vocal sound of animal |
| | B72b) Indiv participant makes own interpretation and description of animal | | G34a) Indiv imitates physical movement and vocal sound of animal | | G40a) Indiv imitates physical movement and vocal sound of animal |
| | B101b) Participant associates color of with animal | | G40a) Indiv imitates physical movement and vocal sound of animal | | G48a) Indiv imitate vocal sound of animal with high energy and playfulness |
| | B108a) Participants eagerly verbally explain lyrics to therapist | | D25a) Indiv participant imitate animal movement | | G79b) Indiv associate lyrics to real life animal sounds |
| | G14a) Indiv gives correct intended meaning of the songs theme | | D81d) Indiv physically imitate lyrics of the song by waving | | G82a) Indiv imitates animal vocal sound loudly and energetically |

| | | | | | |
|--|---|--|--|--|---|
| | G17a) Indiv associate theme of song with a film | | D167b) Indiv participant physically imitate lyrics | | K67b) Indiv imitate vocal sound of animal |
| | D25c) Indiv associates own related meaning to song theme | | F8b) Indiv imitate movement of animal in song | | K70c) Indiv imitate vocal sounds of an animal loudly and energetically |
| | D145c) Indiv associates lyrics with real life animal | | K65c) Indiv imitate physical movements associated with animal in song | | K85b) Indiv imitate vocal sound of animal |
| | F13c) Indiv pretends to hold related object to theme of the music | | K67a) Indiv imitate physical movements associated with animal in song | | K88e) Indiv makes vocal imitation of animal sounds |
| | | | K86c) Indiv imitates animal movement energetically | | K90a) Indiv eagerly responds with physical and vocal imitation of animal |
| | | | K90a) Indiv eagerly responds with physical and vocal imitation of animal | | K94a) Participants eagerly answer therapist with physical and vocal imitations of animals in the song |

| | | | | | |
|--|--|--|---|--|--|
| | | | K94a) Participants eagerly answer therapist with physical and vocal imitations of animals in the song | | K95a) Participants respond with physical movements and vocal imitations of animal in song |
| | | | | | K96a) Participants take part in activity with enthusiasm and over exaggerated vocal sounds |
| | | | | | K97a) Participants exaggerates imitation of vocal animal sound playfully |

Appendix AM: Learning process in sessions

Table 1

| Learning process in sessions | | | | | |
|------------------------------|---------------------------|---------------------------|---------------------------|---|--|
| <u>Facial expressions</u> | <u>Facial expressions</u> | <u>Participants laugh</u> | <u>Participants laugh</u> | <u>Participants misunderstands therapist's verbal instructions/invita</u> | <u>Participants misunderstanding of therapist's verbal instructions/invitati</u> |

| | | | | | |
|----------------------------------|--|--|---|---|---|
| | | | | <u>tions</u> | <u>ons</u> |
| A14c) Blunted facial expressions | B8c) Participants blunted facial expressions | | B15a) Indiv giggles | E32a) Indiv participant misunderstands therapist invitation to strum guitar | K85a) Indiv misunderstand therapist instructions to sing animal names |
| A28d) Blunted facial expressions | B12c) Blunted facial expressions | | D98a) Participants respond with giggling | E35a) Indiv participant confused by therapist's instructions | K88a) Two participants confused about lyrical change |
| A32c) Blunted facial expressions | B27c) Blunted facial expressions | | D156b) Participants express joy by giggling | E39a) Indiv participant unsure of verbal instruction of pointing PCS | K88d) Two indiv unsure of instructions to imitate animal vocal sounds |
| A39c) Blunted facial expressions | B32e) Blunted facial expressions | | D159a) Participants express joy and excitement through laughter | J49a) Indiv confused by therapist's invitation | |
| A57c) Blunted facial expressions | B36b) Blunted facial expressions | | D161c) Participants smile and laugh | | |
| A62e) blunted facial expressions | B43d) blunted facial expressions | | F30a) Participants laugh and smile widely | | |

| | | | | | |
|----------------------------------|---|--|--|--|--|
| A68c) Blunted facial expressions | B48e) Blunted facial expressions | | F39a) Participants laugh and smile widely | | |
| A85c) Blunted facial expressions | B76b) Participants facial expressions shift from blunted to smiling | | F53a) Two indiv laugh loudly at other indiv | | |
| C5d) Blunted facial expressions | B82b) Indiv blunted facial expression | | F59a) Participants laugh and smile widely | | |
| C22b) Blunted facial expression | B122a) Participants blunted facial expressions | | F68a) Participants smile and laugh loudly | | |
| C51c) Blunted facial expressions | G8c) Blunted facial expressions | | F79b) Participants laugh loudly | | |
| E7b) Blunted facial expressions | H21c) Blunted facial expressions | | F87a) Participants laugh loudly | | |
| E21c) Blunted facial expressions | G29c) Blunted facial expressions | | F108a) Participants respond in excitement and laughter | | |
| E27b) Bunted facial expressions | G32g) Participants blunted facial expressions | | F115b) Participants respond with excitement and laughter | | |

| | | | | | |
|----------------------------------|---|--|---|--|--|
| E62d) Blunted facial expressions | G46b) Blunted facial expressions | | F159a) Participants respond with laughter | | |
| H15b) blunted facial expressions | G50d) Blunted facial expressions | | F163a) Participants respond with loud laughter | | |
| H65d) Blunted facial expressions | G58c) Blunted facial expressions | | D106a) Participants laugh and smile widely | | |
| H81c) blunted facial expressions | G61b) Participants blunted facial expressions | | D134d) Participants smile and laugh | | |
| H91d) Blunted facial expressions | G71a) Participants blunted facial expressions | | D143b) Indiv participant expresses joy through laughter and smiling | | |
| J11e) Blunted facial expressions | G75b) Indiv blunted facial expression | | D161c) Participants smile and laugh | | |
| J31c) Blunted facial expressions | G78d) Blunted facial expressions | | | | |
| J67c) Blunted facial expressions | G84b) Participants blunted facial expressions | | | | |
| J85c) Blunted facial expressions | G87a) Participants blunted facial expressions | | | | |

| | | | | | |
|---|---|--|--|--|--|
| L4c) Blunted facial expressions | D5e) Blunted facial expressions | | | | |
| L22d) Blunted facial expressions | D12e) Participants blunted facial expressions | | | | |
| L25b) Sitting indiv has blunted facial expression | D20b) Blunted facial expressions | | | | |
| L31d) Participants blunted facial expressions | D28c) Blunted facial expressions | | | | |
| L31c) Therapist blunted facial expression | D33e) Blunted facial expressions | | | | |
| E87c) Participants have curios facial expressions | D39b) Participants blunted facial expressions | | | | |
| C22d) Two indiv smile | D48b) Blunted facial expressions | | | | |
| C23a) Indiv participant smiles widely | D49a) blunted facial expressions | | | | |
| C39c) Participants smile | D57a) Participants blunted facial expressions | | | | |
| C95c) Participants smile | D71e) Participants blunted facial | | | | |

| | | | | | |
|--|---|--|--|--|--|
| | expressions | | | | |
| E80a) Participants facial expression indicate emotions of excitement and joy | I5a) Participants blunted facial expressions | | | | |
| E80b) Participants smile | I12b) blunted facial expressions | | | | |
| E94b) Participants smile | I17d) Two participants blunted facial expressions | | | | |
| E127f) Participants smile | I29b) Blunted facial expressions | | | | |
| E136b) Indiv facial expression indicate emotions of joy and silliness | I33c) Blunted facial expressions | | | | |
| H33c) Indiv smiles widely | I37d) Blunted facial expressions | | | | |
| H96c) Participants smile | I41b) Blunted facial expressions | | | | |
| H134b) Participants smile | I49e) Blunted facial expressions | | | | |

| | | | | | |
|---------------------------------|---|--|--|--|--|
| J7c) Participants smile | I104c) Blunted facial expressions | | | | |
| J38b) Indiv smiles | K7e) Blunted facial expressions | | | | |
| J54c) Participants smile widely | K18f) Two indiv blunted facial expressions | | | | |
| J54c) Participants smile widely | K26d) Blunted facial expressions | | | | |
| J56a) Indiv smiles | K36d) Strumming indiv blunted facial expression | | | | |
| L10g) Indiv smiles | K72c) Two indiv blunted facial expressions | | | | |
| L11g) Indiv smiles | K82c) Blunted facial expressions | | | | |
| L14c) Participants smile | K85e) Participants blunted facial expressions | | | | |
| L27b) indiv smiles | K96c) Participants blunted facial expressions | | | | |
| L32c) Indiv giggles and smiles | K97b) Indiv frowns | | | | |

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|--|--|--|--|--|--|
| L45a) Pointing indiv smiles | F120d) Participants body language and facial expressions indicate anticipation and curiosity | | | | |
| L48a) Pointing indiv smiles | B53d) Indiv smiles | | | | |
| L58e) Indiv smiles widely | B76b) Participants facial expressions shift from blunted to smiling | | | | |
| L86e) Participants smile | B88c) Indiv smiles | | | | |
| L86c) Sitting indiv smiles and laughs loudly | H30c) Indiv smiles widely | | | | |
| L90e) Sitting indiv smiles widely | G32h) Indiv smiles widely | | | | |
| | G43b) Indiv smiles proudly for brief moment | | | | |
| | G58d) Indiv smiles | | | | |
| | D12c) Indiv participant portrays emotions of enjoyment through facial expression | | | | |

| | | | | | |
|--|---|--|--|--|--|
| | D12d) Indiv smiles | | | | |
| | D46c) Indiv smiles | | | | |
| | D50a) Indiv occasionally smiles | | | | |
| | D70c) Indiv smiles widely | | | | |
| | D71f) Indiv smiles when singing | | | | |
| | D81a) Participants smile widely | | | | |
| | D89c) Participants smile widely | | | | |
| | D98c) Participants smile | | | | |
| | D106a) Participants laugh and smile widely | | | | |
| | D134d) Participants smile and laugh | | | | |
| | D143b) Indiv participant expresses joy through laughter and smiling | | | | |

| | | | | | |
|--|---|--|--|--|--|
| | D154d) Participants smile | | | | |
| | D161c) Participants smile and laugh | | | | |
| | D165c) Participants smile | | | | |
| | F11c) Participants smile | | | | |
| | F12c) Two participants smile widely | | | | |
| | F19b) Participants smile widely | | | | |
| | F30a) Participants laugh and smile widely | | | | |
| | F39a) Participants laugh and smile widely | | | | |
| | F50g) Participants smile widely | | | | |
| | F59a) Participants laugh and smile widely | | | | |
| | F68a) Participants smile and laugh loudly | | | | |

| | | | | | |
|--|--|--|--|--|--|
| | F99b) Indiv smiles | | | | |
| | F106d) Participants smile | | | | |
| | F113a) Indiv smiles | | | | |
| | F116b) Participants smile | | | | |
| | F122b) Participants smile | | | | |
| | F127b) Participants smile widely | | | | |
| | F132c) Participants smile | | | | |
| | F140b) Participants smile | | | | |
| | F142b) Participants smile widely | | | | |
| | F144c) Participants smile | | | | |
| | I63e) Participants smiles at therapist and | | | | |

| | | | | | |
|--|---|--|--|--|--|
| | each other | | | | |
| | I60c) Indiv smiles widely | | | | |
| | I63b) Participants smile | | | | |
| | I81d) Indiv smiles at therapist and other indiv | | | | |
| | I85d) Participants cheerfully smile at each other | | | | |
| | I89f) Indiv smiles widely | | | | |
| | I97d) Participants smile widely | | | | |
| | I112d) Participants smile widely | | | | |
| | I177c) Participants smiles widely | | | | |
| | K12c) Indiv smiles widely | | | | |
| | K13b) Indiv smiles | | | | |
| | K18g) Indiv smiles at | | | | |

| | | | | | |
|--|---------------------------------|--|--|--|--|
| | therapist | | | | |
| | K54e) Participants smile widely | | | | |
| | K66c) Two indiv smile widely | | | | |
| | K85f) Indiv smiles | | | | |
| | K96b) Indiv smiles | | | | |

Table 2

| Learning process in sessions | | | |
|--|--|---|---|
| <u>Participant body language</u> | <u>Participants body language</u> | <u>Eye contact</u> | <u>Eye contact</u> |
| A40a) Indiv relaxed body language | B9a) Indiv participant sits in relaxed slouched position | C83a) Participants make eye contact with therapist | B7a) Participants make eye contact with therapist |
| A63b) Indiv body language indicate excitement and eagerness to participate | B9c) Indiv participant relaxed and comfortable body language | C105c) Participants occasionally make meaningful eye contact with therapist | B53c) Indiv makes meaningful eye contact with therapist |

| | | | |
|---|--|---|---|
| C13a) Participant body language indicate interest and eagerness to participate | B103d) Indiv body language indicate interest and excitement | E79b) Participants make meaningful eye contact with therapist and each other | B55c) Indiv makes eye meaningful contact with therapist |
| C35b) Participants body language indicate interest and excitement | B106a) Therapist body language is inviting | E89d) Participants make meaningful eye contact with therapist and each other | B76c) Participants occasionally make meaningful eye contact with therapist and each other |
| C39f) Participants body language indicate interest and excitement | B114e) participants body language indicates eagerness to participate | E127a) Participants make meaningful eye contact with therapist and each other | B97b) Participants make meaningful eye contact with therapist and each other |
| C56b) Participants body language indicate excitement and eagerness to participate | B122d) Body language shift to still and closed off | E127b) Indiv pointing to PCS make no eye contact with others | B108b) Participants make meaningful eye contact with therapist |
| C62a) Participants body language indicate excitement and eagerness to participate | D12a) Participants physically respond in robotic manner | E134a) Participants make meaningful eye contact with therapist | B111c) Participants make meaningful eye contact with therapist |
| E61a)Participants body posture indicate excitement and eagerness to participate | D147a) Participants body language is engaging and indicate eagerness and excitement to participate | H19b) Therapist occasionally make eye contact with participants | G4a) Indiv makes meaningful eye contact with therapist |
| E66b) Indiv body language indicates excitement and eagerness to participate | F70c) Participants body language indicate eagerness and excitement to participate | H42a) Therapist makes meaningful eye contact with participants | H30f) Indiv makes eye contact with participants |

| | | | |
|--|--|--|---|
| E140a) Participants body posture indicate excitement and eagerness to participate | F120d) Participants body language and facial expressions indicate anticipation and curiosity | H65b) Therapist attempts to make eye contact with participants | G33a) participants make eye contact with therapist |
| H99c) Indiv moves around in chair suggesting boredom | I52c) Participants body language indicate excitement and eagerness to participate | H77e) Participants make meaningful eye contact with each other and therapist | G58b) Participants make eye contact with therapist |
| H135d) Participants body posture indicate social engagement and eagerness to participate | I60d) Participants body language indicate excitement, openness and eagerness to participate | J32a) Participants make occasional eye contact with therapist and each other | G71d) Participants make eye contact with therapist |
| J7d) Participants body language indicate excitement and eagerness to participate | I81f) Indiv body language indicate excitement and eagerness to participate | L14d) Participants make meaningful eye contact with therapist | G78e) Participants occasionally make eye contact with therapist |
| J21b) Indiv body language indicate excitement and eagerness to participate | I116c) Participants body language indicate excitement and eagerness to participate | L22c) No eye contact between therapist and participants | G88d) Indiv makes eye contact with indiv participants and therapist |
| J76a) Participants body language indicate excitement and eagerness to participate | K54c) Participants body language indicates excitement and eagerness to participate | L27c) Indiv makes meaningful eye contact with therapist | D5d) Participants occasionally make eye contact with therapist and each other |
| L11f) Participants body language indicate eagerness and excitement to participate | K86a) Indiv participants body language indicate excitement and eagerness to participate | L32d) Indiv makes meaningful eye contact with therapist | D14b) Participants make eye contact with therapist |

| | | | |
|--|--|---|--|
| L15c) Participants body language indicates eagerness to participate | | L48c) Indiv makes meaningful eye contact with therapist | D46d) Indiv makes meaningful eye contact with therapist |
| L84a) Indiv body language indicate excitement and eagerness to participate | | L58d) Indiv makes meaningful eye contact with therapist and participant | D48a) Participants make eye contact with therapist |
| | | L63d) Participants make meaningful eye contact with therapist | D50b) Indiv attempts to make meaningful eye contact with other group member |
| | | L86g) Participants makes meaningful eye contact with therapist | D89e) Participants body language indicate excitement and interest in the music |
| | | L74c) Participants make meaningful eye contact with therapist | D101a) Participants make eye contact with therapist and each other |
| | | L90b) Sitting indiv makes healthy eye contact with therapist | D107a) Participants make meaningful eye contact with therapist and each other |
| | | | D117e) Participants make meaningful eye contact with therapist and each other |
| | | | D119a) Participants make meaningful eye contact with therapist |

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| | | D126c) Participants make meaningful eye contact with therapist |
| | | D129b) Participants make meaningful eye contact with therapist |
| | | D134c) Participants make meaningful eye contact with therapist |
| | | D137a) Therapist makes meaningful eye contact with participants |
| | | D154e) Participants make meaningful eye contact with therapist |
| | | D156c) Participants make meaningful eye contact with therapist and each other |
| | | D159b) Participants make meaningful eye contact with therapist and each other |
| | | D161d) Participants make meaningful eye contact with each other and the therapist |

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|--|--|--|---|
| | | | D172c) Participants make meaningful eye contact with therapist |
| | | | D174a) Participants make meaningful eye contact with therapist and each other |
| | | | F11b) Participants make eye contact with therapist and each other |
| | | | F12d) Individ make meaningful eye contact with therapist |
| | | | F16b) Participants make meaningful eye contact with therapist and each other |
| | | | F26a) participants make meaningful eye contact with therapist and each other |
| | | | F30b) Participants make meaningful eye contact with each other |
| | | | F35a) Therapist makes meaningful eye contact with participants |
| | | | F41a) Participants make meaningful eye contact with |

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|--|--|--|---|
| | | | therapist and each other |
| | | | F42b) Therapist makes meaningful eye contact with participants |
| | | | F50f) Participants make meaningful eye contact with therapist and with each other |
| | | | F53b) Two participants make meaningful eye contact with indiv |
| | | | F60 Participants make meaningful eye contact with therapist and each other |
| | | | F67b) Therapist makes meaningful eye contact with participants |
| | | | F67c) Participants make meaningful eye contact with therapist |
| | | | F70a) Participants make meaningful eye contact with therapist and each other |
| | | | F84a) Therapist makes meaningful eye contact with |

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|--|--|--|---|
| | | | indiv |
| | | | F85b) Indiv makes meaningful eye contact with therapist |
| | | | F88a) Participants make meaningful eye contact with therapist and each other |
| | | | F99c) Indiv makes meaningful eye contact with therapist |
| | | | F106b) Participants make eye contact with therapist |
| | | | F113b) Indiv makes meaningful eye contact with therapist |
| | | | F116a) Participants make meaningful eye contact with therapist and each other |
| | | | F120c) Participants make meaningful eye contact with therapist |
| | | | F122a) Participants make eye contact with therapist |

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|--|--|--|---|
| | | | F124a) Participants make meaningful eye contact with therapist |
| | | | F130a) Participants make meaningful eye contact with therapist |
| | | | F132a) Participants make meaningful eye contact with therapist |
| | | | F140c) Participants make meaningful eye contact with therapist |
| | | | F144d) Participants make meaningful eye contact with therapist |
| | | | F152c) Participants make meaningful eye contact with therapist and each other |
| | | | F158c) Participants make meaningful eye contact with therapist |
| | | | I5c) Participants make eye contact with therapist |
| | | | I13a) Therapist makes eye |

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|--|--|--|--|
| | | | contact with participants |
| | | | I22c) Indiv makes meaningful eye contact with therapist |
| | | | I22f) Participants makes meaningful eye contact with therapist |
| | | | I25c) Participants make meaningful eye contact with therapist |
| | | | I28a) Participants make meaningful eye contact with therapist |
| | | | I29a) Therapist make meaningful eye contact with each indiv participant |
| | | | I42a) Therapist make meaningful eye contact with each indiv participants |
| | | | I46c) Indiv makes meaningful eye contact with other indiv |
| | | | I53a) Participants make meaningful eye contact with therapist |

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|--|--|--|--|
| | | | I53d) Participants make meaningful eye contact with therapist |
| | | | I59b) Participants make meaningful eye contact with therapist and each other |
| | | | I60b) Indiv makes meaningful eye contact with other indiv |
| | | | I64a) Therapist makes meaningful eye contact with participants |
| | | | I73c) Participants make meaningful eye contact with therapist |
| | | | I78b) Participants make meaningful eye contact with therapist and others |
| | | | I81e) Indiv makes meaningful eye contact with therapist and other indiv |
| | | | I85e) Participants make meaningful eye contact with each other and therapist |
| | | | I89e) Participants makes meaningful eye contact with |

| | | | |
|--|--|--|---|
| | | | therapist |
| | | | I93d) Participants make meaningful eye contact with therapist |
| | | | I97c) Participants make meaningful eye contact with therapist |
| | | | I97e) participants make meaningful eye contact with each other |
| | | | I108e) Participants makes meaningful eye contact with therapist |
| | | | I112c) Participants make meaningful eye contact with therapist |
| | | | I177d) Indiv makes meaningful eye contact with other indiv |
| | | | K7b) Participants occasionally make eye contact with therapist |
| | | | K13d) Participants make meaningful eye contact with |

| | | | |
|--|--|--|---|
| | | | therapist |
| | | | K15c) Indiv makes meaningful eye contact with therapist |
| | | | K18d) Two indiv make eye contact with therapist |
| | | | K54d) Participants make meaningful eye contact with therapist and each other |
| | | | K66b) Indiv participants make meaningful eye contact with therapist and other indiv |
| | | | K69c) Participants makes meaningful eye contact with therapist and each other |
| | | | K72d) Participants makes meaningful eye contact with therapist |
| | | | K75c) Participants make meaningful eye contact with therapist |
| | | | K90b) Indiv makes eye contact with therapist |
| | | | K97c) Indiv makes meaningful |

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|--|--|--|--|
| | | | eye contact with therapist |
| | | | K100d) Participants make meaningful eye contact with therapist |

Appendix AN: Therapist's interactive role

Table 1

| Therapist's interactive role | | | | | |
|--|---|--------------------------------|--|--|---|
| <u>Therapist facial expressions</u> | <u>Therapist facial expressions</u> | <u>Therapist body language</u> | <u>Therapist body language</u> | <u>Therapist's non-verbal interaction</u> | <u>Therapist's non-verbal interaction</u> |
| C83b) Therapist has inviting and uplifting facial expression | B7b) Therapist facial expression is cheerful and inviting | | B32e) Therapist body language is inviting | A70a) Therapist adds guitar accompaniment | B56a) Therapist imitate participants movement |
| - | B32d) Therapist smiles | | D40e) Therapist body language inviting and high energy | C49a) Therapist support indiv participant musically | I66a) Therapist unpredictable start singing and playing |
| | | | F42c) Therapist interacts playfully | C68a) Therapist support indiv participant musically | B33a) Therapist attempts to shift energy of the music |
| | | | I53b) Participants dependent on therapist musical cues | H80a) Therapist alternate directing attention to PCS and | B49a) Therapist introduce chorus |

| | | | | | |
|--|--|--|--|--|--|
| | | | and body language | strumming of guitar | section to participants |
| | | | I73a) Therapist body language and facial expression is inviting and open | H90a) Therapist alternate directing attention to PCS and strumming of guitar | D3b) Therapist musically support indiv by adding guitar accompaniment to indiv singing |
| | | | I78a) Therapist leans forward to middle of group | C49c) Therapist presses guitar chords | F65b) Therapist continues music unexpectedly |
| | | | I99d) Therapist uses body language to indicate musical cues | H22a) Therapist nonverbally confirm indiv answer by repeating the word | F114a) Therapist suddenly continues the song |
| | | | K82f) Therapist uses body language to indicate musical cues | E111b) Therapist non-verbally allows two participants to continue singing with high pitched voices | I66a) Therapist unpredictable start singing and playing |
| | | | | | K5a) Therapist continue music at a moderately slow tempo |
| | | | | | K25a) Therapist press chords |

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|--|--|--|--|--|------------------------------------|
| | | | | | G69a) Therapist plays introduction |
|--|--|--|--|--|------------------------------------|

Table 2

| Therapist's interactive role | | | | | |
|--|---|--|--|-----------------------------|--|
| <u>Therapist's verbal interaction</u> | <u>Therapist's verbal interaction</u> | <u>Therapist's non-verbal modeling</u> | <u>Therapist's non-verbal modeling</u> | <u>Therapist's presence</u> | <u>Therapist's presence</u> |
| J26a) Therapist emphasize "s" sound | B25a) Therapist verbally introduce second line of verse | E56a) Therapist assist indiv participant by modelling pointing to PCSS | B79b) Therapist model hand gesture to participants | | D47a) Therapist sings with participants cheerfully |
| L14a) Therapist emphasize "s" sound | B57a) Therapist verbally explain line | H95b) Therapist models pointing to PCS | D65a) Therapist models strumming of guitar | | |
| L86a) Therapist struggle to match indiv music with voice | B60a) Therapist verbally explain line | L78a) Therapist models guitar strumming | | | |
| L87b) Therapist match indiv strumming with voice | B78a) Therapist verbally explain line | H98a) Therapist models pointing to PCS to indiv | | | |

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|---|--|--|--|--|--|
| C29a) Therapist sings melody and lyrics loud and clear | B109a) Therapist verbally prepare participants of next sung lyrics | H101b) Therapist models pointing to PCS to indiv | | | |
| A11a) Therapist verbally model melody and rhythm of first verse section | G16a) Therapist verbally explain theme of song | J50a) Therapist model by pointing to appropriate PCS | | | |
| C93a) Therapist verbally explain song structure to participants | D64a) Therapist verbally acknowledges Indiv participants imitation of a dinosaur | | | | |
| E111a) Therapist verbally acknowledge indiv wishes | D84a) Therapist verbally acknowledge Indiv participants imitation of a dinosaur | | | | |
| H89b) Therapist verbally remind participant of new song | D146a) Therapist verbally acknowledge Indiv participant explanation of animal | | | | |
| H119a) Therapist verbally confronts indiv | F4a) Therapist verbally confirms indiv correct answer of animal | | | | |

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|---|--|--|--|--|--|
| J9b) Therapist verbally introduce melody | G93a) Therapist verbally acknowledge indiv upset emotions | | | | |
| J43b) Therapist verbally assist pointing participant by reminding the song form | G3a) Therapist verbally acknowledge indiv concern of absent PCS board | | | | |
| J46b) Therapist verbally assist pointing indiv | G91a) Therapist verbally explain absence of PCSs | | | | |
| J54b) Therapist verbally remind pointing indiv of song form | K80a) Therapist verbally explain that lyrics change to animal vocal sounds | | | | |
| J48a) Therapist verbally thanks volunteer indiv | B46a) Therapist verbally encourage indiv participants to sing | | | | |
| L80a) therapist verbally count music in | B38a) Therapist count participants in with enthusiasm | | | | |
| J86a) Therapist verbally remind pointing indiv of song form | G26a) Therapist sings line | | | | |

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|---|---|--|--|--|--|
| H103a) Therapist verbally acknowledge indiv | K64a) Therapist imitates animal sound alone | | | | |
|---|---|--|--|--|--|

Table 3

| Therapist's interactive role | | | | | |
|--|---|---|---|---|--|
| <u>Therapist invites participants to read PCS by themselves</u> | <u>Therapist invites participants to read PCS by themselves</u> | <u>Therapist invites individual to strum guitar</u> | <u>Therapist invites individual to strum guitar</u> | <u>Therapist invites individual to point PCSS</u> | <u>Therapist invites individual to point PCS</u> |
| L11a) Therapist invites participants to read PCS by themselves | | C43a) Therapist invite indiv participant to strum guitar | D58a) Therapist invite indiv participant to strum guitar | C91a) Therapist invite indiv participant to point to PCSS | |
| L12a) Therapist invite participants to read PCS by themselves | | C55a) Therapist invite participants to volunteer strumming the guitar | D61a) Therapist verbally invite indiv participant to strum guitar | E31a) Therapist invite indiv participant to point to PCS | |
| L51a) Therapist verbally invite participants to read PCS by themselves | | C57a) Therapist verbally invite indiv participant to strum the guitar | D73a) Therapist invite indiv participant to strum | E38a) Therapist invite indiv to point PCS | |
| E129a) Therapist invites participants to read PCS by themselves | | C61a) Therapist invite participants to volunteer strumming of guitar | D82a) Therapist invite indiv participant to strum guitar | E101a) Therapist invite indiv participant to point PCS | |

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|--|--|--|--|--|--|
| | | C63a) Therapist invite indiv participant to strum guitar | D84b) Therapist invite indiv to strum guitar | E114b) Therapist verbally invite indiv to point to PCS | |
| | | C69a) Therapist invite indiv participant to strum guitar | D91a) Therapist invite indiv participant to strum guitar | E121c) Therapist verbally invite indiv to point PCS | |
| | | C72a) Therapist invite indiv participant to strum guitar | K19b) Therapist invite indiv participant to strum guitar | H94a) Therapist invite indiv participant to point PCS | |
| | | E33b) Therapist invite participant to strum guitar | K27c) Therapist invite indiv participant to strum guitar | J34a) Therapist invite indiv participant to point PCS | |
| | | L77a) Therapist invite indiv participant to strum guitar | K36a) Therapist invite indiv participant to strum guitar | J48b) Therapist invite indiv to point PCS | |
| | | L83a) Therapist invite indiv participant to strum guitar | | J63a) Therapist invite participant to point PCS | |

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|--|--|--|--|---|--|
| | | L88a) Therapist invite indiv participant to strum guitar | | L18a)Therapist invite indiv participant to point PCS | |
| | | | | L33a) Therapist invite indiv participant to point PCS | |
| | | | | | |

Table 4

| Therapist's interactive role | | | | | |
|---|---|--|---|--|--|
| <u>Therapist invites individual/ participants to sing</u> | <u>Therapist invites individual/ participants to sing</u> | <u>Therapist verbally affirms participants participation</u> | <u>Therapist verbally affirms participants participation</u> | <u>Therapist verbally speak lyrics</u> | <u>Therapist verbally speak lyrics</u> |
| A12a) Therapist invite participants to sing | B8a) Therapist invite participants to sing | H125a) Therapist verbally affirm participants response | B102a) verbally affirms participants for associating the animal with a color | J6b) Therapist read PCS words out loud | |
| A18a) Therapist invite participants to sing | B17a) Therapist invite participants to sing | H142a) Therapist verbally affirm indiv | B123a) Therapist verbally affirms participants at the end of the song for their | | |

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|--|--|--|--|--|--|
| | | | efforts | | |
| A35a) Therapist verbally invite participants to sing | B20a) Therapist invite participants to sing | J15b) Therapist verbally affirm indiv | D44a) Therapist verbally affirms indiv for remembering the animal | | |
| A54a) Therapist invite participants to sing | B29a) Therapist invite participants to sing | J62a) Therapist verbally affirm indiv | D90a) Therapist verbally affirms indiv participant for strumming the guitar | | |
| A58a) Therapist invite participants to sing | B37a) Therapist verbally invite indiv participants to sing | J93a) Therapist verbally affirm indiv pointing indiv | D102a) Therapist verbally affirms indiv participant for strumming the guitar | | |
| C79a) Therapist verbally invite participants to sing | B45a) Therapist verbally invite participants to sing | L91a) Therapist verbally affirm indiv | G15a) Therapist verbally affirms indiv for remembering the songs theme | | |

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|---|---|----------------------------------|---|--|--|
| E128a) Therapist invite participants to sing | B62a) Therapist verbally invite participants to sing | E148a) Therapist verbally affirm | G44a) Therapist verbally affirms participant for remembering the animal | | |
| H31a) Therapist verbally invite participants to sing | B64b) Therapist invite participants to sing | A88a) Therapist verbally affirm | G67a) Therapist verbally affirms participants for remembering the song | | |
| H36a) Therapist verbally invite participants to sing | B83a) Therapist invite participants to sing | | I17a) Therapist verbally affirms indiv for remembering lyrics | | |
| H59a) Therapist verbally invite participants sing | B86a) Therapist verbally invite participants to participate | | K4a) Therapist verbally affirms indiv for remembering the lyrics | | |
| H114a) Therapist verbally invite participants to sing | G19a) Therapist invite participants to sing | | K27b) Therapist verbally affirms indiv for strumming the guitar | | |
| H127a) Therapist verbally invite participants to sing | G24a) therapist verbally invite participants to sing | | K43a) Therapist verbally affirms indiv for strumming the guitar | | |

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|---|---|--|---|--|--|
| J70a) Therapist verbally invite participants to sing | G41b) Therapist verbally invite participants to sing | | K61a) Therapist verbally affirms indiv for imitating an animal sounds | | |
| J78a) Therapist verbally invite participants to sing | G68a) Therapist verbally invite participants to sing | | K91a) Therapist verbally affirms indiv for imitation of an animal sound | | |
| L23b) Therapist verbally invite indiv participant to sing | D9b) Therapist invite participants to sing | | K98a) Therapist verbally affirms participants for accurate vocal imitation of animal sounds | | |
| L29a) Therapist verbally invite pointing indiv to sing | D40a) Therapist invite participants to sing by themselves | | | | |
| L73c) Therapist verbally invite participants to sing | D45a) Therapist invite participants to sing by themselves | | | | |
| | D80a) Therapist verbally invite participants to sing | | | | |
| | D92a) Therapist invite participants to sing | | | | |

| | | | | | |
|--|--|--|--|--|--|
| | D111c) Therapist invite participants to sing by themselves | | | | |
| | Therapist invite participants to sing by themselves | | | | |
| | I21a) Therapist invite participants sing by themselves | | | | |
| | K34f) Therapist invite participants to sing | | | | |
| | K79b) Therapist invite indiv participant to sing | | | | |
| | K9a) Participants invited to sing by themselves | | | | |

Table 5

| Therapist's interactive role | | | | | |
|--|--|--|--|---|---|
| <u>Therapist verbally reminds participants of lyrics</u> | <u>Therapist verbally reminds participants of lyrics</u> | <u>Therapist verbally speak lyrics</u> | <u>Therapist verbally speak lyrics</u> | <u>Therapist invites individual/ participants to imitate vocal sounds</u> | <u>Therapist invites individual/ participants to imitate vocal sounds</u> |

| | | | | | |
|--|---|--|---|--|---|
| | B87b) Therapist give verbal reminder of lyrics for chorus | | G25a) Therapist verbally tell participants lyrics of chorus | | K89a) Therapist invite indiv to imitate animal vocal sound |
| | B89a) Therapist give verbal reminder of lyrics for chorus | | G28a) Therapist verbally tell participants lyrics of chorus | | K93a) Therapist invite participants to make vocal imitations of animals |
| | B105a) Therapist give verbal reminder of lyrics of chorus | | G31a) Therapist verbally speak lyrics for chorus | | |
| | B109a) Therapist give verbal reminder of lyrics of chorus | | G37a) Therapist verbally speak lyrics for chorus | | |
| | B112a) Therapist give verbal reminder of lyrics for chorus | | | | |
| | D26a) Therapist verbally remind participants of lyrics for chorus | | | | |

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|--|--|--|--|--|--|
| | D140a) Therapist verbally remind indiv of lyrics for chorus | | | | |
| | I24a) Therapist give vocal imitation as reminder of the lyrics for chorus | | | | |
| | K87b) Therapist verbally remind participants of lyrical changes to vocal sounds for chorus | | | | |
| | D169f) Therapist remind participants of lyrics for chorus | | | | |

Table 6

| Therapist's interactive role | | | |
|---|---|--|--|
| <u>Therapist asks participants song related questions</u> | <u>Therapist asks participants song related questions</u> | <u>Therapist invites individual to point PCS</u> | <u>Therapist invites individual to point PCS</u> |

| | | | |
|--|---|--|--|
| | B52a) Therapist ask participants what an octopus looks like | C91a) Therapist invite indiv participant to point to PCS | |
| | B60b) Therapist ask participants if they all know what a shark is | E31a) Therapist invite indiv participant to point to PCS | |
| | B70a) Therapist ask participants what is a jellyfish | E38a) Therapist invite indiv to point PCS | |
| | B100a) Therapist ask participants which animal is greeted first | E101a) Therapist invite indiv participant to point PCS | |
| | D15b) Therapist asks participants which verse line is sung next | E114b) Therapist verbally invite indiv to point to PCS | |
| | D24a) Therapist ask participants which animal is greeted next | E121c) Therapist verbally invite indiv to point PCS | |

| | | | |
|--|---|---|--|
| | D144a) Therapist ask participants which animal is greeted next | H94a) Therapist invite indiv participant to point PCS | |
| | F119a) Therapist asks participants what we sing after the verse section | J34a) Therapist invite indiv participant to point PCS | |
| | G13a) Therapist ask participants ask what the song is about | J48b) Therapist invite indiv to point PCS | |
| | G42a) Therapist ask participants which animal is greeted next | J63a)Therapist invite participant to point PCS | |
| | G49a) Therapist ask participants which animal is greeted next | L18a)Therapist invite indiv participant to point PCS | |
| | G74a) Therapist ask participants which animal is greeted next | L33a) Therapist invite indiv participant to point PCS | |

| | | | |
|--|---|--|--|
| | I1a) Therapist ask participants what the song is about | | |
| | I15a) Therapist ask participants which animal is greeted | | |
| | I18a) Therapist ask participants which animal is greeted next | | |
| | K60a) Therapist ask participants what the animal sounds like | | |

Appendix AO: Participant quality of participation

Table 1

| Participant quality of participation | | | | | |
|--|--|-------------------|-------------------|--------------------|--------------------|
| <u>Participant quality of guitar strumming</u> | <u>Participant quality of guitar strumming</u> | <u>Confidence</u> | <u>Confidence</u> | <u>Spontaneous</u> | <u>Spontaneous</u> |

| | | | | | |
|--|---|--|---|--|--|
| C73a) Indiv participant strums guitar gently | D66b) Indiv Participant strums guitar gently | A57b) Participants sing with more confidence | H27a) Participants sing loudly and with confidence | A49b) Participants spontaneously shout word representing PCS | B24b) Indiv participant spontaneously sings |
| C64a) Indiv participant strums guitar gently | D67a) Indiv participant strums lively and fast | C6c) Participants sing with confidence | G29a) Participants and therapist sing loudly and with confidence together | A27b) Indiv spontaneously says intended PCS | B61a) Indiv participant responds spontaneously |
| L84b) Indiv strums guitar with force and at a presto tempo | D69a) Perseverative quality to indiv strumming | E3d) Indiv sings with confidence | G46a) Participants sing with confidence | A49b) Participants spontaneously sing intended PCSS | B101a) Indiv spontaneously shouts out an answer |
| L85b) Indiv use all fingers of both hands to strum guitar | D71d) Indiv participant strum guitar with big arm movements | H135e) Participants sing with confidence | G86a) Participants sing loudly and with confidence | A52c) Participants spontaneously shout intended PCS | D16a) Indiv participant spontaneously shouts answer |
| L89b) Indiv strumming is lively and moderately fast | D76a) Indiv participants strumming has rich tone quality | J14c) Indiv shouts answer cheerfully and with confidence | D117a) Participants sing with confidence and in a playful manner | A64a) Participant sings loudly and spontaneously | D25b) Indiv participant spontaneously shouts out related word to theme of the song |
| L89a) Indiv strum guitar rhythmically with steady beat | D78a) Indiv participant strums loud and clear | J28b) Participants sing with confidence | D117b) Participants sing with confidence | A53b) Participants spontaneously shout intended PCS | D75a) Indiv participant strums guitar spontaneously |
| L79c) Indiv focus on strumming guitar | D85a) Indiv participant strums guitar with force | J41a) Indiv participant sings louder and with | D154c) Indiv participant sings with confidence | C19b) Participants spontaneously shouts intended PCS | D112a) Indiv participant spontaneously |

| | | | | | |
|---|---|--|---|--|--|
| | | confidence | | meaning | shouts out incorrect animal name |
| L89c) Strumming indiv focus on strumming | D93a) Indiv participant strums guitar slowly and gentle | J57a) Participants sing with enthusiasm and confidence | D160d) Indiv participant sings with confidence and fast paced | C95a) Indiv participant spontaneously sings loud and energetic | D138a) Participants spontaneously shout out animal names in anticipation |
| C51b) Indiv strums at a slow and uneven tempo | D93b) Indiv participant alternates hands during strumming | J80b) Participants sing loudly and with confidence | F7b) Indiv sings with confidence | C95a) Indiv participant spontaneously sings loud and energetic | D145a) Indiv participant spontaneously shouts out correct answer |
| L79a) Indiv strum guitar rhythmically with steady beat | D94a) Indiv participant strums guitar fast and lively | L11d) Participants sing with confidence and loud | F37b) Indiv sings loudly and with confidence | E3b) Indiv participant spontaneously sings song | D167a) Indiv participant spontaneously shouts out animal name |
| L79b) Indiv strumming is lively and moderately fast | D95a) Indiv participant alternates hands during strumming | | F99a) Indiv sing incorrect animal name with confidence | E10b) Indiv participant spontaneously direct attention to PCS | F57b) Indiv sings spontaneously ahead of group |
| L82a) Indiv strums beat steady | K21a) Indiv slaps guitar strings | | F152a) Participants sing with confidence | E55a) Participants spontaneously sing by themselves | F83c) Indiv sings energetically and spontaneously |
| L85a) Indiv tempo and rhythm of strumming is disorganized and unpredictable | K22a) Indiv strums guitar rhythmically moderately fast and lively | | F161b) Participants sings lively and with confidence | E64a) Indiv participant spontaneously direct attention to PCS | F93b) Indiv sings ahead spontaneously and fast paced |

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|--|---|--|--|--|--|
| | K23a) Indiv strums with force and loudly | | I16c) Indiv sings with confidence | E138a) Participants singing is spontaneous, lively and energetic | F112a) Indiv sings unexpectedly and spontaneously |
| | K24a) Indiv Perseverative strumming | | I19c) Indiv sings with confidence and loud | H8a) Indiv spontaneously direct attention to PCS | I16a) Indiv spontaneously answer therapist by singing line |
| | K25c) Indiv strums uneven tempo | | I22a) Indiv sings with confidence | H105a) Other Indiv spontaneously direct attention to PCS | I19a) Indiv spontaneously sings answer |
| | K29a) Indiv strums guitar gently | | I28b) Participants sing with confidence | H113b) Indiv stands up and start pointing spontaneously to PCS | I25a) Indiv spontaneously shouts answer |
| | K31a) Indiv strums guitar gentle and calmly | | I29c) Participants sing lively and with confidence | J5a) Indiv spontaneously sing | K3a) Indiv spontaneously sing line |
| | K32a) Indiv strum moderately soft | | I49f) Participants sing with confidence | J51a) Indiv participant spontaneously directs attention to PCS | K60b) Indiv spontaneously models vocal sound |
| | K33a) Indiv tempo and dynamics of strumming remain consistent | | I58e) Participants sing with confidence | L2d) indiv spontaneously say words | |

| | | | | | |
|--|---|--|--|--|--|
| | K30a) Indiv strums a steady beat | | I74b) indiv sing with confidence at a fast paced tempo | | |
| | K34c) Indiv strumming gradually grows louder and more confidently | | I81a) Participants sing with confidence | | |
| | K35b) Indiv perseverative strumming | | I89a) Participants sing lively and with confidence | | |
| | K38a) Indiv strums irregular unpredictable tempo | | I101a) Participants sing by themselves with confidence and high energy | | |
| | K39a) Indiv strums single strings occasionally | | I104a) Participants sing with confidence and enthusiasm | | |
| | K40a) Indiv strums irregular and unpredictable dynamics | | I108a) Participants sing with therapist with confidence | | |
| | K42a) Indiv strumming gradually grow more steady and predictable | | I117b) Indiv shouts last word of the song loudly and confidently | | |
| | | | K34c) Indiv strumming gradually grows louder and | | |

| | | | | | |
|--|--|--|--|--|--|
| | | | more confidently | | |
| | | | K85c) Individ imitates vocal sound with confidence | | |
| | | | K88b) Individ participant respond to music through high energy and confident physical movement | | |
| | | | K96d) Participant vocal imitations are done loudly and with confidence | | |

Table 2

| Participant quality of participation | | | | | |
|---|--|--|--|---|---|
| <u>Energy levels</u> | <u>Energy levels</u> | <u>Participant musical flexibility</u> | <u>Participant musical flexibility</u> | <u>Unrelated hand/body gesture and vocal descriptions</u> | <u>Unrelated hand/body gesture and vocal descriptions</u> |
| A5c) Participants participate with low energy | B8d) Participants engage with low energy | E83a) Participants musically adjust tempo and dynamics | B104b) Participants adjust to tempo and dynamic shift with | | B22A) Individ participant make unrelated hand movement suggesting |

| | | | | | |
|--|--|--|--|--|--|
| | | of singing | ease | | cutting with scissors |
| A13d) Participants engage with low energy | B36c) Low energy participation and singing | E85a) Participants musically adjust tempo and dynamics of singing | B111b) Participants adjust to tempo and dynamics shift with ease | | B23a) Indiv make own association with unrelated hand gesture |
| A37c) Participants sing with low energy | B114c) Participants sing loudly and energetically | E87a) Participants musically adjust tempo and dynamics of singing | B118b) Participants adjust to tempo and dynamic shift with ease | | B24a)Indiv Participant physically imitating other indiv unrelated movement |
| A68d) Participants engage with low energy | B121b) Indiv swings legs energetically | E142a) Participants musically adjust tempo and dynamics of singing with ease | D172d) Participants adjust to tempo and dynamic shift with ease | | D59a) Indiv participant talks about unrelated subject |
| C80b) Participants sing and participate with high energy | B122c) Sudden energy shift from high to low | E146a) Participants musically adjust tempo and dynamics of singing with ease | D173d) Participants adjust to tempo and dynamic shift with ease | | D60a) Indiv participant talk about unrelated subject |
| 34b) Participants sing with high energy and enthusiasm | H21d) Participants singing is low in energy and engagement | L46c) Participants adjust to tempo and dynamics shift with ease | D180b) Participants adjust to tempo and dynamic shift with ease | | D60b) Indiv participant makes use of unrelated hand gestures |

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|--|--|---|--|--|--|
| C95a) Indiv participant spontaneously sings loud and energetic | H30e) Indiv participated with high energy and playfulness | L50b) Pointing indiv adjust to unpredictable tempo change | D182a) Participant adjust to tempo and dynamic shift with ease | | D62a) Indiv participant makes use of unrelated hand gestures |
| C95b) Participants sing with high energy and excitement | G40b) Indiv participates with high energy and playfulness | L58a) Participants quality of voice adjust and match to musical shift with ease | F24a) Two indiv adjust to tempo and dynamic shift with ease | | D63a) Indiv participant talk about unrelated subject |
| C102c) Indiv sing and moves with high energy | G48a) Indiv imitate vocal sound of animal with high energy and playfulness | L86f) Participants adjust to tempo and dynamic shifts and sudden pauses with ease | F46b) Participants adjust to tempo and dynamic shift with ease | | D83a) Indiv participant talk about unrelated subject |
| E6a) Participants engage with low energy | G61a) Participants sing with low energy | L73a) Participants does not adjust well to sudden tempo and dynamic shift | F56a) Participants adjust to tempo and dynamic shift with ease | | D83b) Indiv participant makes use of unrelated hand gestures |
| E66c) Indiv sings and moved with high energy | G64c) Indiv participates with high energy | L75a) Participants does not adjust well to sudden tempo and dynamic shift | F58b) Participants adjust to tempo and dynamic shift with ease | | D110b) Indiv participant shouts out unrelated word |
| E75c) Indiv participates with high energy | G71b) Participants participate with low energy | | F63a) Participants adjust to tempo and dynamic shift with ease | | B24a)Indiv Participant physically imitating other indiv unrelated movement |

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|---|--|--|---|--|--|
| H91f) Participants engage with low energy | G79c) Indiv responds with excitement and high energy participation | | F79a) Participants adjust to tempo and dynamic shift with ease | | |
| H81b) Participants engage with low energy | D14c) Low energy participation | | F94b) Participants adjust to tempo and dynamic shift with ease | | |
| E76b) Two indiv respond with high energy movements | D33c) Participants engage with low energy | | F97b) Participants adjust to tempo and dynamic shift with ease | | |
| E77a) Two indiv respond with high energy movements | D49d) Participants low participation and energy levels | | F111a) Participants adjust to tempo and dynamic shift with ease | | |
| E79a) Participants respond with high energy movements | D57b) Participants engage with low energy | | F126a) Participants adjust to tempo and dynamic shift with ease | | |
| E119a) Indiv hops in chair with high energy | D107c) High energy participation and singing | | F142a) Participants adjust to tempo and dynamic shift with ease | | |
| H33b) Participants verbally respond by shouting yes/yay | D117g) High energy participation | | F144b) Participants adjust to tempo and dynamic shift with | | |

| | | | | | |
|--|---|--|---|--|--|
| energetically | | | ease | | |
| J11d) Participants low energy | D143a) Indiv participant swings and kick legs energetically | | F158a) Participants adjust to tempo and dynamic shift with ease | | |
| J45c) Participants sing with high energy | D152a) Indiv participant wave their arms and swing their legs fast and with high energy | | F161a) Participants adjust to tempo and dynamic shift with ease | | |
| J72a) Participants sing lively and energetic | D161b) Participants respond by hopping in chair chairs energetically | | I33b) Participants adjust to tempo and dynamic shift with ease | | |
| L4d) Participants engage with low energy | D173c) Participant excitedly and energetically hop in chairs and wave arms | | I37b) Participants adjust to tempo and dynamic shift with ease | | |
| L10f) Indiv imitate sound of PCS loudly and playfully | F8a) Indiv swings arms energetically | | I49b) Participants adjust to tempo and dynamic shift with ease | | |
| L15b) Participants participate with high energy and excitement | F16a) Participants sing with high energy and enthusiasm | | I52a) Participants adjust to tempo and dynamic shift with ease | | |

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|---|--|--|---|--|--|
| L31a) Pointing indiv sings loudly and energetic with therapist | F26b) High energy participation | | I58b) Participants adjust to tempo and dynamic shift with ease | | |
| L37c) Indiv sings energetic and lively | F59b) Participants swing limbs with high energy matching the pulse of the music | | I77a) Participants adjust to tempo and dynamic shift with ease | | |
| L58b) Participants sing fast paced, energetic and loud | F69a) Participants swing legs with high energy matching the pulse of the music | | I80a) participants adjust to tempo and dynamics shift with ease | | |
| L84c) Indiv engages with high energy | F80a) Participants energetically and vigorously swing legs matching the pulse of the music | | I82b) Participants adjust to tempo and dynamic shift with ease | | |
| L90a) Sitting indiv sing with therapist with enthusiasm and energetically | F87b) Participants swing legs and wave arms energetically | | I85b) Participants adjust to tempo and dynamic shift with ease | | |
| C59d) Participants sing with low energy | F94a) Therapist and participants sing fast paced and energetically | | I91a) Participants adjust to tempo and dynamic shift with ease | | |

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|--|---|--|---|--|--|
| | F96a) Participants sing loudly and energetically | | I92b) Participants adjust to tempo and dynamic shift with ease | | |
| | 96b) Participants swing arms and legs energetically | | I93b) Participants adjust to tempo and dynamic shift with ease | | |
| | F101a) Participants swing arms and legs energetically | | I99a) Participants adjust to tempo and dynamic shift with ease | | |
| | F109a) Participants swing arms and legs fast and energetically | | I101b) Participants adjust to tempo and dynamic shift with ease | | |
| | F112b) Indiv sings energetically and fast paced | | I106d) Participants adjust to tempo and dynamic shift with ease | | |
| | F115c) Participants swings arms and legs energetically and vigorously | | I114a) Participants adjust to tempo and dynamic shift with ease | | |
| | F126b) Participants swing arms and legs energetically matching | | I116a) Participants adjust to tempo and dynamic shift with | | |

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|--|--|--|---|--|--|
| | the pulse of the music | | ease | | |
| | F126c) Participants engage with high energy and excitement | | K18b) Participants adjust to tempo and dynamic shift with ease | | |
| | F127c) Participants sing loudly and energetically | | K48b) Participants adjust to tempo and dynamic shift with ease | | |
| | F135a) Participants swing their arms and legs energetically and excitedly | | K58b) Participants adjust to tempo and dynamic shift with ease | | |
| | F141c) Indiv sings fast paced and loudly with high energy | | K77a) Participants adjust to tempo and dynamic shift with ease | | |
| | F142c) Participants swings arms and legs energetically to the pulse of the music | | K78b) Participants adjust to tempo and dynamic shift with ease | | |
| | F151a) Participants quality of voices are lively and energetic | | K100c) Participants adjust to tempo and dynamic shift with ease | | |

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|--|---|--|---|--|--|
| | F152d) Participants swing arms and legs energetically | | K102a) Participants adjust to tempo and dynamic shift with ease | | |
| | F158b) Participants sing energetic and vigorously | | K103b) Participants adjust to tempo and dynamic shift with ease | | |
| | F159b) Participants swing arms and legs energetically matching the pulse of the music | | | | |
| | F163c) Participants swings arms and legs energetically | | | | |
| | F164b) Participants hop in their chairs energetically and with excitement | | | | |
| | I8b) Low energy and flat quality of singing | | | | |
| | I13e) Participants sings softly with low energy and flat voices | | | | |
| | I20a) therapist and participants sing cheerfully, loud with | | | | |

| | | | | | |
|--|--|--|--|--|--|
| | high energy | | | | |
| | I25b) Participants sing energetically and loud | | | | |
| | I37c) participants engage with low energy | | | | |
| | I41c) Physical movement indicate low energy | | | | |
| | I45a) Participants match music with high energy singing | | | | |
| | I60a) Indiv Participant flops hands in the air energetically | | | | |
| | I62a) Participants sing loudly and energetic | | | | |
| | I69a) Indiv participant flops arms in the air energetically | | | | |
| | I69a) Indiv participant flops arms in the air energetically | | | | |

| | | | | | |
|--|--|--|--|--|--|
| | I72b) Participants participate with high energy | | | | |
| | I74c) Participants participate with high energy | | | | |
| | I97a) Participants sing with high energy and enthusiasm | | | | |
| | I101a) Participants sing by themselves with confidence and high energy | | | | |
| | I103b) participants sing lively and energetic | | | | |
| | I116e) Participants quality of voice is strong and energetic | | | | |
| | K8b) Indiv taps fast and energetic rhythm on his chair | | | | |
| | K13e) Participants sing energetically and excitedly | | | | |

| | | | | | |
|--|---|--|--|--|--|
| | K17b) Indiv energetically hops in his chair | | | | |
| | K26e) Participants low energy singing | | | | |
| | K34d) Indiv taps main pulse on his chair loudly and energetically | | | | |
| | K42d) Participants low energy of singing | | | | |
| | K46a) Indiv sings loudly and with high energy | | | | |
| | K66d) Two indiv participate with enthusiasm and high energy | | | | |
| | K70c) Indiv imitate vocal sounds loudly and energetically | | | | |
| | K86c) Indiv imitates animal movement energetically | | | | |

| | | | | | |
|--|--|--|--|--|--|
| | K88b) Indiv participant respond to music through high energy and confident physical movement | | | | |
| | K96e) Participants engage with high energy | | | | |
| | K100g) Participants sing with low energy | | | | |
| | F10b) Participants participate with high energy | | | | |

Table 3

| Participant quality of participation | | | |
|---|---|--|--|
| <u>Individual verbally invites participants to sing</u> | <u>Individual verbally invites participants to sing</u> | <u>Engagement levels</u> | <u>Engagement levels</u> |
| J82b) Indiv verbally invite other indiv to sing | | C5b) Participants sing with enthusiasm | B19b) Low energy participation and singing |

| | | | |
|--|--|--|--|
| | | C17c) Participants sing with enthusiasm | B30b) Participants low participation levels |
| | | C29c) Participants sing loudly and with excitement | B34a) Few participants sing with therapist |
| | | 34b) Participants sing with high energy and enthusiasm | B36c) Low energy participation and singing |
| | | C35a) Participants respond in excitement | B74a) Participants sing with enthusiasm and higher energy |
| | | C45a) Individ eager to participate | B82a) Participants do not sing |
| | | C80b) Participants sing and participate with high energy | B88b) Individ sings alone |
| | | C95b) Participants sing with high energy and excitement | B98b) Individ participant responds spontaneously and playful |

| | | | |
|--|--|---|---|
| | | C104a) Participants sing excitedly and loud | B104a) Participants respond excitedly to dynamic shift |
| | | E13b) Indiv join group singing | B107a) Participants respond with excitement |
| | | E102a) Indiv eager to point to PCS | B111a) Participants respond excitedly to dynamic shift |
| | | E107b) Participants response indicate emotions of joy and silliness | G8a) Participants seem eager to learn lyrics |
| | | H28a) Participants don't sing | H30e) Indiv participated with high energy and playfulness |
| | | H33a) Participants respond with excitement and eagerness to participate | G34b) Indiv physical and vocal imitation is playful |
| | | H46a) Participants sing louder and faster matching indiv | G40b) Indiv participates with high energy and |

| | | | |
|--|--|---|--|
| | | participants singing | playfulness |
| | | H65c) Participants engage in robotic manner | G43b) Individ smiles proudly for brief moment |
| | | C56a) Three participants enthusiastically volunteer to strum the guitar | G48a) Individ imitate vocal sound of animal with high energy and playfulness |
| | | C62a) Participants enthusiastically volunteer to strum the guitar | G71b) Participants participate with low energy |
| | | C92a) Individ eagerly participant agrees to help therapist | G79c) Individ responds with excitement and high energy participation |
| | | E29a) Individ participant kindly offer to help therapist | G82a) Individ imitates animal vocal sound loudly and energetically |

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|--|--|---|--|
| | | H4a) Indiv participant eagerly volunteers to answer | D14a) Participants respond robotically |
| | | H33b) Participants verbally respond by shouting yes/yay energetically | D20a) Participants respond robotically |
| | | H99a) Two participants sing with therapist with enthusiasm and louder | D39c) Low participation levels |
| | | H113a) Indiv eagerly volunteers to direct attention to PCS | B8d) Participants engage with low energy |
| | | J35a) Participant eager to participate | D49d) Participants low participation and energy levels |
| | | J64a)Indiv volunteer eagerly to participate | D57b) Participants engage with low energy |
| | | J75a) Indiv eagerly volunteers to point PCS | D70a) Indiv participant responds with excitement and joy |

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|--|--|--|---|
| | | J80a) Pointing participant do not sing | D71b) Participants stop singing |
| | | J91b) Participants sing cheerfully and with enthusiasm | D98b) Participants do not sing |
| | | J92a) Pointing indiv does not sing | D100a) Participants respond with excitement and playful |
| | | L15b) Participants participate with high energy and excitement | D107c) High energy participation and singing |
| | | L21b) Indiv stops singing mid-verse | D115b) Participants hop in chairs energetically to the pulse of the music |
| | | L25c) Sitting indiv does not sing | D117g) High energy participation |
| | | L28a) Therapist and pointing indiv sing together | D125a) Participants respond with expression of laughter and |

| | | | |
|--|--|--|---|
| | | | enjoyment |
| | | L34a) Individ eager to direct attention to PCS | D132b) Individ participant sings alone |
| | | L39a) Pointing indiv does not sing | D132a) Individ participant ignore musical pause |
| | | L53a) Individ counts to four with therapist | D138b) High level of participation |
| | | L56a) Participants sing with therapist with enthusiasm | D142c) Participants respond in excitement |
| | | L84c) Individ engages with high energy | D154a) Individ participant ignore musical pause |
| | | L86d) Sitting indiv does not sing | D160b) Individ participant ignore musical pause |
| | | C60a) Individ participant does not finish musical | D169b) Participants respond playful and silly |

| | | | |
|--|--|---|---|
| | | phrasing | |
| | | J40a) Pointing indiv does not sing | D181a) Participant swing arms and legs excitedly |
| | | L9b) Indiv participates with excitement | F3b) indiv responds with enthusiasm |
| | | | F13b) Indiv enthusiastically shouts out related word to the theme |
| | | | F17a) Participants shout emphasized words excitedly |
| | | | F19c) Participants engage playfully |
| | | | F23a) Participants eager to participate |
| | | | F26b) High energy participation |

| | | | |
|--|--|--|--|
| | | | F82a) Participants do not adjust with music |
| | | | F83a) Individ energetically sing ahead of participants and therapist |
| | | | F92a) Individ sings ahead of therapist and participants |
| | | | F106c) Participants participate with excitement |
| | | | F108a) Participants respond in excitement and laughter |
| | | | F115b) Participants respond with excitement and laughter |
| | | | F120b) Participants seem excited |
| | | | F126c) Participants engage with high energy and |

| | | | |
|--|--|--|---|
| | | | excitement |
| | | | F135a) Participants swing their arms and legs energetically and excitedly |
| | | | F136b) Indiv engages playfully |
| | | | F141a) Indiv sings ahead of group |
| | | | F152b) Participants respond with excitement and curiosity |
| | | | F164a) Therapist and participants exaggerates final chord by extending the word playfully |
| | | | F164b) Participants hop in their chairs energetically and with excitement |
| | | | I12a) Robotic response |

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|--|--|--|---|
| | | | I72b) Participants participate with high energy |
| | | | I74c) Participants participate with high energy |
| | | | I97a) Participants sing with high energy and enthusiasm |
| | | | K7c) Robotic response |
| | | | K11a) Individ express emotions of enjoyment and playfulness by singing louder |
| | | | K15a) Individ express emotions of enjoyment and excitement |
| | | | K17a) Individ express emotions of enjoyment and excitement |

| | | | |
|--|--|--|---|
| | | | K20a) Indiv is eager to participate |
| | | | K28a) Indiv is eager to participate |
| | | | K34a) Indiv sings along with enthusiasm |
| | | | K35a) Indiv strumming does not sing |
| | | | K37a) Indiv is eager to participate |
| | | | K46c) indiv express emotions of enjoyment and playfulness |
| | | | K51a) Indiv respond hops in chairs in excitement |
| | | | K53a) Indiv excitedly hops in chair energetically |

| | | | |
|--|--|--|--|
| | | | K66d) Two indiv participate with enthusiasm and high energy |
| | | | K70b) Indiv respond excitedly to music through physical movement |
| | | | K86b) Indiv participant jumps up in excitement |
| | | | K90a) Indiv eagerly responds with physical and vocal imitation of animal |
| | | | K96a) Participants take part in activity with enthusiasm and over exaggerated vocal sounds |
| | | | K96e) Participants engage with high energy |
| | | | K97a) Participants exaggerates imitation of vocal animal sound playfully |

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|--|--|--|---|
| | | | F10b) Participants participate with high energy |
|--|--|--|---|

Appendix AP: Pronunciation

Table 1

| Pronunciation | | | | | |
|--|---|--|--|---|--------------------------|
| <u>Participant pronunciation</u> | <u>Participant pronunciation</u> | <u>Therapist pronunciation of lyrics</u> | <u>Therapist pronunciation of lyrics</u> | <u>Emphasis of words</u> | <u>Emphasis of words</u> |
| A22a) Mumbling of words | B19a) Mumbling of words | | B40c) Therapist pronounce words clearly | J20b) Participants emphasize iconic PCS | |
| A24c) Mumbling of words | B21c) Indiv mumbles words | | B50c) Therapist sing words clearly | | |
| L4b) Indiv mumbles words | B21c) Indiv mumbles words | | G7b) Therapist pronounce lyrics clearly | | |
| A27c) Mumbling of words | B27b) Mumbling of emphasized words | | G38a) Therapist emphasize vocal "S" sound | | |
| A28b) Participants speak words with monotonic voice tone | B30a) Two participants mumble words softly | | G84a) Participants emphasize "s" vocal sound of animal in song | | |
| A48b) Mumbling of words | B32a) Participants sing/mumble words softly | | B26a) Therapist emphasize key words | | |

| | | | | | |
|--------------------------------------|--|--|---|--|--|
| C59a) Mumbling of words | B35b) Emphasized words pronounced clearest | | F123c) Therapist pronounce lyrics clearly | | |
| C71c) Mumbling of words | B43c) mumbling of emphasized words | | F123b) Therapist emphasize lyrics | | |
| A68b) mumbling of words | B48b) Participants sing louder and pronounce words clearer | | F131b) Therapist pronounce lyrics clearly | | |
| A73c) Clearer pronunciation of words | B48c) Mumbling of some words | | 131c) therapist emphasize lyrics | | |
| C14d) Clearer pronunciation of words | B63d) Two indiv pronounce words clearer | | | | |
| C76c) Words pronounced clearly | B65a) Mumbling of words | | | | |
| C81b) Clear pronunciation of words | B75b) Clear pronunciation of emphasized words | | | | |
| C99b) mumbling of words | B85a) Emphasized words sung clearest by participants | | | | |
| E8c) Clear pronunciation of words | B95b) Emphasized words pronounced clearer | | | | |

| | | | | | |
|---|---|--|--|--|--|
| E53d) Words are pronounced clearly | B95a) Mumbling of words | | | | |
| H39b) participants sing unclear and softly | B114d) Participants pronounce lyrics clearly | | | | |
| H45a) Mumbling of words | B119b) Words are pronounced clearly | | | | |
| H66b) mumbling of words | B120b) mumbling of some words | | | | |
| H77f) Indiv pronounces words clearly | B120d) Participants sings emphasized words loud and clear | | | | |
| H86c) Participants pronounce words clearly | G8b) Mumbling of words | | | | |
| H93a) Indiv mumble occasional words softly | G10a) Mumbling of words | | | | |
| H6a) Unclear speech | G11b) Mumbling of words | | | | |
| H135c) Mumbling of some words | H21b) Mumbling of lyrics | | | | |
| H138a) Participants pronounce words clearly | G32c) Mumbling of lyrics | | | | |
| J11b) Two indiv participants mumble words | G52b) Mumbling of words | | | | |
| L2e) Indiv pronounce words | G72c) Clear pronunciation of | | | | |

| | | | | | |
|---------|--|--|--|--|--|
| clearly | words | | | | |
| | G84d) Participants pronounce lyrics clearly | | | | |
| | D7a) Mumbling of non- emphasized words | | | | |
| | D8a) Emphasized words pronounced clearest by participants | | | | |
| | D11a) Mumbling of words | | | | |
| | D13a) Indiv participant mumbles words | | | | |
| | D28b) Mumbling of words | | | | |
| | D34a) Indiv Mumbles non emphasized words | | | | |
| | D35a) Emphasized words sung clearest by participants | | | | |
| | D54a) Less mumbling of words | | | | |

| | | | |
|--|--|--|--|
| D55c) Indiv monotonic singing | | | |
| D117d) Mumbling of words | | | |
| D123a) Mumbling of words | | | |
| D163b) Mumbling of words | | | |
| D163e) Emphasized words pronounced clearest | | | |
| D173e) Participants pronounce all words clearly | | | |
| F6b) Participants pronounce lyrics clearly | | | |
| F10a) Participants pronounce words clearly | | | |
| F50e) participants pronounce words clearly | | | |
| F91b) Participants pronounce words clearly | | | |

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|--|--|--|--|--|--|
| | F150a) Participants pronounce words clearly | | | | |
| | I7a) Clear pronunciation of words | | | | |
| | I58d) Words are pronounced clearly | | | | |
| | I89c) Participants pronounce lyrics clearly | | | | |
| | I105b) Participants pronounce lyrics clearly | | | | |
| | K26c) Mumbling of words | | | | |
| | K69b) Participants emphasize "s" vocal sound | | | | |
| | K75d) Participants pronounce words clearly | | | | |
| | K82e) Mumbling of words | | | | |
| | D42a) Indiv participant says animal name clearly | | | | |