

**ANGLIA RUSKIN UNIVERSITY**

**MUSIC THERAPIST COLLABORATION WITH TEACHING ASSISTANTS  
FOR FACILITATING VERBAL DEVELOPMENT IN  
YOUNG CHILDREN WITH SPECIAL NEEDS**

**APPENDICES**

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### **Appendix 3.3.2 List of songs used in research sessions**

Five Little Ducks Went Swimming One Day

Five Little Speckled Frogs

Goodbye Song

Grand Old Duke of York

Hello Song

Here We Go Round the Mulberry Bush

Hickory Dickory Dock

Hokey Cokey

I Had a Tiny Turtle

Jungle Song

Old MacDonald Had a Farm

Ten Green Bottles

There Were Five Friendly Frogs

This Old Man

We All Live in a Yellow Submarine

### Appendices 4.5.3 Forms and notes

#### Appendix 4.5.3.1 Video analysis form

Video date:

Child:

MT:

	5	10	15	20	25	30	35	40	45	50	55	60
<b>0 C</b>												
<b>MT</b>												
<b>1 C</b>												
<b>MT</b>												
<b>2 C</b>												
<b>MT</b>												
<b>3 C</b>												
<b>MT</b>												
<b>4 C</b>												
<b>MT</b>												
<b>5 C</b>												
<b>MT</b>												
<b>6 C</b>												
<b>MT</b>												

### Appendix 4.5.3.2 The children's video analysis codes and behaviour percentages

#### Codes for Ashraf's video analysis in sessions with MT and TA

S	Sings
W	Use of words
M	Music making
Vr	Vocalises in response to adult
R	Resists
Ei	Explores instruments
L	Laughs
Si	Selects instrument

#### Music therapist/TA

Js	Jo sings
Jt	Jo talks
Jg	Jo plays guitar
Jf	Jo plays flute
Jo	Jo plays percussion
Jp	Jo plays piano
Tas	TA sings
Tap	TA plays
Tat	TA talks

#### Ashraf's responses in sessions with MT

	Ashraf's codes							
	S	W	M	Vr	R	Ei	L	Si
Pre-intervention	24	2	55	7	2	40	7	2
Post-intervention	54	2	21	0	2	57	2	2

#### MT's video analysis percentage figures in Ashraf's sessions

	Music therapist's codes in Ashraf's sessions					
	Js	Jt	Jg	Jf	Jo	Jp
Pre-intervention	45	35	25	23	2	14
Post-intervention	63	30	47	4	1	15

### TA's video analysis percentage figures in Ashraf's sessions

	TA's codes in Ashraf's sessions		
	Tas	Tap	Tat
Pre-intervention	52	9	18
Post-intervention	31	20	32

### Ashraf's video analysis figures in sessions with TA

	Ashraf's codes in sessions with TA							
	S	W	M	Vr	R	Ei	L	Si
Pre-intervention	40	2	54	0	1	79	1	9
Post-intervention	45	30	36	0	1	25	2	14



**Codes for Bella's video analysis**

M	Music making
Vr	Vocalises in response to adult
Sm	Smiles
Ei	Explores instruments
L	Laughs
E	Engages

**Music therapist/TA**

Js	Jo sings
Jt	Jo talks
Jg	Jo plays guitar
Jf	Jo plays flute
Jo	Jo plays percussion
Jp	Jo plays piano
Jsh	Jo supports hand
Jv	Jo vocalises

**Bella's responses in sessions with MT**

	Bella's codes					
	Sm	M	Vr	Ei	L	E
Pre-intervention	30	12	20	8	1	26
Post-intervention	20	11	6	2	0	42

**MT's video analysis percentage figures in Bella's sessions**

	Music therapist's codes in Bella's sessions							
	Js	Jt	Jg	Jf	Jo	Jp	Jsh	Jv
Pre-intervention	56	26	6	7	8	33	6	7
Post-intervention	58	20	11	9	24	29	9	8

**Codes for Charlie's video analysis**

M	Music making
Vr	Vocalises in response to adults
L	Laughs
Si	Selects instrument
C	Cries
Vs	Vocalises spontaneously
Ec	Uses eye contact
Sm	Smiles
E	Engages

**Music therapist/TA**

Js	Jo sings
Jt	Jo talks
Jg	Jo plays guitar
Jv	Jo vocalises
Jo	Jo plays percussion
Jp	Jo plays piano
Tas	TA sings
Tap	TA plays
Tat	TA talks

**Charlie's responses in sessions with MT**

	Charlie's codes								
	C	Ec	M	Vr	L	Si	Vs	Sm	E
Pre-intervention	20	31	42	5	7	2	5	6	2
Post-intervention	0	48	42	11	2	1	0	25	12

**MT's video analysis percentage figures in Charlie's sessions**

	Music therapist's codes in Charlie's sessions					
	Js	Jt	Jg	Jo	Jp	Jv
Pre-intervention	81	14	52	2	26	11
Post-intervention	88	14	22	28	25	6

### TA's video analysis percentage figures in Charlie's sessions

	TA's codes in Charlie's sessions		
	Tas	Tap	Tat
Pre-intervention	46	2	17
Post-intervention	55	14	33

### Charlie's responses in sessions with TA

	Charlie's codes								
	C	Ec	M	Vr	L	Si	Vs	Sm	E
Pre-intervention	0	45	56	0	0	22	3	32	2
Post-intervention	0	63	19	1	2	24	0	10	1

**Codes for Elliot's video analysis**

M	Music making
Vr	Vocalises in response to adult
R	Resists
Ei	Explores instruments
L	Laughs
Ec	Eye contact
Vs	Vocalises spontaneously

**Music therapist/TA**

Js	Jo sings
Jt	Jo talks
Jg	Jo plays guitar
Jf	Jo plays flute
Jo	Jo plays percussion
Jp	Jo plays piano
Jv	Jo vocalises
Tas	TA sings
Tap	TA plays
Tat	TA talks

**Elliot's responses percentage figures in sessions with MT**

	Elliot's codes						
	Sm	M	Vr	R	Ei	Ec	L
Pre-intervention	7	26	13	4	70	23	0
Post-intervention	13	28	7	3	27	22	2

**MT's responses percentage figures in Elliot's sessions**

	Music therapist's codes in Elliot's sessions						
	Js	Jt	Jg	Jf	Jo	Jp	Jv
Pre-intervention	54	21	13	4	7	31	16
Post-intervention	26	29	8	3	11	30	4

**TA's responses percentage figures in Elliot's sessions**

	TA's codes in Elliot's sessions		
	Tas	Tap	Tat
Pre-intervention	15	44	29
Post-intervention	83	46	20

**Elliot's responses percentage figures in sessions with TA**

	Elliot's codes						
	Sm	M	Vr	R	Ei	Ec	Vs
Pre-intervention	4	15	1	1	75	9	11
Post-intervention	45	16	28	0	51	69	0

**Codes for Kieran's video analysis in sessions with MT**

M Music making  
 Vr Vocalises in response to adult  
 Ei Explores instruments  
 Ec Eye contact  
 Sm Smiles

**Music therapist**

Js Jo sings  
 Jt Jo talks  
 Jg Jo plays guitar  
 Jf Jo plays flute  
 Jo Jo plays percussion  
 Jp Jo plays piano  
 Jv Jo vocalises

**Kieran's responses in sessions with MT**

	Kieran's codes					
	Ec	E	M	Vr	Sm	Ei
Pre-intervention	30	3	6	14	12	28
Post-intervention	10	6	70	17	16	9

**MT's responses percentage figures in Kieran's sessions**

	Music therapist's codes in Kieran's sessions					
	Js	Jt	Jg	Jf	Jo	Jp
Pre-intervention	69	11	23	18	0	29
Post-intervention	63	24	13	10	4	11

### Codes for Mark's video analysis in sessions with MT and TA

M	Music making
Vr	Vocalises in response to adult
Ei	Explores instruments
Ec	Eye contact
E	Engaged
S	Sings
R	Resists
W	Use of words

### Music therapist/TA

Js	Jo sings
Jt	Jo talks
Jg	Jo plays guitar
Jf	Jo plays flute
Jo	Jo plays percussion
Jp	Jo plays piano
Jv	Jo vocalises

### Mark's responses in sessions with MT

	Mark's codes							
	Ec	E	M	Ei	R	S	W	Vr
Pre-intervention	18	0	5	83	6	0	0	0
Post-intervention	28	17	23	26	6	15	11	1

### MT's responses percentage figures in Mark's sessions

	Music therapist's codes in Mark's sessions						
	Js	Jt	Jg	Jf	Jo	Jp	Jv
Pre-intervention	46	31	0	14	35	13	5
Post-intervention	76	35	26	0	29	11	

### Codes for Paul's video analysis in sessions with MT

M	Music making
Vr	Vocalises in response to adult
Ei	Explores instruments
Ec	Eye contact
Sm	Smiles
E	Engaged
S	Sings
R	Resists
C	Cries

### Music therapist/TA

Js	Jo sings
Jt	Jo talks
Jg	Jo plays guitar
Jf	Jo plays flute
Jo	Jo plays percussion
Jp	Jo plays piano
Jv	Jo vocalises

### Paul's responses in sessions with MT

	Paul's codes							
	Ec	E	M	Ei	R	C	Vr	Sm
Pre-intervention	7	3	20	22	20	8	18	10
Post-intervention	18	23	37	16	0	0	9	12

### MT's responses percentage figures in Paul's sessions

	Music therapist's codes in Paul's sessions						
	Js	Jt	Jg	Jf	Jo	Jp	Jv
Pre-intervention	58	32	25	3	20	20	3
Post-intervention	25	12	5	4	13	46	12



### **Codes for Remiel's video analysis in sessions with MT and TA**

S Sings  
W Use of words  
M Music making  
Vr Vocalises in response to adult

### **Music therapist/TA**

Js Jo sings  
Jt Jo talks  
Jg Jo plays guitar  
Jf Jo plays flute  
Jo Jo plays percussion  
Jp Jo plays piano  
Tas TA sings  
Tap TA plays  
Tat TA talks

### **Remiel's responses in sessions with MT**

	Remiel's codes			
	S	W	M	Vr
Pre-intervention	11	0	63	11
Post-intervention	52	9	30	1

### **MT's video analysis percentage figures in Remiel's sessions**

	Music therapist's codes in Remiel's sessions					
	Js	Jt	Jg	Jf	Jo	Jp
Pre-intervention	38	16	49	6	22	9
Post-intervention	69	24	42	3	1	26

### TA's video analysis percentage figures in Remiel's sessions

	TA's codes in Remiel's sessions		
	Tas	Tap	Tat
Pre-intervention	81	16	19
Post-intervention	52	58	31

### Remiel's video analysis figures in sessions with TA

	Remiel's codes in sessions with TA			
	S	W	M	Vr
Pre-intervention	67	3	15	4
Post-intervention	46	3	15	4

### Appendix 4.5.3.3 Completed video analysis form

#### Video Analysis Form

Video date: December 2012

Child: PF

TA: —

VA

	5	10	15	20	25	30	35	40	45	50	55	60
0 C	Sm L	E	Sm	Sm	Sm	E	Sm	Sm	M	Sm M	Sm M	Sm
J	J <sub>s</sub> J <sub>p</sub>	J <sub>s</sub> J <sub>p</sub>	J <sub>s</sub> J <sub>p</sub>	J <sub>s</sub> J <sub>p</sub>	J <sub>s</sub> J <sub>p</sub>	J <sub>s</sub> J <sub>p</sub>	J <sub>s</sub> J <sub>p</sub>	J <sub>s</sub> J <sub>p</sub>	J <sub>s</sub> J <sub>p</sub>	J <sub>s</sub> J <sub>p</sub>	J <sub>s</sub> J <sub>p</sub>	J <sub>s</sub> J <sub>p</sub>
1 C	Ec Sm	Ec Os	Ec Os	Ec M	M		Os	Ei	Ei	M	M	M
J	J <sub>s</sub> J <sub>p</sub>	J <sub>s</sub> J <sub>p</sub>	J <sub>s</sub> J <sub>p</sub>	J <sub>s</sub> J <sub>p</sub>	J <sub>s</sub> J <sub>p</sub>	J <sub>s</sub> J <sub>p</sub>	J <sub>s</sub> J <sub>p</sub>	J <sub>s</sub> J <sub>p</sub>	J <sub>s</sub> J <sub>p</sub>	J <sub>s</sub> J <sub>p</sub>	J <sub>s</sub> J <sub>p</sub>	J <sub>s</sub> J <sub>p</sub>
2 C	M	M	M	Ei	M	M	M	M	M	M	M	M
J	J <sub>s</sub> J <sub>p</sub>	J <sub>s</sub> J <sub>p</sub>	J <sub>s</sub> J <sub>p</sub>	J <sub>s</sub> J <sub>p</sub>	J <sub>s</sub> J <sub>p</sub>	J <sub>s</sub> J <sub>p</sub>	J <sub>s</sub> J <sub>p</sub>	J <sub>s</sub> J <sub>p</sub>	J <sub>s</sub> J <sub>p</sub>	J <sub>s</sub> J <sub>p</sub>	J <sub>s</sub> J <sub>p</sub>	J <sub>s</sub> J <sub>p</sub>
3 C	M Ec	M	M	M	Os	Os	Os	Os	Os	M	M	Ec
J	J <sub>s</sub> J <sub>p</sub>	J <sub>s</sub> J <sub>p</sub>	J <sub>s</sub> J <sub>p</sub>	J <sub>s</sub> J <sub>p</sub>	J <sub>s</sub> J <sub>p</sub>	J <sub>s</sub> J <sub>p</sub>	J <sub>s</sub> J <sub>p</sub>	J <sub>s</sub> J <sub>p</sub>	J <sub>s</sub> J <sub>p</sub>	J <sub>s</sub> J <sub>p</sub>	J <sub>s</sub> J <sub>p</sub>	J <sub>s</sub> J <sub>p</sub>
4 C	Os	Os	Os	Os	Os	Os	Os	Os	Os	Os	Os	Os
J	J <sub>s</sub> J <sub>p</sub>	J <sub>s</sub> J <sub>p</sub>	J <sub>s</sub> J <sub>p</sub>	J <sub>s</sub> J <sub>p</sub>	J <sub>s</sub> J <sub>p</sub>	J <sub>s</sub> J <sub>p</sub>	J <sub>s</sub> J <sub>p</sub>	J <sub>s</sub> J <sub>p</sub>	J <sub>s</sub> J <sub>p</sub>	J <sub>s</sub> J <sub>p</sub>	J <sub>s</sub> J <sub>p</sub>	J <sub>s</sub> J <sub>p</sub>
5 C	Ei	Ei	Ei	Vr	Ei	Ei	Ei	M	M	M	M	M
J	J <sub>s</sub> J <sub>p</sub>	J <sub>s</sub> J <sub>p</sub>	J <sub>s</sub> J <sub>p</sub>	J <sub>s</sub> J <sub>p</sub>	J <sub>s</sub> J <sub>p</sub>	J <sub>s</sub> J <sub>p</sub>	J <sub>s</sub> J <sub>p</sub>	J <sub>s</sub> J <sub>p</sub>	J <sub>s</sub> J <sub>p</sub>	J <sub>s</sub> J <sub>p</sub>	J <sub>s</sub> J <sub>p</sub>	J <sub>s</sub> J <sub>p</sub>
6 C	Ec	Ei	Ei	Ei	Vr	Ei	Ei	Ei	Ei	Sm		
J	J <sub>s</sub> J <sub>p</sub>	J <sub>s</sub> J <sub>p</sub>	J <sub>s</sub> J <sub>p</sub>	J <sub>s</sub> J <sub>p</sub>	J <sub>s</sub> J <sub>p</sub>	J <sub>s</sub> J <sub>p</sub>	J <sub>s</sub> J <sub>p</sub>	J <sub>s</sub> J <sub>p</sub>	J <sub>s</sub> J <sub>p</sub>	J <sub>s</sub> J <sub>p</sub>	J <sub>s</sub> J <sub>p</sub>	J <sub>s</sub> J <sub>p</sub>
7 C	Os	Os	Os	Os	Os	Os	Os	Os	Os	Os	Os	Os
J	J <sub>s</sub> J <sub>p</sub>	J <sub>s</sub> J <sub>p</sub>	J <sub>s</sub> J <sub>p</sub>	J <sub>s</sub> J <sub>p</sub>	J <sub>s</sub> J <sub>p</sub>	J <sub>s</sub> J <sub>p</sub>	J <sub>s</sub> J <sub>p</sub>	J <sub>s</sub> J <sub>p</sub>	J <sub>s</sub> J <sub>p</sub>	J <sub>s</sub> J <sub>p</sub>	J <sub>s</sub> J <sub>p</sub>	J <sub>s</sub> J <sub>p</sub>

# Appendix 4.5.3.4 TA written notes recording children's behaviours

Structure of Session

Music Therapy Research Project On-going Report

1 Sing "Wheels on Bus"  
2 Sing "Hokey Cokey"  
"This Old Man"  
"Old MacDonald"  
all with drum  
3 Choose an instrument (from 3)  
Play together - then take turns  
4 Sing goodbye

Child's Name: Charlie

Aims:	Develop use of eye contact and turn-taking	Develop length of time he can focus on interactive exchanges	Provide a means of self-expression
Engage in vocal exchanges/singing			
Choose songs good use of voice	good eye contact	good exchange of pecs and instruments	very happy and vocal
Choose songs using pecs, some vocal exchanges, mostly communicated by touch.	Lots of eye contact. got frustrated when I paused for him to have a turn.	Good Long focus, wanted some songs more than once.	
Choose using pecs, waited for him to give vocal exchanges. Did give some. Mostly sounds, laughs and some touch.	Excellent turn-taking in singing and also with instruments. lovely eye contact	10 minutes today and seemed very happy, relaxed and probably could have continued.	Selection of instruments to choose from - liked the tambourine the best. lots of laughing
Choose using pecs good vocal	lots of eye contact	10 minutes today but a bit tired towards end	Selection of instruments liked drums

## Appendices 4.5.4 Interview questions

### 4.5.4.1 Semi-structured interview questions for parents



**Office of Children and Young People's Services**  
**Cambridgeshire Music**, The Old School  
Ermine Street North  
Papworth Everard, Cambs CB3 8RH  
(01480) 373500

**Castle School**  
Courtney Way  
Cambridge, CB4 2EE  
Tel (01223) 442400 Tel  
Fax (01223) 442401

### Music therapy for children with special needs Research Project at Castle School

#### Questionnaire for parents before therapy

1. How much vocalising does your child use at home?

A lot    Quite a lot    A small amount    Hardly any    None

2. Is your child's vocalising communicative or expressive?

A lot    Quite a lot    A small amount    Hardly at all    Never

Please describe the range of moods that your child might express through vocalising?

.....

.....

.....

3. Is vocalising an important part of your child's life?

Yes/No

4. Is vocalising an issue? Do you have strong feelings about it?

.....

.....

5. Does your child use any words at home?

A lot    Quite a lot    A small amount    Hardly at all    Never

6. Please describe the types of words and sounds your child uses at home

.....

.....

.....

7. Is your child's use of sounds or words echolalic or repetitive?

Yes/No

If yes please describe:

.....

8. How do you communicate with your child at home?

.....

.....

9. Do you sing with your child?

A lot    Quite a lot    A small amount    Hardly at all    Never

10. Are there any particular songs that you use at home that your child might respond to in music therapy?

.....

.....

11. What are you hoping your child will get out of music therapy in relation to vocalising and verbal communication?

.....

.....

Thank you very much for filling in this questionnaire.

Jo Tomlinson

Music Therapist



**Office of Children and Young People's Services**  
**Cambridgeshire Music**, The Old School  
Ermine Street North  
Papworth Everard, Cambs CB3 8RH  
Tel (01480) 373500

**Castle School**  
Courtney Way  
Cambridge, CB4 2EE  
Tel (01223) 442400  
Fax (01223) 442401

### **Music therapy for children with special needs Research Project at Castle School**

#### **Questionnaire for parents after therapy**

1. How much vocalising does your child now use at home?

A lot    Quite a lot    A small amount    Hardly any    None

2. Is your child's vocalising communicative or expressive?

A lot    Quite a lot    A small amount    Hardly at all    Never

Please describe the range of moods that your child might express through vocalising?

.....

.....

.....

3. Is vocalising an important part of your child's life?

Yes/No

4. Is vocalising an issue? Do you have strong feelings about it?

.....

.....

.....

5. Does your child now use any words at home?

A lot    Quite a lot    A small amount    Hardly at all    Never

6. Please describe the types of words and sounds your child uses at home

.....

.....

.....

7. Is your child's use of sounds or words echolalic or repetitive?

Yes/No

If yes please describe:

.....

8. How do you now communicate with your child at home?

.....

.....

9. Do you sing with your child?

A lot      Quite a lot      A small amount      Hardly at all      Never

10. Do you feel that your child has made progress in music therapy over the last 24 weeks in relation to vocal and verbal communication?

.....

.....

.....

Thank you very much for filling in this questionnaire.

Jo Tomlinson  
Music Therapist



#### Appendix 4.5.4.2 Semi-structured interview questions for teaching assistants



**Office of Children and Young People's Services**  
**Cambridgeshire Music**, The Old School  
Ermine Street North  
Papworth Everard, Cambs CB3 8RH  
Tel (01480) 373500



**Castle School**  
Courtney Way  
Cambridge, CB4 2EE  
Tel (01223) 442400  
Fax (01223) 442401

#### Music therapy for children with special needs Research Project at Castle School

##### Questionnaire for teaching assistants before therapy

1. How much vocalising does the child use in school? (please circle)

A lot    Quite a lot    A small amount    Hardly any    None

2. Is the child's vocalising communicative or expressive?

A lot    Quite a lot    A small amount    Hardly at all    Never

3. Please describe the range of moods that the child might express through vocalising?

.....

.....

.....

4. Is vocalising an important part of the child's life?

Yes/No

5. Is vocalising an issue in class? Do you have strong feelings about it?

.....

.....

.....

6. Does the child use any words in school?

A lot    Quite a lot    A small amount    Hardly at all    Never

7. Please describe the types of words and sounds the child uses at school

.....

.....

.....

8. Is the child's use of sounds or words echolalic or repetitive?

Yes/No

If yes please describe:

.....

9. How do you communicate with the child at school?

.....

.....

10. Do you sing with the child in class?

A lot    Quite a lot    A small amount    Hardly at all    Never

11. Are there any particular songs that you use in class that your child might respond to in music therapy?

.....

.....

12. What do you think the child will get out of music therapy in relation to vocalising and verbal communication?

.....

.....

Thank you very much for filling in this questionnaire.

Jo Tomlinson

Music Therapist



**Office of Children and Young People's Services**  
**Cambridgeshire Music**, The Old School  
Ermine Street North  
Papworth Everard, Cambs CB3 8RH  
(01480) 373500

**Castle School**  
Courtney Way  
Cambridge, CB4 2EE  
Tel (01223) 442400 Tel  
Fax (01223) 442401

### **Music therapy for children with special needs Research Project at Castle School**

#### **Questionnaire for teaching assistants after therapy**

1. How much vocalising does the child now use in school?

A lot    Quite a lot    A small amount    Hardly any    None

2. Is the child's vocalising communicative or expressive?

A lot    Quite a lot    A small amount    Hardly at all    Never

Please describe the range of moods that the child might express through vocalising?

.....

.....

.....

3. Is vocalising an important part of the child's life?

Yes/No

4. Is vocalising an issue in school? Do you have strong feelings about it?

.....

.....

5. Does the child now use any words in school?

A lot    Quite a lot    A small amount    Hardly at all    Never

6. Please describe the types of words and sounds the child uses at school

.....

.....

.....

7. Is the child's use of sounds or words echolalic or repetitive?

Yes/No

If yes please describe:

.....

8. How do you now communicate with the child at school?

.....

.....

9. Do you sing with the child in class?

A lot    Quite a lot    A small amount    Hardly at all    Never

10. Do you feel that the child has made progress in music therapy over the last 24 weeks in relation to vocal and verbal communication?

.....

.....

.....

Thank you very much for filling in this questionnaire.

Jo Tomlinson  
Music Therapist

## **Appendices 4.5.7 Information sheets and letters**

### **Appendix 4.5.7.1 Information sheet and consent form for parents**



**Office of Children and Young People's Services**  
Cambridgeshire Music, The Old School  
Ermine Street North  
Papworth Everard, Cambs CB3 8RH  
Tel (01480) 831695  
Fax (01480) 831696

**Castle School**  
Courtney Way  
Cambridge, CB4 2EE  
Tel (01223) 442400  
Fax (01223) 442401

**September 2012**

#### **Music therapy for children with special needs Research Project at Castle School**

##### **Information sheet for parents**

I would like to invite your child to take part in a music therapy research project at Castle School commencing this term.

I am hoping to follow the progress of your child in music therapy sessions. I will particularly be looking at how your child's vocal and verbal communication develops over a set period of time. To do this I will need to video some sessions and then look at the video to analyse what has happened. This will help me to understand how your child's communication has developed in their sessions over the year. I plan to work closely with some teaching assistants, who may do a follow-up session with your child in the class context.

The practical part of the research project will take place over 24 weeks. Your child will receive 24 weekly music therapy sessions, each lasting 30 minutes.

This project will not make any difference to the treatment of your child, although it will help me to describe more clearly how he or she responds to music therapy sessions. The main benefit of the project is to help me learn more about the effects of music therapy and how to improve the impact of therapeutic in-put.

Before the sessions begin, and after the 24 weekly sessions have finished, I would like to briefly interview you and ask some questions about how your child uses vocalising to communicate and express themselves at home. At the end of the project I would also like to ask you how you feel music therapy may have helped develop their use of vocal or verbal interaction. These interviews will be audiotaped so that I can record your impressions in an accurate way.

All personal information collected in the study will remain confidential and reports of the research will not identify individuals. All video and audio material will be erased after the project is complete.

You are free to make your own decision about your child taking part in this project. Your decision will not affect the therapy in-put your child will receive. You may choose to withdraw your child from the project at any time. You will be asked to sign a consent form to give agreement for your child to take part.

If you have any concerns or would like to discuss the project please contact me on 07769794731 or email: [jotomlinson1@yahoo.co.uk](mailto:jotomlinson1@yahoo.co.uk)

Alternatively leave a message for me with your child's class teacher at school.

Many thanks!

Jo Tomlinson

Music Therapist



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Cambridge, CB4 2EE  
Tel (01223) 442400  
Fax (01223) 442401

**September 2012**

**Music therapy research consent form**

**Music therapy for children with special needs Research Project**

I:(Name)

.....

Of: (Address)

.....

.....

Being the legal guardian of:

.....

of age.....hereby give my permission for the child to participate in this research project. I also consent to taking part in interviews before and after the course of music therapy sessions.

I understand that the project is designed to improve knowledge about music therapy with children. I note that I may withdraw my consent at any stage in the investigation. I have received written explanation about the research project.

Signed:.....

Date:.....

#### **Appendix 4.5.7.2 Information sheet and consent form for teaching assistants**



**Office of Children and Young People's Services**  
**Cambridgeshire Music**, The Old School  
Ermine Street North  
Papworth Everard, Cambs CB3 8RH  
Tel (01480) 373500



**Castle School**  
Courtney Way  
Cambridge, CB4 2EE  
Tel (01223) 442400  
Fax (01223) 442401

**September 2012**

#### **Music therapy for children with special needs research project at Castle School**

##### **Information sheet for teaching assistants**

I would like to invite you to take part in a music therapy research project at Castle School commencing after half-term.

This project will be looking into the effects of music therapy on young children with special needs, particularly in relation to their vocal and verbal development. The project will take place over 24 weeks, and during that time each child will receive 24 weekly sessions of music therapy.

After each music therapy session I would like to meet with you for ten minutes to feed back about the child's behaviour in the session. I will then suggest activities for a 15 minute follow-up session in the class context that you can carry out at some other point during the week. This will probably involve some fun interactive musical exchanges or singing, that will encourage the child to use their voice.

Before the sessions begin, and after the 24 weekly sessions have finished, I would like to briefly interview you and ask some questions about how the child uses vocalising to communicate and express themselves in the class context. At the end of the project I would also like to ask you how you feel music therapy may have helped develop the



child's use of vocal or verbal interaction. These interviews will be audiotaped so that I can record your impressions in an accurate way.

As part of the project I will need to do some video-ing of both music therapy sessions and class interactive sessions, and these will take place on the 3<sup>rd</sup> and 22<sup>nd</sup> weeks of the project. This will enable me to analyse how the child is interacting in both music therapy and class contexts.

All personal information collected in the study will remain confidential and reports of the research will not identify individuals. All video and audio material will be erased after the project is complete.

You are free to make your own decision as to whether you take part in this research project and may choose to withdraw from the project at any time. You will be asked to sign a consent form to agree to participate.

If you have any queries about the project or would like to discuss it with me, please contact me on 07769794731 or email: [jotomlinson1@yahoo.co.uk](mailto:jotomlinson1@yahoo.co.uk)

Many thanks!

Jo Tomlinson  
Music Therapist



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Courtney Way  
Cambridge, CB4 2EE  
Tel (01223) 442400  
Fax (01223) 442401

**Music therapy research consent form for teaching assistants**

**Music therapy for children with special needs research project at Castle School**

I:  
(Name)  
.....

Of:  
(Address)  
.....  
.....

consent to taking part in this music therapy research project.

I understand that the project is designed to improve knowledge about music therapy  
with children. I note that I may withdraw my consent at any stage in the investigation.

I have received written explanation about the research project.

Signed:.....

Date:.....

#### **Appendix 4.5.7.3 Consent letter from the Head Teacher**



**Office of Children and Young People's Services**  
**Cambridgeshire Music**, The Old School,  
Ermine Street North,  
Papworth Everard, Cambs CB3 8RH  
Tel (01480) 831695  
Fax (01480) 831696



**Castle School**,  
Courtney Way,  
Cambridge, CB4 2EE  
Tel (01223) 442400  
Fax (01223) 442401

September 21<sup>st</sup> 2012

Dear Jo

I am writing to you to confirm that I am delighted that you are setting up a music therapy research investigation at Castle School.

Although Cambridgeshire County Council does not require you to go through a formal ethics procedure, I am reassured that you have taken necessary precautions to ensure that ethical issues have been addressed.

I note in particular that you have produced an information sheet for parents and teaching assistants and that you have obtained their written consent to take part in this investigation. You have also made sure that families can withdraw from the project at any time and realise that they will not miss out on treatment if they do not take part in the research. As none of the children involved can read or write, you have not produced a special consent form for the children, but you have taken care to ensure that if children express a wish not to be part of this project, their views are heard and respected.

I look forward to hearing the results of your project at the end of the academic year.

Yours sincerely

Carol McCarthy

Head Teacher

**Appendix 4.5.7.4 Letter and consent form for parents for using data from the research in the PhD thesis**



**Office of Children and Young People's Services**  
**Cambridgeshire Music**, The Old School,  
Ermine Street North,  
Papworth Everard, Cambs CB3 8RH  
Tel (01480) 831695  
Fax (01480) 831696



**Castle School**,  
Courtney Way,  
Cambridge, CB4 2EE  
Tel (01223) 442400  
Fax (01223) 442401

Friday 10<sup>th</sup> October 2014

Dear

I am writing with regard to the music therapy research project that I carried out last year (September 2012 – July 2013) at Castle School which your child was involved in. I am grateful for the support that you have already shown for this project, and am now coming to the process of writing up and compiling all the data. I am hoping to turn the write-up into a PhD thesis based at Anglia Ruskin University, and am writing to ask whether you give your consent for data from the project to be used in my thesis. All names will be changed to ensure confidentiality, so it would be difficult to identify your child within the document. Hopefully information from the thesis will inform our music therapy practice and extend our knowledge about how music therapy can best help children with special needs to develop essential communication skills.

I would be very grateful if you could fill in the form below to indicate whether you are happy for me to proceed with this, and return to your child's class teacher by Tuesday 14<sup>th</sup> October.

Please do contact me at the school on a Tuesday if you have any concerns or queries in relation to the project, or alternatively ring me on 07769794731.

Many thanks!

Best wishes

Jo Tomlinson

Music Therapist

**For the attention of Jo Tomlinson, Music Therapist, Castle School**

I give consent/ I do not give consent (please delete as appropriate) for data collected during a music therapy project at Castle School which took place between September 2012 – July 2013, to be used as part of a PhD thesis compiled and written by Jo Tomlinson (based at Anglia Ruskin University, East Rd, Cambridge). I understand that this data includes recorded interview material, analysis results from video of music therapy sessions, notes from music therapy and teaching assistant sessions and annual review music therapy reports.

I understand that no fee is payable to my child for this data or video material.

Child's name:.....

Parent's signature:.....

**Appendix 4.5.7.5 Letter and consent form for parents for using photos and videos as part of the PhD thesis**



**Office of Children and Young People's Services**  
**Cambridgeshire Music**, The Old School,  
Ermine Street North,  
Papworth Everard, Cambs CB3 8RH  
Tel (01480) 831695  
Fax (01480) 831696



**Castle School**,  
Courtney Way,  
Cambridge, CB4 2EE  
Tel (01223) 442400  
Fax (01223) 442401

1<sup>st</sup> March 2016

Dear

You may remember that ..... took part in a music therapy research project between October 2012 – July 2013. I am now in the final stages of writing up my PhD thesis based on the music therapy research and would very much like to illustrate the text with short video extracts and photos. Although my original plan was to anonymize the write-up, I would be very grateful if you would give your permission for me to use short video extracts which may include your child's name in 'hello' songs, and photos as part of the thesis.

Many thanks again for allowing your child to take part in the project.

With best wishes

Jo Tomlinson

Music Therapist



**Office of Children and Young People's Services**  
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**Castle School,**  
Courtney Way,  
Cambridge, CB4 2EE  
Tel (01223) 442400  
Fax (01223) 442401

March 1<sup>st</sup> 2016

**Music therapy research project October 2012 – July 2013**

**Consent form to use video extracts and photos as part of a PhD thesis**

I:

(Print name)

.....

Of:

(Address)

.....

.....

give permission for video extracts and photos of .....

taken during the course of the research project to be used as part of Jo Tomlinson's  
PhD thesis.

I understand that no fee is payable to my child for the use of these video extracts and  
photos.

Signed:.....

Date:.....

## Appendix 4.5.7.6 Anglia Ruskin University Ethics Form



### Anglia Ruskin University: Research Ethics Application Form (Stage 2)

PLEASE COMPLETE THE FORM IN WORD PROCESSING FORMAT. HANDWRITTEN APPLICATIONS WILL NOT BE ACCEPTED.

Name	Jo Tomlinson
Faculty	Arts, law and social sciences
Title of Proposed Research	To quantify the development of vocal and verbal skills in young children with special needs during a phase of music therapy sessions, working alongside teaching assistants in a special school.
Address	44 Victoria Park, Cambridge, CB43EL
E-mail address	<a href="mailto:jotominson1@yahoo.co.uk">jotominson1@yahoo.co.uk</a>
Type of Researcher (please tick)	Doctorate
Supervisor/Project Director	Professor Amelia Oldfield
Collaborators	
Expected date of commencement	Start date at ARU Oct 2014
Approximate duration	2 years at ARU plus 2 years of research prior to starting at ARU
Externally funded	Yes – The Music Therapy Charity is funding my fees at ARU.  The initial research, which took place before I enrolled at ARU, was jointly funded by Eastern Counties Educational Trust and The Music Therapy Charity.



Please refer to section 3.4 of the “Guidelines for Applying for Ethical Approval at Anglia Ruskin University” to see whether you need to obtain additional insurance cover for your research.

1.	Briefly describe the rationale for and state the value of the research you wish to undertake.
	The research should provide valuable information about how music therapy can help to support the development of vocal and verbal skills in young children with special needs. Another major dimension to the project was the work alongside Teaching Assistants. There is not currently much literature about music therapist’s working alongside TA’s, so this will provide new insight into this area.
2.	Suitability/qualifications of researchers to undertake the research. Please include details of any internal or external research ethics training you have participated in.
	20 years music therapy clinical experience. Edited 2 music therapy books. Presented at numerous music therapy conferences. Completed ethics stage 1 training.
3.	What are the aims of the research?
	To quantify vocal and verbal development in young children with special needs over a period of music therapy sessions, and analyse the benefit of the music therapist working alongside Teaching Assistants.
4.	Briefly describe the overall design of the project.
	I carried out a music therapy research project at Castle School, Cambridge between September 2012 – July 2013 and am planning to use the data generated from this project as the basis for my PhD.  The aim for my research investigation was to look into the development of vocal/verbal skills in eight young children aged four – eight years and to work closely with Teaching Assistants at the school to see if this facilitated increased development in their use of vocalising. I hope to measure the children’s vocalising in sessions at the start and finish of the project through time-sampling video analysis (Oldfield and Adams 1995). I also carried out semi-structured recorded interviews with Teaching Assistants and parents of the children at the start and finish of the project, which I plan to analyse over the next two years.
5.	Briefly describe the methods of data collection and analysis.
	I did video recordings at the start and finish of the music therapy project, of both my own sessions with the children and the TA’s sessions. I wrote case notes throughout the project, and carried out semi-structured interviews with the parents of the children and the TA’s.
6.	Describe the participants: give the age range, gender and any particular characteristics pertinent to the research project. <i>For experimental studies state the inclusion and exclusion criteria.</i>
	Children with special needs aged 4 – 8

7. If your participants are under 18 years of age, please confirm who you have applied to for a Disclosure and Barring Service (DBS) check (if UK) or non-UK clearance, or, if not, explain below. PLEASE **DO NOT ATTACH A COPY OF YOUR DBS CHECK WITH YOUR APPLICATION.**

I received written permission from the Head Teacher at the school to carry out the project, and from all the parents of the children. The children themselves were too young and disabled to give written consent, however, I considered each case carefully and only included children in the project who I felt would be happy to participate. I also received written permission from the TA's who were involved.

8. How will the participants be selected and recruited?

The participants were selected according to their vocal developmental stage and age.

9. How many participants will be involved? For experimental studies, specify how the sample size was determined. In clinical trials, a Power calculation *must* be included.

8

10. What procedures will be carried out on the participants (if applicable)?

Music therapy sessions and TA music sessions.

11. What potential risks to the participants do you foresee?

None

12. How do you propose to ameliorate/deal with potential risks to participants?

13. What potential risks to the interests of the researchers do you foresee?

14. How will you ameliorate/deal with potential risks to the interests of researchers?

15. Has a risk assessment been completed? (Yes/No) – link to risk assessment website - <a href="http://web.anglia.ac.uk/anet/rdcs/compliance/index.phtml">http://web.anglia.ac.uk/anet/rdcs/compliance/index.phtml</a> (please be aware this must be kept on file and updated annually)
Yes. Risk assessments are routinely carried out before any music therapy is carried out in schools.

16. How will you brief and debrief participants? ( <i>Attach copy of information to be given to participants</i> )
I provided information sheets for parents of the children and TA's. I also have completed consent forms from all the parents of participants and TA's. I made sure the children knew how many music therapy sessions they would have, and prepared them for the end of the treatment.

17. Will informed consent be sought from participants?		
I made sure that any children who participated in the project were happy and willing to attend sessions.		
Consent was sought from the parents of the children, and TA's.		

18. If there are doubts about participants' abilities to give informed consent, what steps have you taken to ensure that they are willing to participate?
I talked to the children who I felt could understand language and observed their reactions to ensure that they appeared to give consent to be there. I also consulted the parents, the teachers and the TA's of the children.

19. If participants are under 18 years of age please describe how you will seek informed consent
See above. Written consent was obtained from parents.

20. How will consent be recorded?
Written consent forms.

21. Will participants be informed of the right to withdraw without penalty?	Yes

*The written consent form for parents (see attached) makes it clear that parents could withdraw their consent at any point. All 8 children seemed contented to come to music therapy and music sessions. If they had appeared at any point distressed or unwilling to attend, this would have been taken into consideration, and they could have withdrawn from the project.*

22. How do you propose to ensure participants' confidentiality and anonymity?

All notes and video recordings were kept in locked cabinets. Names were changed in the write-up. Video recordings destroyed after project is complete.

23. Please describe which of the following will be involved in your arrangements for storing data:

Manual files (e.g. paper documents or X-rays)

Home or other personal computer

Manual notes were kept in locked cabinets. Information stored on school and personal computer is password protected.

Please explain, for each of the above, the arrangements you will make for the security of the data (please note that any data stored on computer must have password protection as a minimum requirement):

Password protection

24. Will payments be made to participants?

No

25.      Modification of Proposal

26. <b>(EXTERNALLY-FUNDED PROJECTS ONLY)</b> Has the funding body been informed of and agreed to abide by Anglia Ruskin University's Ethics Procedures and standards?	
The Music Therapy Charity who is funding my ARU fees has funded a number of music therapy research investigations over the past ten years, and is fully aware of, and agreeable to, ARU ethics procedures and standards.	

27. <b>(EXTERNALLY-FUNDED PROJECTS ONLY)</b> Has the funder placed any restrictions on a) the conduct of the research b) publication of results?	
	No
<i>If yes, please detail below:</i>	

28.      Are there any further points you wish to make in justification of the proposed research?

**3 September 2013**

**RESEARCH ETHICS SUBCOMMITTEE (RESC) REGISTER**

The Research Ethics Subcommittee (RESC) publishes a list of approved projects on the University intranet, which is searchable by all staff and students of the University. The entry for each project comprises the following data:

- project title
- funding body (if appropriate)
- duration of project
- date and expiry of ethics approval
- name of researcher

**Inclusion on this list is a condition of ethics approval, unless the Committee is informed of compelling reasons for an exemption. If you wish to request that your information is withheld, please tick the box below and state the reasons for your request.**

☐ **I do not wish my project details to be included on the RESC list for the following reasons:**

Please indicate that you are enclosing with this form the following completed documents:

Participant consent form

Participant Information Sheet

Summary of the research

Signed: Jo Tomlinson

Date 13/1/15

**Statement of Supervisor's / Project Director's support\***

I support this application:

Signed \_\_\_\_\_ Amelia Oldfield \_\_\_\_\_

Date 12/1/15

Title: Professor of Music Therapy

**\*applications not countersigned by a supervisor/project director will not be accepted; please note that this applies equally to members of staff who are also students**

## **Appendices 5.1 The children's music therapy reports**

### **Appendix 5.1.1 Music therapy report for Ashraf**

#### **July 2013**

I have been working with Ashraf in individual music therapy sessions since January 2011. Ashraf has a diagnosis of Autism Spectrum Disorder and was referred for music therapy by his class teacher RS, in March 2010. It had been noted in class that Ashraf responded well to music and could pick up words more quickly when supported by a musical framework. RS felt that music therapy could help extend his communication and interaction skills.

Ashraf received music therapy as part of a research project between October 2012 – June 2013 where the focus was on developing his vocal and verbal skills in individual music therapy sessions. As part of the project Ashraf also received weekly singing and music sessions with a Teaching Assistant, with a view to further supporting Ashraf's verbal development within the structure of songs.

#### **Musical preferences and particular responses to music**

Ashraf has continued to be enthusiastic about coming to music therapy and will often shout "music!" when he passes me in the corridor at school. He loves singing activities and exchanges, and this can provide an incentive for him to engage with other people and extend his language use. Ashraf has favourite songs that he likes to sing, such as 'Row your boat', 'Tiny turtle' and 'Wheels on the bus'. Ashraf likes to join in with bursts of spontaneous play on the drums and wind-chimes. He generally does excellent play on the drum at the end of sessions.

## **Aims**

1. To encourage Ashraf to participate in interactive music making and develop his listening and turn-taking skills.
2. To develop Ashraf's interest in singing and to use songs to motivate him to engage in communicative exchanges and verbal interaction.
3. To develop Ashraf's ability to engage in a flexible and co-operative manner.
4. To provide a medium for self-expression.

## **Progress towards these aims**

Ashraf has continued to enjoy his music therapy sessions, and always makes good eye contact and smiles when I go to collect him. As part of the music therapy research project this year, Ashraf has attended both individual music therapy sessions and weekly singing sessions with a Teaching Assistant. This has supported his language development and provided opportunities for him to extend his word use within the context of songs. During the project I have analysed video from the start and finish of the project, and Ashraf's verbal and singing interaction has increased considerably over the course of the academic year.

Ashraf very much enjoys joining in with his favourite songs, such as 'Row your boat', 'Wheels on the bus', 'Heads shoulders knees and toes' and 'Tiny turtle'. During shared singing exchanges I have gradually reduced the amount of singing that I contribute during the songs, and instead wait for Ashraf to sing. Ashraf has become much more consistent in singing several words within phrases and sometimes almost whole songs. Ashraf has become much more focused during this type of shared activity. In previous sessions he used to become preoccupied with fiddling with all the beaters at the same time as singing, but he can now focus better on direct interactive exchanges.



Ashraf likes the sound of the flute and will sometimes vocalise along to this if I play a familiar tune. He can anticipate the ends of phrases and sing the note if I stop suddenly. Ashraf makes particularly good eye contact during exchanges with the flute and his singing is generally very accurately pitched in relation to what I am playing. Ashraf's concentration has improved again this year and his session length has extended from 20 minutes to between 25 – 30 minutes, depending on his mood on the day. When he is in a lively mood he can become preoccupied with finding things in the room to disrupt, but I can generally re-channel his energy into focused play, as he is so motivated by music.

Ashraf particularly loves playing goodbye on the drum at the end of the session and always plays with a strong rhythmical beat, making excellent eye contact and laughing.

### **Conclusion and recommendations**

Ashraf has enjoyed his music therapy this year and has made excellent progress in his involvement in singing and verbal interaction, as well as extending the length of time that he can remain focused on shared exchanges. I hope to continue with similar aims, and particularly encourage Ashraf to further extend his song phrases and develop his concentration.

Ashraf's individual sessions will resume again in September 2013.

I look forward to continuing to work with Ashraf again next term.

## **Appendix 5.1.2 Music therapy report for Bella**

### **July 2013**

Bella has a diagnosis of global developmental delay and epilepsy. Bella previously attended ten music therapy sessions with a music therapy student at the Child Development Centre, Addenbrookes in 2010, and then with music therapist AO at the Croft Children's Unit from 2011 – 2012. Bella's mother also attended these sessions, and Bella both enjoyed and made good progress in terms of communication and social skills during this phase of therapy.

I liaised with AO about Bella's music therapy in September 2012, following a referral by Bella's class teacher. Bella started attending sessions with me at Castle School as part of a music therapy research project in October 2012. The aim of the research project is to investigate how music therapy can support vocal and verbal development in young children with special needs, and whether this development can be further facilitated by Teaching Assistants carrying out follow-up sessions between music therapy sessions. The project lasted until June 2013.

### **Musical preferences and particular responses to music**

Bella responds excitedly to music and musical interaction through facial expressions and vocal sounds. She can be reluctant to use her hands to play musical instruments, but is happy for me to provide hand-over-hand support in strumming the guitar gently or playing the tambourine. Bella can grasp the shaker independently and sustain playing on this for a few minutes. Bella particularly likes high-pitched sounds, and smiles when I play high notes on the flute.

### **Aims**

1. To encourage Bella to engage in shared interactive playing and develop her listening and turn-taking skills.

2. To develop Bella's communication and particularly her use of vocalising.
3. To develop Bella's co-ordination and her ability to play the musical instruments independently.
4. To provide a medium for self-expression.

**Progress towards these aims**

Bella seemed very happy to start attending music therapy sessions at Castle School in October following her positive experience of music therapy with AO. She immediately engaged well with me, smiling in response to the music, and vocalising intermittently. Bella's mother reported that Bella responded well to high-pitched sounds, and Bella has certainly appreciated it when I play high notes on the flute – if I play a tune at a low range and then put it up an octave, Bella always gives a beaming smile!

Bella can be selective about which instruments she is prepared to engage in playing – she sits contentedly when I push her wheelchair up to the piano, but is reluctant to push the notes down independently. She does smile if I support her hands to push down the keys, but then moves her hands away. Similarly if I support her hands to strum the guitar strings she initially seems pleased to be playing, but then moves her hands away. Bella can shake the shaker on her own and is able to sustain this for a while. She can also feel and scratch the surface of the ocean drum if it is held for her, and move the chimes on the wind-chimes.

Bella tends to become increasingly vocal as the sessions progress. Her vocal pitch moves up and down and generally sounds quite musical. Bella often vocalises in direct response to my singing and flute play, though sometimes she prefers to listen quietly. Bella vocalises cheerfully in the goodbye song, and sometimes as I take her back to the classroom as well.

### **Conclusion and recommendations**

Bella has enjoyed her music therapy sessions and has responded enthusiastically and interactively throughout. She particularly likes listening and reacting to high musical sounds and wind instruments. As Bella has limited means of communication and is responsive to music, it is important that she continues to have opportunities to express herself through music making, whether in the music therapy context or in the class setting.

Bella's individual music therapy sessions as part of the research project have come to an end, but I am looking forward to working with Bella again in September in a group context, to work on developing her social skills with her peer group.

### **Appendix 5.1.3 Music therapy report for Charlie**

#### **July 2013**

Charlie has a diagnosis of Autism Spectrum Disorder and Global Developmental Delay. He was referred for music therapy by his class teacher at Castle School and took part in group sessions with a music therapy student, JF from September – December 2011. JF noted that Charlie enjoyed interacting through music and exploring a range of vocal sounds.

Charlie has been attending sessions as part of a music therapy research project between October 2012 – June 2013. The aim of the research project is to investigate how music therapy can support vocal and verbal development in young children with special needs, and whether this development can be further facilitated by Teaching Assistants carrying out follow-up sessions between music therapy sessions.

Charlie has attended 24 weekly individual music therapy sessions and also weekly singing/music sessions with his Teaching Assistant, Dean.

#### **Musical preferences and particular responses to music**

Charlie was immediately responsive to music after an initial adjustment to the new environment at the start of the project. He showed great enthusiasm for familiar nursery rhymes, such as ‘Grand Old Duke of York’, ‘Wheels on the Bus’ and ‘Row your Boat’. Charlie’s mood has been variable and this has impacted on how much he has engaged with the playing. His favourite instruments to explore are the drum and guitar.

#### **Aims**

1. To encourage Charlie to engage in interactive music making and develop his listening and turn-taking skills.

2. To develop Charlie's ability to communicate vocally and encourage him to join in with vocal exchanges within singing activities.
3. To develop Charlie's confidence in decision-making and leading.
4. To provide a medium for self-expression.

**Progress towards these aims**

Charlie loves to engage in interactive musical exchanges, and particularly those that centre around familiar nursery rhymes and games. After an initially unsettled phase at the start of the project, Charlie became used to the regular routine of attending music therapy on a Tuesday morning, and came confidently to the music therapy room at the start of the day.

Charlie has been able to express himself through rhythmical playing on the drum and guitar, and sometimes when he has been upset, has been able to channel some of this anxious energy into constructive playing. Similarly Charlie can express excitement and humour through engaging in expressive playing and exchanges, and has taken great pleasure in some sustained rhythmical playing together.

Charlie has enjoyed expressing himself vocally, and has extended the range of expressive sounds he makes. Charlie responds extremely well to the secure framework of predictable songs and has been able to contribute vocally within this context. As part of the research project Charlie has also attended music and singing sessions with Teaching Assistant, Dean, and this additional session has further supported Charlie's vocal development, through having the opportunity to express himself vocally in the context of singing activities.

### **Conclusion and recommendations**

Charlie has enjoyed both his individual music therapy sessions and his singing sessions with Dean, and we have both seen an increase in his range of vocal and communicative sounds. This intensive musical in-put has both supported Charlie's communicative development and given him confidence in expressing himself socially, with more awareness of listening and turn-taking within exchanges.

Charlie's music therapy sessions as part of the research project have now come to an end, but I hope to work with Charlie again at some point during his time at the school. Charlie may well benefit from a music therapy group in the future, in order to develop his social skills with his peer group.

#### **Appendix 5.1.4 Music therapy report for Elliot**

##### **July 2013**

Elliot has a diagnosis of Autism Spectrum Disorder. He was referred for music therapy by his class teacher RS, to develop his interactive and communicative skills. I worked with Elliot in a small music therapy group from September 2011 – July 2012. From October 2012 – June 2013 Elliot attended individual music therapy sessions as part of a research project looking into the development of vocal and verbal skills in young children. As part of this project Elliot also attended individual music and singing sessions with Teaching Assistant, Joy, to see if this additional in-put further supported his verbal development.

##### **Musical preferences and particular responses to music**

Elliot has continued to enjoy exploring the whole range of musical instruments, but I find that he focuses better on interactive play when there are fewer instruments to choose from. Consequently I limit the choice to drum, guitar, accordion and recorder during our individual sessions where I am trying to encourage direct interaction. Elliot can play consistently on the recorder with encouragement, and also loves to explore the accordion. He prefers to explore the musical instruments independently, but also focuses well for short periods on shared play.

##### **Aims**

1. To encourage Elliot to participate in interactive music making and develop his listening and turn-taking skills.
2. To develop Elliot's communication skills, particularly his use of vocal and verbal exchanges within the context of singing.
3. To develop Elliot's self-awareness and capacity to engage with another person in a flexible way.



4. To provide a medium for self-expression.

#### **Progress towards these aims**

Elliot has really enjoyed his involvement in the music therapy research project this year. As part of the project Elliot has attended both individual music therapy sessions, and individual music and singing sessions with Teaching Assistant, Joy. The focus for these sessions was on encouraging Elliot to use his voice more in singing activities and to communicate verbally, for example, saying “hello” and “bye”. Elliot has made good progress during the 24-week phase of sessions, contributing some lovely vocalising and generally interacting well, although he has continued to be very selective about when he uses verbal communication. Elliot enjoyed engaging in free exploration of his voice once immersed in exploring the musical instruments, but could in contrast be reluctant to use his voice in a directly communicative way. However, he has made some excellent “b” sounds when we are walking back to class, when I repeatedly sing “Bye Elliot”.

Elliot has continued to develop his understanding of communication and still enjoys engaging in fun interactive exchanges, particularly if this interaction involves some sort of build up or predictable outcome. He loves tickling games with lots of excitable vocalising!

Elliot likes to play the recorder and will play consistently if I hold the instrument for him, although he is reluctant to hold it for himself.

#### **Conclusion and recommendations**

Elliot has really enjoyed both his music therapy sessions and his music sessions with J this year, and has demonstrated his increasing appreciation of shared interactive play and structured musical games. Although Elliot continues to be selective about when he communicates verbally, he has explored his voice freely when immersed in playing

and has developed more confidence in his social skills, taking great pleasure in humorous exchanges.

Elliot's individual sessions as part of the research project have now finished, but I will continue working with Elliot in a small music therapy group next term to extend his social skills with his peer group.

I look forward to working with Elliot again in September.

## **Appendix 5.1.5 Music therapy report for Kieran**

### **July 2013**

Kieran has a diagnosis of cerebral palsy and visual impairment. He was referred for music therapy by his class teacher RS, with a view to developing his social and communication skills in September 2012.

I have worked with Kieran in individual music therapy sessions since October 2012, as part of a research project looking into how music therapy can facilitate the development of vocal and verbal skills in young children. Kieran has attended 24 weekly sessions during this academic year.

### **Musical preferences and particular responses to music**

Kieran is extremely responsive to music and shows his appreciation through beaming smiles, playing enthusiastically on a range of musical instruments and attempting to join in with singing. Kieran makes definite choices of instruments to play, and will shake his head clearly if he doesn't want to play something. Kieran has an excellent sense of rhythm and loves banging on the tambourine and drums, and playing the wind-chimes, guitar, piano and shakers.

### **Aims**

1. To encourage Kieran to engage in interactive music making, and develop his listening and turn-taking skills.
2. To develop Kieran's confidence in using his voice, as well as encouraging other types of communication and singing.
3. To provide opportunities for choosing, decision-making and leading.
4. To provide a medium for self-expression.

### **Progress towards these aims**

Kieran has responded very enthusiastically to coming to music therapy and is really motivated by music. He has an excellent sense of rhythm and can sustain rhythmic play for extended periods of time when accompanied by me on the piano or flute.

Kieran particularly likes to drum rhythmically on the tambourine and drums, and is able to respond to musical structures, anticipating when the piece of music or song is ending. Once the piece of music is finished Kieran often chooses to change to a different musical instrument, and can make very definite decisions. He will shake his head if he doesn't want to play the instrument he is offered, and then points to the instrument he does want. Kieran loves playing the piano, joining in with rhythmic chord clusters. Similarly he will lean forward to strum rhythmically on the guitar while I sing along.

Kieran likes to be constantly involved in active music making, and sometimes protests if we do a turn-taking game where he has to wait for his turn to play. He listens extremely well to my playing while he is playing himself though, which is obvious through his tuning in to my rhythmical beat.

Kieran really enjoys singing activities and will attempt to vocalise at the ends of the song phrases if I stop singing. It is clearly an effort for Kieran to create vocal sounds but he does seem keen to use his voice within singing activities, and his vocal sounds have become more varied in pitch and tone as the sessions have progressed this year.

Kieran has generally been extremely communicative in sessions, both vocally and through his use of eye contact, smiling and laughing.

### **Conclusion and recommendations**

Kieran has taken a positive and enthusiastic approach to his music therapy sessions and has consistently been very engaged and motivated to explore rhythmic play on a range of musical instruments. He responds really well to all types of song structures for both singing and playing activities, and his vocal skills have really developed within the framework of songs.

As Kieran is limited in his verbal communication and very responsive to music, it is important that he continues to have opportunities to express himself musically, whether in a music therapy context or in the class setting.

Kieran's individual sessions as part of the research project have now finished, but I will be resuming work again with Kieran in September as part of a music therapy group, with the objective of developing Kieran's social skills with his peer group.

I look forward to working with Kieran again next term.

## **Appendix 5.1.6 Music therapy report for Mark**

### **July 2013**

Mark has a diagnosis of Autism Spectrum Disorder. He attended music therapy sessions at The Field's Children's Centre with CR, initially in a music therapy group, and then in individual sessions. Once Mark was at Castle School he was referred for music therapy by his class teacher, with a view to developing his social and communication skills. Mark attended a music therapy group run by music therapy student, JF from September 2011 – January 2012.

I have been working with Mark in individual music therapy sessions since October 2012, as part of a research project to look into how music therapy can support the development of vocal and verbal skills. Mark has attended 24 weekly individual sessions during this phase.

### **Musical preferences and particular responses to music**

Mark has demonstrated the ability to be very responsive to music in current and previous phases of music therapy. He has a good awareness of musical structures and can fill in some words within song phrases when I sing his favourite songs, such as 'If you're happy and you know it', 'Five little speckled frogs' and 'Row your boat'.

Mark likes to explore the range of musical instruments available, but is sometimes more interested in the mechanical aspects of them than in creating sounds.

### **Aims**

1. To encourage Mark to engage in interactive play, and develop his listening and turn-taking skills.
2. To encourage Mark to play interactively in a flexible and co-operative way.
3. To extend Mark's use of verbal and vocal interaction, using songs to support this development.

4. To provide a medium for self-expression.

**Progress towards these aims**

At the start of my work with Mark in October he took some time to engage with me, preferring to explore the mechanical aspects of the instruments than get involved in interactive singing and playing. By the start of the January term though, Mark suddenly seemed much more interested in focusing on positive singing and playing exchanges in sessions, using his voice quite consistently within song structures. He has favourite songs that he likes to join in with, such as ‘If you’re happy and you know it’, clearly singing “show” at the end of the second phrase. In ‘Five little speckled frogs’ Mark will join in with “frogs”, “bugs” and “yum”. As well as joining in with familiar songs, Mark will often now burst into independent chatting, for example, playing up and down the piano keys and saying the alphabet.

In a recent session, Mark created a game of threading the beater through the tambourine and repeatedly saying “pull”, and encouraging me to join in with this. I made up a song about ‘pulling the tambourine’ and Mark then seemed very pleased to make this a shared interactive exchange, rather than being independently absorbed into the game. Previously Mark had seemed more interested in purely lining up the musical instruments on his own, so this felt like a step forward in terms of shared play and verbal exchange.

Mark has a good awareness of musical structures, so if I am playing a tune on the flute and then stop before the end of the phrase, he will often look up with interest to see if I will complete the phrase.

Mark is also aware of the familiar structure of sessions and responds well to the familiar routines of singing 'hello' and 'goodbye', often joining in at these points in the session.

### **Conclusion and recommendations**

Mark has enjoyed his music therapy sessions and has become increasingly responsive to interactive play and singing. It has been rewarding to hear him using his voice more within predictable song frameworks, and to see him engaging spontaneously in humorous exchanges.

Mark's individual sessions as part of the research project have now finished. It has been a pleasure to work with Mark and I hope to work with him again at some point during his time at the school, perhaps in a group context where we can focus more on his social skills with his peer group.



## **Appendix 5.1.7 Music therapy report for Paul**

### **July 2013**

Paul has a diagnosis of Autism Spectrum Disorder. He previously attended music therapy with AO at the Child Development Centre, Cambridge, with his parents and younger brother, from January 2010 – July 2011.

Paul was referred for music therapy at Castle School by his class teacher RS in September 2011 as she felt that music therapy would help Paul's communication and interaction skills.

I carried out a six week assessment period of music therapy sessions in the Spring term 2012 which concluded that Paul would benefit from additional music therapy input. Paul attended 24 weekly individual music therapy sessions as part of a research project between October 2012 – June 2013, looking into how music therapy can support the development of vocal and verbal skills in young children.

### **Musical preferences and particular responses to music**

Paul is a rhythmical child who enjoys banging on objects and musical instruments with a steady beat. He really enjoys the framework of familiar songs and has a good awareness of musical sounds and pitches/harmonic intervals. Paul loves to explore the range of musical instruments, but is particularly responsive to the sounds of the piano, drum and guitar. He can become fixated on instruments that contain beads and then difficult to re-engage, so I generally remove the ocean drum before the session begins. Paul is really fascinated by the piano and can focus for prolonged periods of time on this instrument, both at home and in music therapy.

### **Aims**

1. To encourage Paul to engage in interactive music making, and develop his listening and turn-taking skills.

2. To develop Paul's communication skills, particularly his use of vocalising and eye contact.
3. To encourage flexibility of interaction and develop his ability to follow instructions.
4. To provide a medium for self-expression

**Progress towards these aims**

Paul has made excellent progress in his music therapy this academic year, particularly in relation to using his voice in an increasingly communicative manner. He can now anticipate sharing in singing and vocal exchanges, responding vocally when I pick up the guitar and singing "Ee-ah-ee-ah" sounds. Paul still likes to sing repeated vocal patterns that often centre around an interval of a third. When Paul is engaged in vocal interaction he makes very good eye contact and has a good awareness of the exchanges, often smiling at the same time.

Paul has also become much more flexible and co-operative in mostly sitting on the chair opposite me and either exploring musical instruments together (often the piano, but increasingly the drum and guitar too), and engaging in vocal exchanges. Paul loves the piano and has continued to demonstrate a fascination for this instrument, playing up and down the keyboard in thirds and other melodic patterns. He will also respond positively to me joining him in explorative play on this instrument.

Paul continues to enjoy music and demonstrates an excellent awareness of sounds and musical structures, sometimes giving a beaming smile when I come to the end of a song or piece of piano music. He likes the predictable structure of singing 'hello' and 'goodbye' at the start and end of sessions, and generally does some rhythmic play on the drum to finish the session.

### **Conclusion and recommendations**

Paul has really enjoyed his phase of individual music therapy sessions and has demonstrated his ability to be motivated by sounds that he can create as well as being to prepared to listen to me, and engage in vocal exchanges.

Paul's individual sessions as part of the research project have now come to an end, but I look forward to working with Paul again next term in the context of a music therapy group, where the focus will be on developing his social skills with his peer group.

## **Appendix 5.1.8 Music therapy report for Remiel**

### **July 2013**

Remiel has a diagnosis of Autism Spectrum Disorder. He was referred for music therapy by his class teacher RS in September 2012 in order to develop his social and communication skills.

I started working with Remiel in individual music therapy sessions as part of a research project to investigate how music therapy can support the development of vocal and verbal skills in young children, and whether this development can be further facilitated by Teaching Assistants carrying out follow-up music/singing sessions. Remiel has attended 24 weekly music therapy sessions between October 2012 – June 2013, and has also taken part in weekly music sessions with his Teaching Assistant, Nina.

### **Musical preferences and particular responses to music**

Remiel is very responsive to music and has a natural ability to pitch notes accurately during singing exchanges. His favourite songs are ‘Old MacDonald’, ‘Five little speckled frogs’ and ‘Music man’. He also enjoys playing along on a variety of instruments, such as the drum, guitar, wooden frogs and tambourine.

### **Aims**

1. To encourage Remiel to engage in interactive music making, and develop his listening and turn-taking skills.
2. To develop Remiel’s confidence in using his voice and encourage him to annunciate words clearly within songs.
3. To provide opportunities for choosing, decision-making and leading.
4. To provide a medium for self-expression.

### **Progress towards these aims**

Remiel has enjoyed his music therapy sessions and has made steady progress through the year in developing his vocal and singing abilities. He can initially be tentative about contributing vocally in singing activities, but as the session goes on he always becomes increasingly enthusiastic about joining in. Remiel can sing most of the words of familiar songs, but needs encouragement to make the effort to annunciate clearly. He is a musical child with an instinctive ability to pitch notes accurately within songs. Remiel can both sing the last word in each phrase when I leave a gap for him, and also sing whole songs independently.

At the start of the year Remiel was hesitant in selecting musical instruments to play, but he has become increasingly confident about this. He will now go independently up to the table of instruments and choose one for each verse of the 'Music man' song. He doesn't have a consistent favourite one to play, but enjoys exploring different instruments from week to week.

As part of the project Remiel has also received individual music and singing sessions with Teaching Assistant, Nina, and this has further supported his verbal development through reinforcing his participation in singing activities. Nina has used a microphone which Remiel has had great fun with, and there has been steady progress in his verbal contributions within songs.

### **Conclusion and recommendations**

Remiel has been enthusiastic in his response to music therapy, and has developed his confidence in using his voice in singing activities. He has also benefitted from his individual sessions with Nina, singing enthusiastically and becoming increasingly confident about decision-making.

Remiel's individual music therapy sessions as part of the research project have now come to an end, but I look forward to working with Remiel next term in a music therapy group context, where the focus will be on developing his social skills with his peer group.

## **Appendix 5.2 Statistical analysis of the children's vocal scores (Mike Parker 28/1/16)**

### **5.2.1 Summary of comparison of the mean of the assessment score for the two interventions**

The difference between the mean assessment score for the two interventions (music therapy alone and music therapy plus teaching assistant) has been assessed using analysis of covariance where the response variable is the assessment score at the final assessment and the covariate is the assessment score at the baseline assessment. This is the same as saying that the means of the assessment score at the final assessment for the two interventions have been compared after adjustment for the assessment score at the baseline assessment.

### **5.2.2 Analysis**

Analyses have been performed using the computer program R (reference 1 – references can be found at the end of the report). Bootstrapping has been performed using function two.boot from R package simpleboot (reference 2). Bias-corrected and accelerated confidence limits have been obtained using function boot.ci from R package boot (references 3 and 4). The permutation test for one-way analysis of variance has been done using function aovp from R package lmPerm (reference 5).

### **5.2.3 Data**

The data used for this analysis is for those assessments where the intervention was music therapy alone, or music therapy plus teaching assistant music sessions. There were eight children in the project, and four had music therapy alone, and four had music therapy plus TA support.

### 5.2.4 Descriptive statistics of the data prior to statistical analysis

The purpose of this introductory section is to display the main features of the data so that therapists working in the field can judge whether the participants are typical and that the values are within what would be expected. This section does not involve any statistical inference.

**Table 5.2.4.1 Baseline assessment score by intervention**

Intervention	Mean	Standard deviation	Percentiles					Number of values	Number of missing values
			Smallest 0%	25%	Median 50%	75%	Largest 100%		
Music therapy	13.00	9.02	0	6	16.00	19	20	4	0
Music therapy + Teaching assistant	19.50	10.34	10	11	17.50	28	33	4	0
Overall	16.25	9.63	0	11	16.00	21	33	8	0

**Table 5.2.4.2 Final assessment score by intervention**

Intervention	Mean	Standard deviation	Percentiles					Number of values	Number of missing values
			Smallest 0%	25%	Median 50%	75%	Largest 100%		
Music therapy	14.50	8.96	6.0	7.2	13.00	22.3	26.0	4	0
Music therapy + Teaching assistant	34.00	29.02	7.0	8.7	33.50	59.5	62.0	4	0
Overall	24.25	22.45	6.0	7.8	14.00	43.5	62.0	8	0



**Table 5.2.4.3 Final – Baseline assessment score by intervention**

Intervention	Mean	Standard deviation	Percentiles					Number of values	Number of missing values
			Smallest 0%	25%	Median 50%	75%	Largest 100%		
Music therapy	1.500	17.82	-14.0	- 11.9	-3.000	16.4	26.0	4	0
Music therapy + Teaching assistant	14.500	21.02	-6.0	-3.1	12.000	32.9	40.0	4	0
Overall	8.000	19.33	-14.0	-7.8	2.000	24.7	40.0	8	0

**Most of the summary statistics tabulated above are collated in the single table below:**

**Table 5.2.4.4 Quantitative variables by intervention**

Variable	Intervention				Difference T – M			
	M = Music therapy n = 4		T = Music therapy _ Teaching assistance n = 4		Mean difference (standard error)	95% confidence limits		P- value
	Mean <Median>	Standard Deviation (IQR) [Range]	Mean <Median>	Standard deviation (IQR) [Range]		Lower	Upper	
Baseline score	13.00 <16.00> n = 4	9.02 (6 to 19) [0 to 20]	19.50 <17.50> n = 4	10.34 (11 to 28) [10 to 33]	6.50 (6.42)	-4.83	20.13	0.439
Final score	14.50 <13.00> n = 4	8.96 (7.2 to 22.3) [6.0 to 26.0]	34.00 <33.50> n = 4	29.02 (8.7 to 59.5) [7.0 to 62.0]	19.50 (14.41)	-8.33	47.20	0.317
Final - Baseline Score	1.500 <-3.000> n = 4	17.82 (-11.9 to 16.4) [-14.0 to 26.0]	14.500 <12.000> n = 4	21.02 (-3.1 to 32.9) [-6.0 to 40.0]	13.000 (12.994)	-12.333	37.733	0.362

Standard deviations are based on within-group data (not on pooled estimates).

Standard errors of differences between means and confidence limits have been obtained using 9999 bootstrap samples.

### 5.3 Statistical analysis and interpretation of results

This investigation is a pre/post intervention study, with the aim of evaluating the change in score from baseline to the final assessment. Here the changes are compared for the two interventions.

The comparison of the means of the continuous variable, when adjusted for a covariate, is presented as an analysis of covariance.

The usual F test invokes Normal distribution theory, but permutation tests do not. An exact permutation test finds all possible permutations of the data to find the probability of the observed result or any result more extreme. This is not practical for any but very small samples, so the approach used is to generate a large number of random permutations. This has been done here and the P-value obtained is presented in the analysis of variance table below.

Normal distribution theory is usually invoked to calculate confidence limits. The required assumptions can be avoided using bootstrap analyses. This involves taking repeated random samples of the data and performing calculations of the resulting

distribution of the estimate of interest. In the bootstrap analyses here 9999 samples have been selected.

**5.4 Should the assessment score at the final assessment be adjusted for the assessment score at baseline?**

If the assessment score at the final assessment is to be used as the primary outcome measure it is possible that it might need to be adjusted for the assessment score at baseline. The following graph addresses this question:

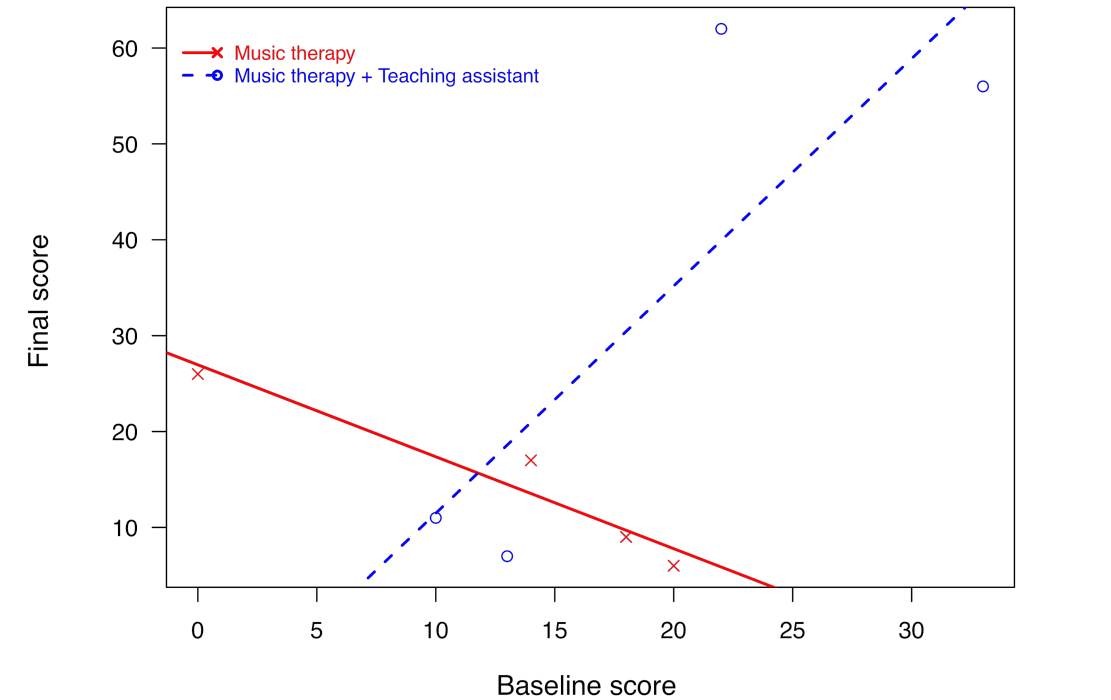
**Table 5.4.1 Graph to compare final score against baseline score between the two groups using non-parallel regression lines**

Analysis with all children with relevant data (n = 8)

Scatter plot with non-parallel regression lines estimated from a single model

Music therapy group regression slope (and bootstrap 95% confidence limits) -0.959 (-1.550, -0.537) (P = 0.33)

Music therapy plus teaching assistant group regression slope (and bootstrap 95% confidence limits) 2.371 (1.837, 3.256) (P = 0.04)



The percentage variance accounted for is 63.4 and its bca bootstrap 95% confidence limits are (14.2, 98.5)

These results have been obtained using a model-based bootstrap from a single model, with regression lines allowed to be non-parallel

In the graph above the regression lines for the two groups appear to be very non-parallel. The vocal score line for the music therapy plus TA intervention shows a trend in a positive direction and is statistically significant ( $P = 0.04$ ). This is an encouraging result and indicates that the additional TA intervention made a definite impact on the verbal development of the children.

The line for music therapy alone shows that higher baseline scores resulted in less increase in final scores. If this represents the real effect then music therapy alone has less of a significant impact on the development of vocal interaction. However, this trend is not statistically significant ( $P = 0.33$ ), and so the apparent trend can be put down to sampling variation.

The difference (music therapy plus TA intervention, minus music therapy alone) between the mean assessment score at the final assessment, adjusted for the assessment score at the baseline assessment is 13.44 (95% CI: -12.45 to 37.44), which is not statistically significant ( $P = 0.454$ ). A larger sample size could potentially produce more statistically significant results.

The next step is to assess whether it is reasonable to fit parallel lines through the data.

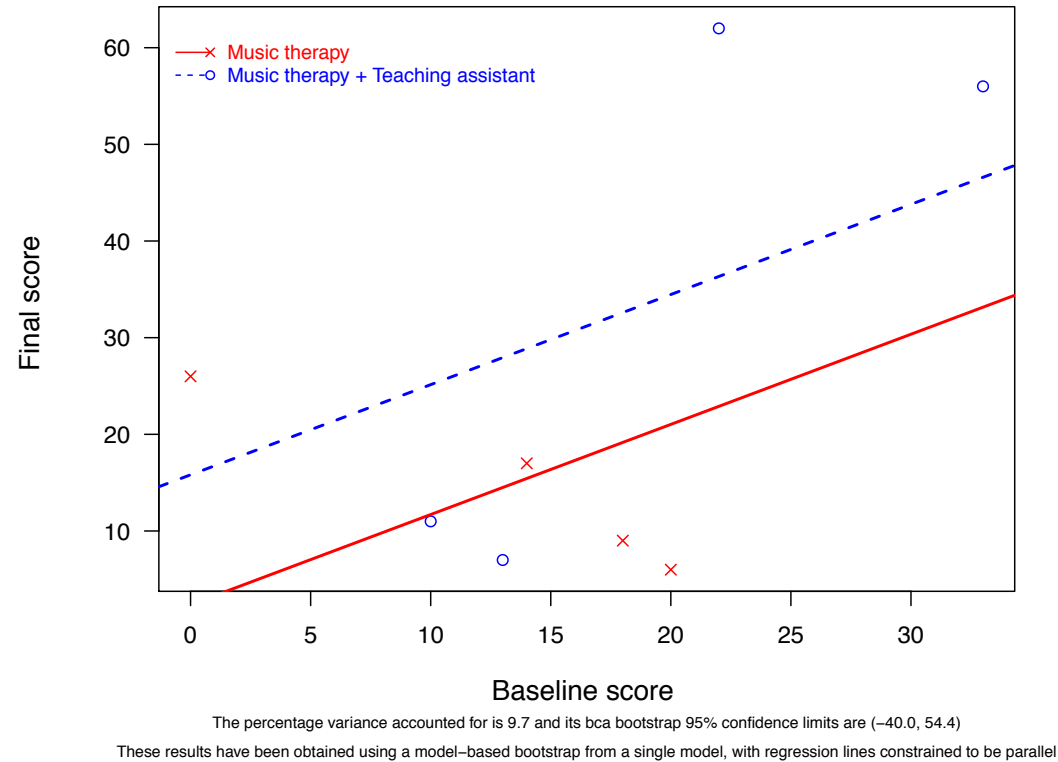
**Table 5.4.2 Graph to compare final score against baseline score between the two groups using parallel regression lines**

**Analysis with all children with relevant data (n = 8)**

**Scatter plot with parallel regression lines estimated from a single model**

**Scope for covariate baseline score (and bootstrap 95% confidence limits) 0.933 (- 0.372, 2.402) (P = 0.224)**

**Within groups correlation for covariate baseline score (and bootstrap 95% confidence limits) 0.421 (- 0.692, 0.832)**



There is very marked difference in the goodness of fit of the models with non-parallel and parallel lines, and so there is a question mark over the reasonableness of fitting of parallel lines to allow a straightforward comparison of the means of the final scores, adjusted for the baseline scores.

## 5.5 Comparison of the assessment score means at the final assessment

**Table 5.5.1 Analysis of covariance summary table for assessment score at the final assessment, with covariate assessment score at baseline, allowing non-parallel slopes**

Source of variation	Degrees of freedom	Sum of squares	Mean square	F ratio	Permutation test probability
Assessment score at baseline	1	492	492	2.66	0.090
Intervention	1	314	314	1.70	0.273
Different slopes	1	1537	1537	8.33	0.052
Residual	4	738	185		
Total	7	3527			

The residual variance is 184.62 and its bca bootstrap 95% confidence limits are (6.74, 430.18)

The residual standard deviation is 13.59 and its bca bootstrap 95% confidence limits are (2.65, 20.80)

The grand mean is 24.25 and its bca bootstrap 95% confidence limits are (13.46, 36.95)

The coefficient of variation % is 56.0 and its bca bootstrap 95% confidence limits are (12.7, 90.1)

The percentage variance accounted for is 63.4 and its bca bootstrap 95% confidence limits are (14.2, 98.5)

These results have been obtained using a model-based bootstrap from a single model, with regression lines allowed to be non-parallel

P-values have been obtained using a permutation test with 10000 random permutations

The probability  $P = 0.052$  indicates that the non-parallelism of the lines relating final score and baseline score for the levels of intervention is borderline non-statistically significant. The lack of a strong formal indication of non-parallelism from the statistical significance test can be expected from the very small sample size. The change from the percentage of variance accounted for from 63.4% for parallel lines to 9.7% for non-parallel lines is very large, but is also very unreliable for such a small sample size. As would be expected a very small sample is a very poor source of evidence.

The interpretation of the data available through assuming parallel lines is now investigated.

**Table 5.5.2 Analysis of covariance summary table for assessment score at the final assessment by intervention, with covariate assessment score at baseline, assuming parallel slopes**

Source of variation	Degrees of freedom	Sum of squares	Mean square	F ratio	Permutation test probability
Assessment score at baseline	1	492	492	1.08	0.224
Intervention	1	314	314	0.69	0.454
Residual	5	2275	455		
Total	7	3527			

The residual variance is 455.09 and its bca bootstrap 95% confidence limits are (341.84, 755.91)

The residual standard deviation is 21.33 and its bca bootstrap 95% confidence limits are (18.50, 27.49)

The grand mean is 24.25 and its bca bootstrap 95% confidence limits are (13.57, 37.02)

The coefficient of variation % is 88.0 and its bca bootstrap 95% confidence limits are (68.0, 160.0)

The percentage variance accounted for is 9.7 and its bca bootstrap 95% confidence limits are (-40.0, 54.4)

The change in percentage variance accounted for is (non-parallel - parallel) 53.7 and its bca bootstrap 95% confidence limits are (53.3, 120.5)

The probability  $P = 0.224$  indicates that the relationship between final score and baseline score is not statistically significant. The probability  $P = 0.454$  indicates that the difference between the adjusted means of final score is not statistically significant.

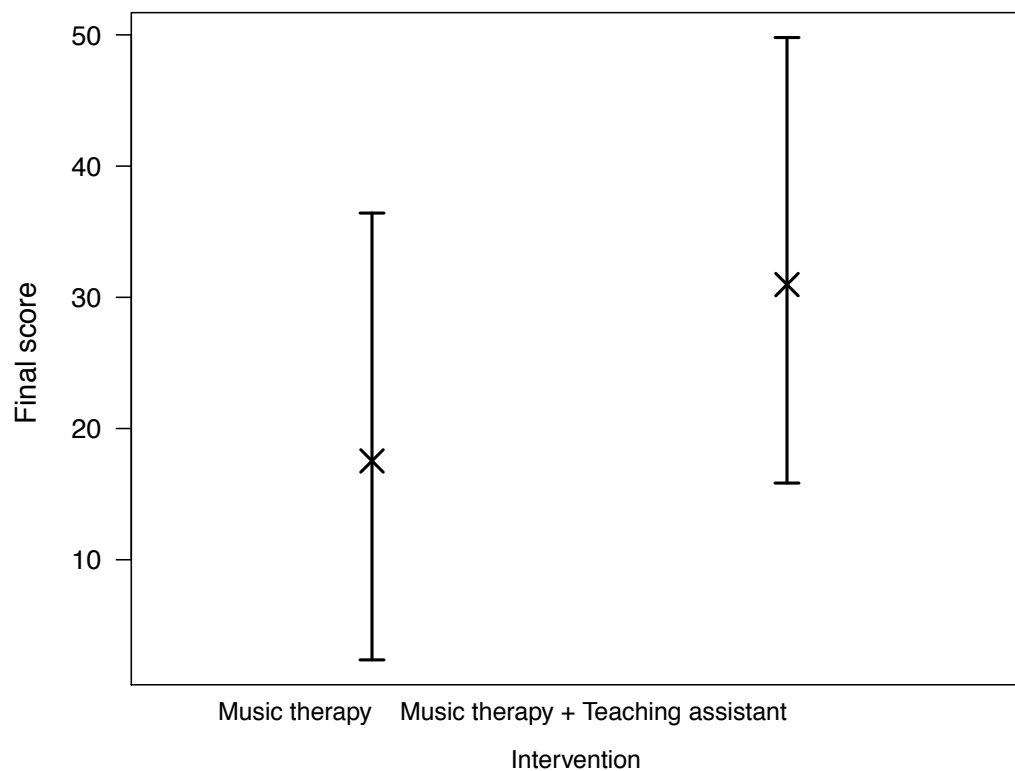
**Table 5.5.3: Means of assessment score at the final assessment by Intervention, adjusted for the assessment score at baseline, with bootstrap standard error and 95% confidence limits**

Intervention	Number of values	Mean	Standard error	95% confidence limits	
				Lower	Upper
Music therapy	4	17.53	8.64	2.37	36.42
Music therapy + Teaching assistant	4	30.97	8.74	15.84	49.80

These results have been obtained using a model-based bootstrap from a single model, with regression lines constrained to be parallel

Standard errors and confidence limits have been obtained using a bootstrap with 9999 samples

**Table 5.5.4 Intervention final score means and Bootstrap 95% confidence limits**



**Table 5.5.5 Difference between means of the assessment score at the final assessment, adjusted for the assessment score at baseline, with bootstrap standard error and 95% confidence limits**

Intervention difference	Difference between Means	Standard error	95% confidence limits	
			Lower	Upper
T – M	13.44	12.64	-12.45	37.44

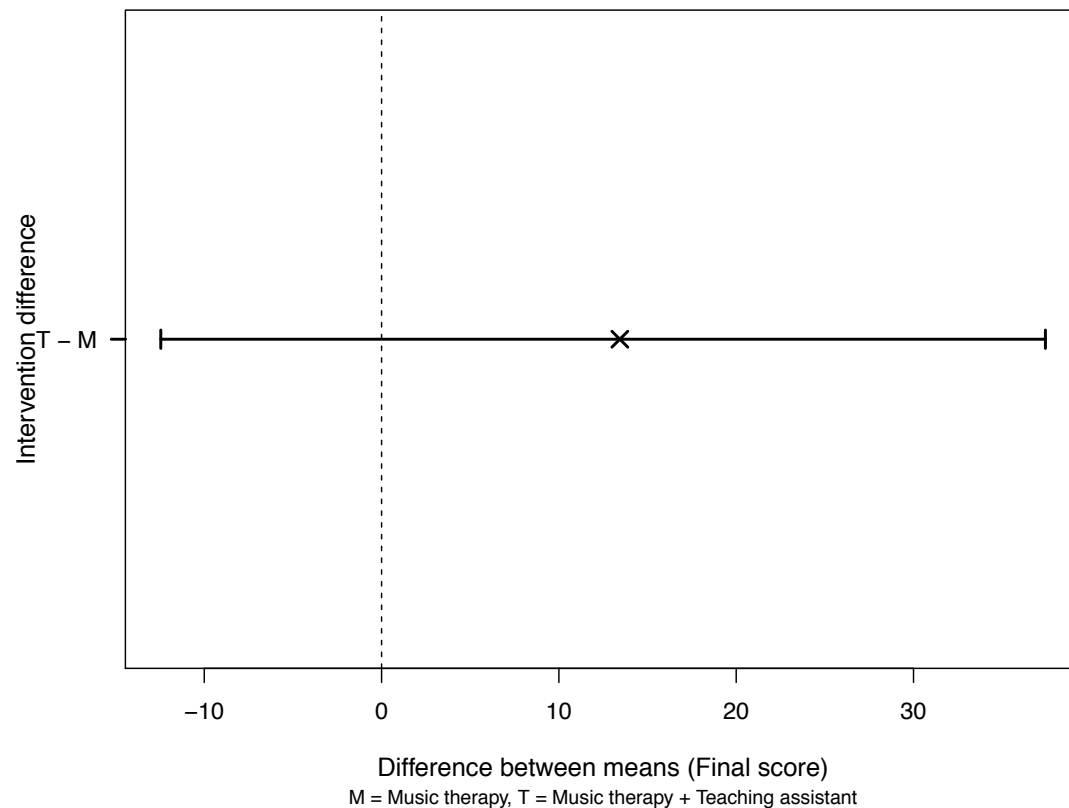
M = Music therapy, T = Music therapy + Teaching assistant

These results have been obtained using a model-based bootstrap from a single model, with regression lines constrained to be parallel

Standard errors and confidence limits have been obtained using a bootstrap with 9999 samples



**Table 5.5.6 Difference between intervention mean final score and bootstrap 95% confidence limits**



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## **Appendix 6.1 Parent interview transcripts pre-intervention**

>>> Indicates that the recording was inaudible at this point

### **Appendix 6.1.1 Pre-intervention interview with Bella's mother**

MT (music therapist) - So...and the first question is...does Bella enjoy listening to music at home?

Mother - Yes.

MT - She does...and does she listen to a lot of music?

Mother - Yes.

MT - And what type of music does she listen to?

Mother - Whatever her brother likes, so 'Queen' (laughs), rap music, but she does like some classical music because my husband sometimes puts it on when she's at home on her own.

MT - Yes.

Mother - Sort of classical...

MT - Classical.

Mother - But the radio is always on in the car as well - Kiss FM so (laughs) ...

MT - (laughs)

Mother - Usually it's loud music so she often kicks her legs as if she wants to dance.

MT - OK...erm, and do you sing with her at home?

Mother - Yes.

MT - Yes so - lots?

Mother - Yes.

MT - Yes (laughs). Erm...and any particular songs that you use at home and that she might respond to well in music therapy?

Mother - Erm, if it's down to like, nursery rhymes, so she loves 'Incy windy spider',  
'Round and round the garden'.

MT - Yes. 'Spider' (writing)....and...

Mother - 'Round and round the garden'

MT - 'Round and round the garden'. And most of the normal ones 'Humpty dumpty'?  
That kind of thing?

Mother - Yeah...they tend to be more ones, the more because they're more kind of  
physical....like 'Incy wincy spider'...tickling...

MT - OK tickling....

Mother - Some of it may be anticipation because she knows what she's getting at the  
end of it.

MT - Yes.

Mother - (laughs)

MT - (laughs) >>>going to music therapy....OK. And how much vocalising would  
she use at home?

Mother - She babbles loads.

MT - Babbles...shall I say a lot? And did she babble....when she was a baby is that  
something that....?

Mother - No.

MT - Not so much? So hardly at all?

Mother - No.

MT - So it's something that's developed in the last...

Mother - She cried. (laughs)

MT - (laughs) Erm OK. So how long.... in the last year or two? I know it's really  
difficult to remember...(laughs)

Mother - It's really hard to remember! (laughs) I know...erm...probably about the last year and a half...

MT - So, erm, vocalising...(writing) Great. Erm...and so would you say that her vocalising is communicative or expressive a lot of the time, or a small amount, or....

Mother - It's sometimes like she's sort of trying to communicate with me. A lot of the time it's sort of....it's very much a two way thing....I'll talk and she'll talk back to me.

MT - So that sort of started off that she was more sort of babbling to herself, and then it became, she realised that she was...

Mother - And she will still babble to herself, but she will now have sort of a one-to-one >>>>> that she can do it.

MT - Yes. OK. So that sounds a lot? Erm and what sort of moods does she express through her vocalising?

Mother - If she's upset.

MT - What sort of?

Mother - She has a tone...it's quite a sort of a high-pitched sound, and it's really hard when you're a mum to (laughs) you just know - it is a lot higher...and...

MT - Higher pitch.

Mother - Yeah.

MT - OK.

Mother - And when she's chatty it's a real just her whole facial expression - she smiles....

MT - Hmm OK. And when she's cross - is that the same high pitch? Does she get angry about things?

Mother - She'll start to...if she's really cross she'll cry. She'll tend to cry.

MT - Great. And would you say vocalising is an important part of her life? It sounds as if it's very important to her. (laughs)

Mother - Yes, yes. (laughs)

MT - And would you say vocalising is an issue? Do you have strong feelings about it?

Mother - Her vocalising? I absolutely love her chatting, apart from when it's at night, which can be a problem. (laughs)

MT - Really?

Mother - She can wake up at two o' clock in the morning, have long conversations with herself in the bed till six o' clock in the morning..

MT - Really? Oh my goodness...

Mother - Yes. (laughs) Yes.

MT - Really? Really?

Mother - (laughs)

MT - Yes... (laughs) Oh my!

Mother - But no, it is lovely, obviously as most parents of children like Bella, you just pray that they will talk at some point...

MT - Yes, yes absolutely. Yes.

Mother - If she is quiet for a day you tend to automatically think something is wrong....

MT - She's not well...or....

Mother - Yes.

MT - Yes. So the quieter she goes...

Mother - Yeah.

MT - And does she use any words at all at home? Or is more sort of a...

Mother - It's more sort of just vocalising really, sometimes we thought she said 'Mum' or 'Dad', but we didn't know.

MT - Hmm.

Mother - But it's not something that you can really...when you suddenly say 'Oh my gosh she just said that', and then nothing else.

MT - Yes.

Mother - And then like, you start to question yourself, you know, did she say that?

MT - Yes I know, (laughs) yes I know when I'm working actually, I used to think - 'Did they say that or didn't they'? (laughs)

Mother - (laughs)

MT - You need ear extensions! (laughs)

Mother - (laughs)

MT - OK. Sometimes found... (writing) possible words...>>> OK. Erm, so would you say that her use of sounds can be echolalic or repetitive at all?

Mother - What does echolalic mean?

MT - Erm, sort of when they're just copying something they've heard and repeating it....and presumably not so much with the vocalising, because it's probably more with words that you get that...it's probably more of an autistic type...repetition...probably not.

Mother - Yeah.

MT - Probably not. And how do you mostly communicate with Bella - is it through singing or vocalising?

Mother - Just really talking with her in very simple....

MT - So very simple....do you mean reduce sentences down so it's very....?

Mother - Yes.

MT - Yes.

Mother - A lot of touching as well.

MT - Yes. Great. And...what are you hoping that Bella will get out of music therapy in relation to vocalising and verbal communication?

Mother - It's really to sort of carry on a lot of the good work that Amelia's done...she's been with Amelia so long, and the change....

MT - How long did she work with Amelia?

Mother - I think it must be a couple of years.

MT - Is it really? That's a long time.

Mother - A long time...yeah...Her >>> teacher has just finished with her....

MT - Oh is it? (laughs)

Mother - (laughs) Three years!

MT - Oh that's going to be quite a wrench then...

Mother - Sad...erm...there was a time when she was with one of Amelia's students, a little while up at the CDC.

MT - Oh right.

Mother - But yeah it's just to sort of watch, and I'm interested to watch the DVD's which Amelia's done so that I can see...

MT - Yes, yes. I'll be video-ing as part of my research project so I always show videos of my work to parents, I'll try and do that at the end of term, so I'll be able to feed back about how she's getting on.

Mother - Yeah.

MT - Erm, so Amelia's aims were presumably developing vocalising, providing a means of self-expression?

Mother - Yes, they tried to do a lot of two-way between each other.

MT - Yes. Yes.

Mother - Bella would listen to her on the clarinet, but other times >>> because she loves clarinet, she said that you played the flute and can do high notes? I don't know if she told you, she likes very high notes?

MT - Oh does she? Oh that's really good to know! (laughs)

Mother - (laughs) Amelia's practising (laughs)...I wonder if Jo can get as high?! Well she plays the flute...

MT - I wonder what note she went up to?

Mother - (lots of laughter)

MT - (laughs) I'm sorry about that...oh no! (writing) High notes.

Mother - But I mean when we first started with music and instruments, Bella would just be like, for some time, with the guitar, she suddenly got to this point where Amelia would come and sing her 'Hello' song, and Bella would be like (gasp) (laughs), riveted with the guitar, there and then, you know just sort of strumming...

MT - Yeah. I'll have to see if I can see some of Amelia's video of her actually...

Mother - I know she's just gone to Germany and she took some footage of Bella with her...

MT - Oh right! Yes I'll see...I've got a supervision in a few weeks so I'll see if I can watch some...(laughs) get some tips!

Mother - (laughs)

MT - Yes. Well I think that's all...that just about covers everything from the questionnaire....erm....that's great. So...well when I observed her in class she was in her standing frame....is she mostly in her wheelchair? Or is she...?

Mother - Yes.

MT - So she'll come to music therapy in her wheelchair?



Mother - Yes, yes.

MT - Yes OK. And I just have to think...what type of instruments does she like to play?

Mother - She loves the guitar, I usually sit her quite upright for music therapy as well, so she's not forced to sort of slump back like that, because if she's up she'll bring her hands a bit more closer...we don't use the tray...we tend to sort of pop it on her lap, but...

MT - Yes OK, yes.

Mother - It's usually me and Amelia there so we can both sort of juggle things, if it's just you it's a bit more difficult...erm...She does like the big fish drum (laughs)

MT - Yes. (laughs)

Mother - I know it's the fish drum! (laughs) And she likes the wind chimes...

MT - Yes.

Mother - That's when Amelia tends to play the clarinet....

MT - OK.

Mother - And I hold the wind-chimes.

MT - I see, yes. We've got those on a stand, so I can put those in front of her.

Mother - You have to watch her though because she tries to put them in her mouth. (laughs)

MT - Oh does she? (laughs) Everything in her mouth...OK! Which is her way of exploring isn't it?

Mother - Yeah. Well she did start playing the guitar with her feet.

MT - Oh did she?

Mother - (laughs)

MT - (laughs) Wow!

Mother - Yeah.

MT - So it's in her wheelchair, sort of putting her feet up?

Mother - Well she used to, but we didn't used to have the wheelchair when we first went, so actually it might have been even longer than two years she's been having music...but she had this very low chair that I used to take in to CDC, >>> and she used to sit in there.

MT - Yes.

Mother - It was just >>>> and she used to reach and take her socks off. (laughs)

MT - (laughs) So guitar, fish drum, windchimes, what about smaller instruments, can she grasp things?

Mother - She can hold maracas, type thing, if they're quite small.

MT - Bells and that sort of thing. OK. Great.

### **Appendix 6.1.2 Pre-intervention interview with Charlie's mother**

MT (music therapist) - I'm just going to ask you about how he uses his voice, which is the main emphasis of my research is looking into how children develop their vocal and verbal skills, so the first question I wanted to ask you was - does Charlie enjoy listening to music at home?

Mother - Yeah he does, there are certain sounds, certain music on CD's that he doesn't like...

MT - He doesn't like?

Mother - Yeah.

MT - Well what sort of music doesn't he like?

Mother - Um...it's if I change it - he likes bands...like from 'The Killers' and stuff like that he likes. So he can hear the instruments in the background - I notice him...

MT - So he likes bands, pop music?

Mother - Yeah.

MT - OK. So would you say he likes listening to music a lot, quite a lot, a small amount, or hardly at all?

Mother - In between...

MT - Quite a lot, small amount?

Mother - Yeah...medium, small amount.

MT - Small amount...OK. And do you sing with him at all at home?

Mother - I do sometimes, like nursery rhymes, he likes.

MT - So quite a lot, or small amount?

Mother - Quite a lot.

MT - So any particular songs, so you say nursery rhymes...

Mother - 'Row Row Your Boat', 'Wheels on the Bus', he likes.

MT - OK.

Mother - 'Round and Round the Garden' and that's it really.

MT - Yes. Great - that's really helpful to know what he likes. Um...and how much vocalising would you say he uses at home? A lot or quite a lot, sort of expressive communication?

Mother - He tends to sort of scream at you, or use his PECS.

MT - So if he's expressing frustration, do you mean? When he's cross he'll...?

Mother - Yes.

MT - And will he use it as well when he's happy, or just to express anger?

Mother - He does different sounds when he's angry and when he's happy.

MT - OK. I think that's on the next bit.

Mother - He does hand flickers, when he's happy...excited.

MT - So the angry sounds are sort of roaring are they?

Mother - Yeah. Sort of, you know...

MT - And so happy sounds.

Mother - When he hand flaps...

MT - OK. And what sort of sounds does he make when he's happy?

Mother - Baby sounds, like babies sort of do. That's how I can describe it.

MT - 'Ga ga ga'? Um so 'Gaga' is that one of his? Any others?

Mother - It's hard because he makes so many different sounds...I just say it's like when a baby is first talking...that's...

MT - Sort of babbling sounds? Exploring the sounds?

Mother - Hmm. Sounds like he's singing to himself sometimes.

MT - OK. So in terms of how much he does at home, would you say it's a lot, or quite a lot, or a small amount? Is it something he's doing all the time, or something he just does when he wants to communicate something to you?

Mother - Um. He tends...he does it in his own way quite a lot, like he'll sit down and make loads of noises.

MT - Yeah. So quite a lot?

Mother - Yeah. I think so.

MT - Did he babble when he was a baby?

Mother - Oh blimey...

MT - I know it's hard to remember isn't it?

Mother - I'd say he did, he's just made the same sounds for the last...until now...six years, I'd say, it's the same sounds.

MT - Hmm. OK. It hasn't...so it started as a baby and then has stayed consistent?

Mother - Yeah.

MT - OK. So would you say he babbled quite a lot, a small amount, or...

Mother - Small amount I'd say, when he was younger.

MT - OK. Great. And would you say - it sounds as if vocalising is an important part of Charlie's life? Would you say it is important?

Mother - It is important because he can't speak.

MT - Yeah. And is it an issue, vocalising, do you have strong feelings about it?

Mother - Hmm. Hmm. He can't get his expressions across.

MT - Yes. So you're just really aware of his frustration, with his lack of verbal communication?

Mother - Hmm.

MT - OK. So you'd really like to see more development in his verbal skills?

Mother - Yeah.

MT - OK. So would you say his vocalising is communicative or expressive a lot of the time, or quite a lot, or small amount?

Mother - I'd say it's expressive, he does it through...

MT - Yes so it's more expressive...

Mother - When he wants something, he'll have a tantrum, sort of thing.

MT - OK. So it sounds as if he uses it more in a communicative way when he's angry than when he's happy - when he's happy it sounds as if he's babbling away in his own world?

Mother - Yes. That's what he does - yeah.

MT - Actually I realised after I'd done this question that I should have done them separately because communicative is different to expressive....communicative is...well I suppose that's being cross as well...

Mother - He tries to suggest to you...expressive is when he's getting cross...

MT - Yeah. OK. So does he use any words at all at home?

Mother - He doesn't use them at home. If I say - say "Mum" he'll say "Mum mum mum" and "Da da da" - if we ask him.

MT - Yeah.

Mother - So he wouldn't say anything.

MT - So if you say to him, say "Da da da" he can copy?

Mother - Yeah. They're the only two sounds we can get him to say. It sounds like he tried to say "cat" but sometimes you think they've said it, but they haven't because you go and get them to do it again, and it's not....

MT - Yes.

Mother - It's not coming through...

MT - I've heard quite a few parents saying that, that sometimes their children will say something once and then they won't say it again, because they don't see the point of saying it again.

Mother - Then they don't say it any more...

MT - Yes. Which is frustrating because you sort of get excited about the fact they've said it. Um, so would you say he uses words at home quite a lot, or a small amount, hardly at all?

Mother - Hardly at all.

MT - OK. So that's - when asked to say?

Mother - He can say "Dada" and "Mama", so I thought he'd say his brother's name "Dominic", but he doesn't say "Domdomdom" which I thought he would - because it's quite similar to "Dada", but he doesn't - he just says "Dadada".

MT - Yes. Is Dom younger?

Mother - Older.

MT - He's older, hmm OK. How old is he?

Mother - He's ten.

MT - OK.

Mother - He comes here as well.

MT - Oh does he? What's his...so he's D.B.?

Mother - B.'s.

MT - OK yes - I don't know him, but I know his name. Yes. So would you say that Charlie's use of words or sounds is echolalic or repetitive, so you say...it sounds as if it is, because he's just repeating something you're saying to him?

Mother - Yes. Because they are the only two sounds that he will constantly say - he won't latch on to any other sounds.

MT - Yes. OK. Um....and what is your main way of communicating with Charlie at home?

Mother - PECS. But we find he uses the same pictures for what he wants.

MT - Yes.

Mother - I try and encourage him to use other things, but he still goes back to that.

The same ones...

MT - So if you go and get his board and he'll show you?

Mother - Yes, when we get home from school he'll go straight to his PECS book, get his crisp picture out, say "I would like some crisps" ...

MT - Yes.

Mother - And we try and get him to pick other things but it always seems to be the same, it's like a routine isn't it?

MT - Yes. OK. And does he understand when you're talking to him verbally?

Mother - Yeah he does, but sometimes he doesn't, he does understand a lot of things that you say, like "Go and put your shoes on", and he'll sit there next to his shoes, and won't attempt to put them on at home, but I think he does here. But at home you try them don't you?

MT - Yes.

Mother - Um...and like "Go and have a shower" - he understands that - "Dinner's ready" - things like that he understands. But when you like try and do a reading book with him, he just won't, you try and get him to point to words and he'll just look the other way.

MT - Yeah.

Mother - Point. So he don't sort of understand er...focus...



MT - Yes OK. And the last one - what are you hoping Charlie might get out of music therapy in relation to vocalising and verbal communication....um....I think last time he enjoyed with J (music therapy student) - he enjoyed songs and things....

Mother - Yes. (tape cut out - questionnaire sheet said that she would like him to express himself through playing instruments, and use the iPad to develop vocalising)

### **Appendix 6.1.3 Pre-intervention interview with Elliot's mother**

MT (music therapist) - So does Elliot enjoy listening to music at home?

Mother - He does.

MT - He does. A lot, or quite a lot, or small amount?

Mother - Quite a lot.

MT - And what sort of music does he like listening to?

Mother - Quite calming music.

MT - So...pop music, or classical music? Or both?

Mother - Erm, a mixture of both really, nothing too noisy.

MT - Right. And do you sing with Elliot at home?

Mother - We do yes.

MT - A lot? Yes.

Mother - We can't sing, but we do sing. (laughs)

MT - (laughs) Excellent. And are there any particular songs that you use at home that he might respond to in music therapy?

Mother - The song we've always, always used with Elliot at home is 'Round and Round the Garden' - he loves that - he really understands the whole anticipation of it coming...he loves that.

MT - Yes. Any other nursery rhymes that you sing?

Mother - Not really nursery rhymes. My husband sings a lot...which is generally...(laughs)

MT - Great, great. Any particular ones that you can think of?

Mother - My husband's really into Motown (laughs)...yeah.

MT - (writing) Dad sings pop songs...

Mother - Yeah.

MT - That's great. And how much vocalising is Elliot doing at home?

Mother - Erm...it goes through patterns where he sort of is really vocal, then he just stops. At the moment he's back into it...yes he's very vocal at the minute.

MT - That's interesting. So it's in between....

Mother - It goes in a sort of cycle.

MT - Yes. Interesting.

Mother - I mean there's nothing we can pinpoint, to change, to make him a tad quieter...then all of a sudden he's very vocal and loud, and then it just eases off again.

MT - OK.

Mother - No we can't make out what the connection is or what's happened to make him more vocal - we're not sure. Yes it's very strange.

MT - Yes. And it's not in relation to other things that are going on at the time? Or it's not when he finds a new sound or he likes to explore it?

Mother - It used to be that - he used to have certain sounds that he used to...sort of clicking - he used to have a tongue clicking one he used to do quite a lot.

MT - Yes.

Mother - But that is...the new sounds are just very loud, or just very quiet, where he just hardly makes a sound...it just goes round and round - yeah we just really can't work out why that is.

MT - Yes. How interesting. (writing) Did he babble as a baby? A lot or quite a lot? A small amount?

Mother - A small amount.

MT - A small amount...OK. So would you say that Elliot's vocalising is communicative or expressive?

Mother - Expressive.

MT - Expressive. And were there a sort of range of moods that he would express through vocalising? Yes I would say so (laughs)...

Mother - (laughs) Yes I think so...you know Elliot well enough to know that!

MT - (laughs) So erm...and it's a range of moods isn't it? Yes. Great. And would you say that there are particular sounds that he makes when he's angry or when he's sad or when he's excited?

Mother - He's got that, you've probably heard...it's that kind of growl that he does - its really loud - and frustration I think more than anything...he has a very high-pitched squeal when he's happy.

MT - Yes, yes.

Mother - Very high-pitched.

MT - Yup. And is vocalising important? Yes it sounds like it's very important.

Mother - Yes.

MT - Is vocalising an issue? And do you have strong feelings about his vocalising?

Mother - I think to begin with, especially the growling, it took me a while to get used to it, and to realise that it's a good thing, and not to stop him. Now it's taken quite a while to understand and recognise that he needs to do that...

MT - He needs to express that.

Mother - He needs to express himself.

MT - Yeah. And is he using any words at home - a lot, quite a lot, a small amount?

Mother - I mean the only...the one thing he said the other day - he said "milk".

MT - Oh really? Ooh!

Mother - Yes he said it three times.

MT - That's great!

Mother - At my Mum's house. He knows where the food is in the house and he found some cereal, and normally we don't give him milk with it, and he said "milk" - he said it three times, so yeah...

MT - Wow! Would you say a small amount?

Mother - A small amount.

MT - A small amount OK.

Mother - He probably won't say it again now for six months, but...

MT - OK yes.

Mother - Randomly to say a word, I'm sure he just said that...

MT - Yes. But what about words like "hello", "goodbye" ...

Mother - Sometimes "bye"...

MT - Because I had the "bye" didn't I in the music therapy session?

Mother - You had the "bye" yes...but not really...

MT - So occasionally...

Mother - Very occasionally.

MT - So very occasionally. And does he say "hello" - any sort of greeting if he hasn't seen you?

Mother - Not really.

MT - No.

Mother - I'd say no.

MT - OK. So is your child's use of sounds echolalic or repetitive - does he sort of make the same sound over and over again?

Mother - Yes.

MT - Yes.

Mother - Yes. Well you know the sounds he makes, but >>>> one word he always used to say a lot was “Libby” - which is his sister’s name - and it wasn’t in context, it was definitely echolalic. “Libby” was the only word he ever said.

MT - Right.

Mother - And you could hear it so clearly.

MT - Yes. So he doesn’t say that now?

Mother - No. Just since he’s started school, he’s stopped saying it.

MT - Ahh.

Mother - Yeah. It’s the only thing - ever since she was born. It seems >>>> catch up with Sam.>>>> Kept saying it, and then it just stopped...

MT - Yes. Right, right. Yeah. I suppose maybe it seems like with words and sounds...maybe it is of interest to a certain point...sort of, I don’t know...I’m just thinking about the fact you said...he has these phases and he’s very vocal - and phases when he’s not - and it’s just sort of interesting...(some distraction from younger sibling who is knocking over something)

Mother - Interesting, yes.

MT - Words and sounds. (more distraction from sibling and chatting) And how do you communicate mostly with Elliot at home - verbally?

Mother - Verbally yes. Elliot understands very simple instructions.

MT - Right.

Mother - So you can...

MT - So you reduce things down, yeah.

Mother - Yes “Elliot shoes on”, “Elliot calm”.

MT - And what are you hoping Elliot will get out of music therapy in relation to vocalising and verbal communication...I mean obviously we're focusing on on-going interactive exchanges and vocal exchanges within a musical framework...erm...

Mother - I just hope that with music therapy that Elliot can sort of, there is a need to vocalise...at the minute he knows he can...

MT - A desire to communicate.

Mother - A desire to communicate, where I mean, he definitely doesn't have that, I mean he can shout and he can scream, but he doesn't have that desire to communicate. It's very frustrating when you can hear him say words but >>> why can't you?

MT - Why aren't you doing that? Yes carry on, carry on!

Mother - Because he used to say a few words before, when he was probably Sam's age, and then it just stopped.

MT - Yeah, that's hard isn't it to understand?

Mother - It is.

MT - Because he is very interactive...of course I've had this break now which is frustrating because I didn't know how long this paperwork was going to take to set up the research project, so I haven't seen him since July now, but erm, because now the sessions are going on again after half term, because I've had to do the setting up, erm, but he does love to engage doesn't he? He has got that sort of social...

Mother - Oh yes he does, he's not one of these children who sort of hide away...

MT - No he's humorous isn't he? He's engaged and...

Mother - Yes. He wants to be...he wants to interact with you, but it's just...

MT - The desire to develop the verbal communication...

Mother - It's just not there. I mean he just...I feel really sorry...I think the frustration...you can really see the frustration now, when he wants you to understand...

MT - Yes.

Mother - I just want him to get to that stage where he can at least - just something...

MT - Yes.

Mother - Sorry Jo (crying).

MT - No don't worry...in fact why don't we just switch it off?



#### **Appendix 6.1.4**

##### **Pre-intervention interview with Kieran's mother**

MT (music therapist) - So does Kieran enjoy listening to music at home? Would you say a lot, or quite a lot, or small amount, or not at all?

Mother - Depends what it is - he likes some music, he doesn't like others, he always cries when Mark plays scales. Scales offend him.

MT - Ahh.

Mother - Generally he likes music on the TV and familiar music, but a lot of toys that have music he doesn't like. Those kind of tinny, press the button...

MT - Yes. Do you sing with Kieran at home, a lot, or quite a lot, or small amount, or...

Mother - Oh quite a lot.

MT - And are there any particular songs that you use at home that he might respond to in music therapy?

Mother - He loves Teletubbies.

MT - Teletubbies OK.

Mother - And um what else do I sing to him? Just bedtime songs really...

MT - So sort of nursery rhymes?

Mother - We sing some every night, so we sing the "Night night Kieran", which is pretty much the "Hello Kieran" type of song.

MT - Is there a particular tune?

Mother - (sings) "Night night Kieran" - it's the "Hello Kieran" only we sing "Night night Kieran".

MT - So um (sings) 'Da da der, da da der'

Mother - Yes that's the one. Some like that and some to 'football crazy' (laughs)

MT - (laughs)

Mother - And then we sing "Yes Jesus loves you" which I'm sure you know...and then we sing "Bye bye my baby, Mummy's little baby". (singing)

MT - (singing) "Da der der der der"...

Mother - Yuh...it is actually a classical piece...I can't think of the name of it.

MT - OK. Um...any other sort of nursery rhymes? Does he like fun sort of interactive tickling games?

Mother - Yes he likes those; 'Row Row your Boat' he quite likes to do. He seems quite animated by 'Hickory hickory dock' but I don't know if that's actually left over from his last school, but I don't know quite what they did with it. 'Grand Old Duke of York' - that needs to involve throwing him up in the air!

MT - (laughs) Right! OK! Um was it a school in London?

Mother - Yup.

MT - Yeah OK. And how much vocalising does Kieran use at home?

Mother - Quite a lot really - yes - more so - it has increased quite a lot recently.

Compared to when we first had him when he was really very very quiet.

MT - OK. I don't know if you know if he babbled as a baby?

Mother - I seriously doubt it. He had tubes until he was five or six months old, so all sort of breathing tubes and that sort of thing.

MT - Yeah. I'll just put first year - so very unlikely.

Mother - >>>> Very unlikely...

MT - No exactly. It's amazing that he is communicative now and interactive.

Mother - Yes. That's just like his personality - it really is.

MT - He's very social and happy.

Mother - Yeah.

MT - So is Kieran's vocalising communicative or expressive? And can you describe the range of moods that he expresses?

Mother - Um, I would say both, yes he does communicate - he goes "Uh uh" when he wants to get up, "Num num num num" when he wants to eat. So he's expressing, yes, what he wants. When he wants Teletubbies on he goes "Uh oh". (laughs)

MT - (laughs)

Mother - If he wants to come into my bed he says "In there, in there".

MT - So he has quite a few words?

Mother - Oh about half a dozen, which are all sort of new in the last six months.

MT - OK. And about six words did you say?

Mother - Yes I'd say about that. And his most expressive sounds when he really likes somebody, "Ooh".

MT - (laughs)

Mother - "Ooh" (laughs). Which is really quite new - he's only been doing that the last three weeks.

MT - Ahh.

Mother - Yes it is a really sweet sort of sound, because he can be quite raucous sometimes, he doesn't speak well, a lot of his sounds come with the in-breath.

MT - Yes.

Mother - They're quite raucous, but all sound quite "Ah ha" squawking sort of voice.

MT - Yeah.

Mother - I have tried to dissuade him from making that kind of noise because it's quite unpleasant.

MT - Yes although I guess he's trying to say something isn't he....

Mother - Yuh, oh he tries to talk - he tries to be very communicative yuh...He's so different from Mark, having an autistic one, and then Kieran who actually desperately wants to talk...

MT - But can't...

Mother - But can't...

MT - Yeah exactly and the others who can but won't. (laughs)

Mother - (laughs) Mark was nine, so there's hope for him yet.

MT - Yes. So he's now completely verbal?

Mother - I wouldn't say he's completely verbal - he's lost that slot of natural language now - and he's learning it like a foreign language, and actually speaks Spanish as well as he speaks English, but yes he can make himself understood...

MT - Yeah, yeah...

Mother - He'll never be a chatterbox.

MT - No. Um...so is vocalising an important part of Kieran's life? Yes definitely...

Mother - Yes.

MT - Is vocalising an issue, and do you have strong feelings about it?

Mother - I want him to be able to talk because it's just essential.

MT - Yuh. Especially when he wants to.

Mother - When he desperately wants to talk, yes to find a way. There is of course the question as to what extent his vocal chords have been damaged. Um but they were looked at through an endoscopy when he was about eighteen months or two and they said there was movement in them.

MT - Why might there have been damage?

Mother - Because he was intubated for so long, because he couldn't breathe, so he was intubated for a long time, when he was very very tiny, he was about 24 weeks, um and so yeah that could have damaged his vocal chords.

MT - Right.

Mother - But I think also, yes there must have been some damage, but there was also the lack of interaction for the first year of his life, that must have been quite huge on his abilities...

MT - Hmm.

Mother - To verbalise, and then put that together with his very poor eye sight, trying to move, he had a lot of things to try and contend with, to get his body moving, and trying to deal with not being able to see properly. Yuh. I think language might come, because he wants to.

MT - Yes. Um...

Mother - Then put it together with the cerebral palsy, which makes the control more difficult for him.

MT - Um. (writing) Right. And so does Kieran use words a lot at home. You said he had about six? Does he use those words quite a lot, a small amount, or a lot?

Mother - Um quite a bit, yuh yuh...

MT - And so I think you've done this already, describe types of words and sounds "Uh oh", "Up up".

Mother - Food words "Num nums", "Dinner" in there which means "I want to get in my feeding chair" or "I want to go there".

MT - Yes yes. Where he wants to go, and what he wants to do next.

Mother - Yup.

MT - And is his use of words or sounds echolalic or repetitive?

Mother - No never. All autistic friends...(laughs)

MT - And how do you basically communicate with Kieran - it sounds like you speak to him?

Mother - Just talk to him - he understands everything you say to him.

MT - Speech.

Mother - Yuh. His understanding is very good. Which is another thing that makes me think he wants to talk, because he does understand everything so...if you say to him "Go over there and get the red ball" - he will...

MT - Yes yeah. And lastly what are you hoping Kieran will get out of music therapy in relation to vocalising and verbal communication?

Mother - Gosh that's a hard question. (laughs) What am I hoping he's going to get out of it? What's the first bit? It's double-barrelled there...

MT - In relation to vocalising...it's just the emphasis of my research is on the development of vocal and verbal skills...

Mother - More sounds hopefully, because he's very much "Ooh" and "N" sounds, there are not many other sounds coming out at the moment, so that's what he can say, so more sort of variety of sounds.

MT - Yes.

Mother - He's stuck pretty much on the "N" and "B" and "Oo" sounds. And he uses those to put together quite a few different things.

MT - Yes well hopefully interactive singing, and playing, it's all, you know, providing a means of self-expression as well, but hopefully through that should come more...

Mother - Yup, yup and he might also get a greater tolerance of sounds, I don't know if he's fearful of some sort of sounds, or why he doesn't like some sounds. Why does he cry for musical scales? You know...

MT - Yes.

Mother - And particular toys, and that sort of thing. That sort of confuses me a little bit, because he's a very happy child, and he cries very rarely. E flat major scale, you know...

MT - So he's very sensitive to pitch awareness...

Mother - Yes.

MT - It's fascinating...So E flat major...

Mother - Mark just slams the door and - I'll play it anyway...

MT - Was it because it's a scale or because it's E flat major?

Mother - I don't know - I don't think Mark plays anything else in E flat major...I just remember asking Mark what was that that made him cry, and he said "E flat major".

MT - (laughs)

Mother - Mark can tell you the pitch of anything.

MT - Yes, yes he's got that...

Mother - Absolutely yes, now he can name the pitches, yuh, >>>

MT - Amazing, yuh. Brilliant. Great well I think that's just about everything really...Yes.

## **Appendix 6.1.5**

### **Pre-intervention interview with Mark's mother and father**

MT (music therapist) - OK so does Mark enjoy listening to music at home? Does he listen to it a lot, or quite a lot, or small amount...?

Mother - We have music on all the time...

MT - You do...OK.

Mother - Oh yes....

MT - And what type of music does he basically like listening to?

Mother - Any...any sort.

Father - Any sort of music - especially he responds to the beat.

MT - Strongly....strongly?

Mother - He'll sing along or something.

Father - Yeah he does. To make some sounds, you could see that he's trying to like sing along with the song, if it's a song that he likes. He could >>>

MT - And how clearly can he reproduce the words that he's hearing...can he...?

Father - Some of them, sometimes he surprises us.

Mother - Yeah...in the car...

Father - Yeah...yeah...

Mother - And we just looked at each other...he was totally entranced...

Father - Yeah...

Mother - Yes you know, and it was, was it? Two, three words...was it?

Father - Words yes, just two words...

Mother - Couldn't believe it!

Father - The >>>>>>the first time we were putting on the CD, we played it once...

MT - Yes.



Father - And we played it when he was in the car...yeah and as the music just started...even before it started he sung the words...he just said it...and quite loudly.

Mother - Quite loudly.

MT - Yes that's great.

Mother - Yeah.

MT - Um...so do you feel that the musical support is what was helping him because it was singing rather than speaking?

Mother - Yeah yes...but then he liked music therapy at nursery and he responded more to that than anything else, so...um...even when he's upset if you sing to him, he will calm down.

MT - Yes. (writing)

Father - I think it's also important to know that there is certain music he doesn't like.

MT - OK yes.

Father - A certain way of singing...The lady that one of the songs that the lady starts...like she cries...

Mother - Oh yes we used them all...

Father - It sounds like it goes high like she is crying...he doesn't like it.

Mother - That's true I forgot about that.

MT - So, um, is it, sort of high pitched?

Father - High pitched yeah.

Mother - Really high notes, sort of thing...

MT - OK. That's good to know...not that I usually sing very high because my voice doesn't go very high...! (laughs)

Father - Yes (laughs)

MT - So do you sing with Mark at home? A lot, or quite a lot?

Father - Um...once in a while...and...

Mother - Hmm suppose quite a lot.

MT - Quite a lot yup...OK...um. So how much vocalising does your child use at home? You said he loves to sing along to music and to CD's...and to television?

Mother - Yes.

Father - Yes television...and sometimes iPad.

Mother - Yes.

MT - OK yes.

Mother - He's got an iPad as well and that's got music on it.

MT - Right.

Father - Sometimes when he's kind of like grumpy...looks agitated or something...

MT - Yes.

Father - He switches the music on to calm him down...

Mother - Switches the music on....

MT - To calm him down. Great. And did he babble when he was a baby?

Mother - Yes.

MT - I don't know if you can...he did quite a lot? So a lot of babbling?

Mother - Yes.

MT - So he's always been quite vocal? Yeah...um...So is Mark's vocalising communicative or expressive? It sounds like it is very? And does he do it to communicate with you or is it more something that he does, sort of, in his own world, you know, kind of just...?

Mother - It's a bit of both - he does do it in his own world - but sometimes it is because he wants something, or he needs something to get across...so it's a bit of both I think...

MT - Bit of both, OK, so combination...(writing). And what sort of moods would he express through vocalising? Would he...does he vocalise when he's angry or he's sad? So does he have a particular sound for different types of mood?

Mother - When he's upset...

Father - When he's upset...

Mother - About something...it's just like a continuous groan...yes...

Father - Groan...yes.

MT - OK. When upset...

Father - Sometimes high-pitched scream.

Mother - Yes, but I'm not sure that that is...

Father - We get confused...we never know if we ought to...>>>we're not sure...

Mother - Because he'll be fine one minute...and then the next he'll start screaming and we just don't know at the time...

Father - Really yes...

Mother - And, you know, (coughs) sorry, you try to, um, do something about it, and you're actually making it worse...because he can't say "this is what's wrong" ...

Father - Sometimes we just cannot >>>> it's closed down...he calms down...sometimes he actually cries.

Mother - Yes.

MT - So is it better then to leave him to get it out of his system?

Mother - But I don't know. I don't know if it's better to leave him. Because sometimes it does go on, and sometimes it does stop, and I'm not sure if it's best to leave him or to try and do something about it. But because we don't know what it is, we haven't got a clue what to do...So, sometimes putting the music on does calm him down - it doesn't work all the time...but the majority of the time it works.

Father - All the time...yeah...some of the time.

MT - OK yes that's good.

Father - I mean, we do, try to like, see if something, guess what he wants...

Mother - Yes.

Father - But then it gets to the point where there is just nothing we can do, so we leave it...

MT - Yes, yes...

Father - So when we leave it he kind of like, he calms down, and sometimes he goes back you know...

Mother - Yes he calms down...

Father - He takes his time...so we are just, like, helpless as to helping him...

Mother - Hmm...

MT - Yes.

Father - So after a while he's fine...

MT - So that's quite upsetting for you then...

Mother - Well yeah.

Father - Yes very frustrating.

Mother - Yes we'd like to know what's wrong with him.

Father - So the first thing we do is try to make him a drink, or make him something to eat, to see if that is what he wants.

MT - Is it sometimes if he's in pain, or uncomfortable?

Mother - If he was in pain he would put your hand to what was hurting him...so yeah...

Father - Yes he will.

MT - Or perhaps it's more...just the frustration about his communication - you know, he sort of, wants to tell you more...

Father - Sometimes I guess he can't, probably when he's frustrated with his, sometimes when he plays with the iPad...

MT - Hmm.

Father - There's a word he's trying to make...

MT - Yes.

Father - And probably doesn't come exactly the same way repeatedly...

MT - Yes.

Mother - He can get frustrated.

Father - He gets frustrated with that, and you know sometimes we have to actually reach out and take away the iPad, and after a while he calms down...he cries a bit...

MT - I have to do that with my children! (laughs) I know about that....

Mother - He calms down again...

Father - Then he can go back to doing it....

MT - There's something about computers actually...they're so sort of, I don't know...very frustrating. OK well...(writing). So vocalising is an important part of his life...So do you have strong feelings about the way he uses his vocalising? Are you happy with the way he uses it...or...would you like it to develop in a different way...?

Mother - I wish that he could just say more words...

Father - Speak more words...

Mother - Rather than kicking out, having a tantrum...throwing things...just say what you want...

MT - Yes.

Mother - And it would be a lot easier. Because when he calms down I say to him, you know, if you can just tell me what you want then I can help you...

MT - Yes.

Mother - And he seems to be understanding...

Father - Yeah he does...

Mother - He doesn't...know how to express himself...

Father - Know how to...yeah I think he has troubles with that...

MT - Yes I see...(writing) So does he use any actual words - so you said with the singing he'll say...he'll sing...

Mother - He'll sing words, he'll sing words...

Father - Hmm.

Mother - He's got an app on the iPad which is a bit like the PECS and you press the button and it activates, so at the moment he just keeps saying "my favourite colour is" and he'll say that whole sentence...

MT - Great - wow!

Mother - And that's one of the new things on the iPad.

MT - (writing) "My favourite colour..."

Mother - Sometimes he'll add a colour, sometimes he doesn't. (laughs)

MT - OK.

Father - And there's a food one...

Mother - Oh yeah..."When will food be?"

Father - "When will food be?"

MT - OK!

(all laughing)

Mother - Even though he'd be eating, he'd still be doing that...

MT - Yeah...(laughs)

Mother - (laughs)

MT - Um...Gosh that's very clear then?

Mother - Yes that is very very clear.

MT - Um so greetings..."Hello", "Goodbye"...

Mother - He can say "Hello"...he'll say "Hello" or he'll say "Hi!"...it really does depend.

MT - Yes.

Mother - And he'll say "Bye".

Father - You said he says "Dad" right?

Mother - Oh yeah yeah he calls you...he calls his Dad a lot...

MT - "Dad". "Mum"?

Mother - Yeah.

Father - Yes.

MT - Great.

Father - Yes, so this one on the iPad...

Me - OK.

Father - But these other ones he vocalises the "Dad"...

Mother - No he says "these ones" - he copies them ones. That's what I'm saying...

Father - On the iPad.

Mother - Yeah from the iPad...yeah.

Father - He vocalises...

Mother - Yeah the other ones...yeah.

Father - The other two. The last two.

MT - "When will food be?"

Mother - That on the iPad.

Father - On the iPad.

Me - Great. And is his use of sounds or words echolalic or repetitive, so will he say the same things over and over again?

Mother - Yes.

MT - I've put please describe - so it's the ones you've said?

Mother - Yeah. He'll say it a few times...

MT - Is that more with the iPad?

Mother - No he doesn't have to have the iPad - he'll just say it.

MT - Er so if you say "Hello" to him, will he say "Hello hello hello"?

Mother - He doesn't always, he can do it, but he doesn't always do that but then, especially with the iPad, he'll just keep repeating that.

MT - Yes.

Mother - Words that are on the iPad - he'll just keep repeating them.

MT - Erm and one of the last ones...how do you communicate with your child at home?...so you've said verbal? Are there other ways that you communicate? Do you use signing...or other sort of ways?

Mother - When we speak to him he actually understands what you're saying. Yeah...

MT - OK so...

Father - Sometimes we do point.

Mother - Yes but he does understand >>>>> (mother and father talking over each other) He does understand...

MT - OK. And lastly, what do you think Mark will get out of music therapy in terms of vocal and verbal communication?

Mother - Well music sense for starters...we're a musical family, sort of thing...



MT - Yes.

Mother - Music sense. I'd like him to learn an instrument. I think that would calm him down and that's a way of him expressing himself well.

MT - Yes, so in a sense you're saying to develop his musical skills so he can communicate that way rather than the actual development of...

Mother - No I want him to verbalise, but then that's just like, I have a friend - he's not autistic or anything, but when he's upset, when he's happy, he plays keyboard - and he expresses himself really really well through that.

MT - Yes.

Mother - And that's what I mean, he can speak and everything, and I want Mark to speak, but I want him also to have another way of venting as well...

MT - Yes.

Mother - (laughs)

MT - (laughs)

Father - Yes because recently we were talking about trying to get an app on the iPad, a keyboard app, because he likes touching on the keys and...

MT - Yes.

Father - He likes the touch and get sounds.

MT - Yes. And get that...

Father - Feedback sounds.

MT - Yes I mean that's how I would pretty much work in the music therapy sessions, I'd be using a lot of songs and stopping before the last word in the phrase to try and get him to sing...

Mother - That's what he was doing with Clare.

MT - OK yes.

Mother - I've got a DVD of them. I'll send it in for you.

MT - That would be brilliant...so I do a lot of that sort of thing, but then a lot of it is about just using the instruments to be expressive, and to sort of get things out of their system, and if they want to just bang on a drum or play on the keyboard, we'll do a sort of mix of that...Great. That's brilliant - that's really really helpful.

### **Appendix 6.1.6**

#### **Pre-intervention interview with Paul's mother**

MT (music therapist) - Right, so the first question is...does Paul listen to music at home. Does he listen to it a lot...or...quite a lot...or a small amount?

Mother - He does, he likes listening to music that he can control, so he programmes his keyboard at home to play music of his choice, so he can select the tracks that he wants to listen to, and he plays with musical toys a lot that play nursery rhyme type music.

MT - Yes.

Mother - Erm and he plays those a lot, it's probably the sort of toy that he is most interested in.

MT - Yes.

Mother - But he does enjoy it when we put music on the stereo, he dances around a lot but we have given him, for his last birthday, a kind of robust MP3 player with speakers and he doesn't seem actually that interested in that, so I don't know why that is...

MT - Not so keen (writing)...yeah.

Mother - I think perhaps the other toys have also the kind of lights and that kind of visual stimulation as well...

MT - So the repeated pattern, so he can control that?

Mother - I think so...yeah.

MT - Great. And so he does listen to music a lot...but all music that he can control?

Mother - A lot yeah.

MT - And do you sing with him and does he enjoy sort of being sung with at home?

Mother - Yes he's got a few favourites that he initiates really, erm, I suppose we've got out of the habit of singing nursery rhymes to him, I think because he's just that little bit older but he does initiate 'Grand Old Duke of York' and 'Pattercake Pattercake' - and he initiates those with actions, and he enjoys it when we sing those and he clearly shows that he knows when we are getting to various parts of the song, he knows when we're supposed to pat hands, and he knows when we're supposed to be lifting up in the air, and that kind of thing.

MT - (writing) Can anticipate...

Mother - But I mean all of us sing quite a lot at home to the radio and things like that, and I think he...

MT - There's a lot of music going on around him?

Mother - Yeah.

MT - Yeah yeah. And how much vocalising is he using at home - would you say a lot, or quite a lot, or small amount?

Mother - I'd say somewhere between quite a lot and a small amount, because he, erm, if he really wants something he will make a sound which has a bit of urgency to it, erm...

MT - Yes I think I know that.

Mother - Yeah he does a kind of "Uh uh uh".

MT - Yes, I know he does that when he wants the ocean drum...

Mother - And he'll do that when he wants something a lot, but he doesn't really do that many other vocalisations I think. Sometimes it seems as if he's saying "thank you", and he'll do a little two tone thing, he'll say "Uh ha" and I wonder if that's his way of saying "thank you". You know he's mirroring what he's saying. He does that occasionally, erm, and then he does a lot of other sing songie motifs that you can...he

used to do a lot more than he does now - he used to be able to initiate them - he could sing them and he'd get that you'd copied something that he'd done a lot - and then he'd do it back, but he's not doing that quite so much at the moment.

MT - Yes. I think I noticed in music therapy that that was kind of phasic. Because I found that for a while he would always, if I stopped before the end of the word in a phrase of a song, he would vocalise at that pitch, and then he seemed to stop doing that for a bit...yeah...

Mother - Yes. And we did counting at home and he sits on the toilet...he counts to ten, I realised about six months ago that he, if I stopped counting he would fill in the gaps and he would try hurrying me along so he could get off...

MT – Yes. (laughs)

Mother - And there was a time when he was making sounds, vocalisations that mirrored the numbers, so, he would say “Effin” for example for “seven”, but he hasn't done that for a while but there was a period when he was doing that quite a lot, and erm, he would say “Ooh” for example, when I said “two”, but I think, as with other things, he will go through a phase where he realises he's got it, and he'll show you that he's got it, and then he just seems to lose interest, and there's no real incentive for him to carry on showing that he can do it.

MT – Yes, yes.

Mother - Now if he's on the toilet and he wants me to hurry up with the numbers he just goes “ugh” (laughs)...every time I say a number he just says “ugh” and I let him get away with that being the number otherwise we'd be there all day!

MT – Yes. (laughs) Oh golly....erm, OK. So would you say that his vocalising is communicative or expressive - a lot or quite a lot - it sounds like he's very selective when he makes...

Mother - Yes a small amount, yes. I say when he does do...when he does make a vocalisation it does seem to be very expressive...so...

MT - Yes it is isn't it...yes.

Mother - Communicative or expressive...yes I think quite a lot...yeah yeah. Because I think when he is, he doesn't perhaps make vocalisations very much, but when he does it seems like he really is trying to communicate something.

MT - So make it clear with a request...

Mother - Yes, but also if he's playing happily he might make happy sing-song noises, so that's kind of expressive. He is expressing his emotions.

MT - Yes.

Mother - I don't think he makes random vocalisations that don't seem to mean anything.

MT - No, no. So is vocalising an important part of Paul's life? Yes it is isn't it?

Mother - Erm I think...erm...

MT - At times...

Mother - I think if the choice is between yes and no I think I'd have to say no, because he is generally quite a quiet boy, it's not like he's noisy and shouty and doing funny noises all the time, that's not him at all.

MT - OK. We'll put no, but he does use it in phases to communicate need?

Mother - Yes.

MT - OK. Is vocalising an issue, or do you have strong feelings about it at all?

Mother - Erm...I wouldn't say it was an issue for us, or that we had strong feelings about it, I mean we went through a phase of having very strong feelings about wanting him to talk, which I think has petered out a bit now, because I think we appreciate that he is quite communicative without speech, and there are many

different shades towards speech and that we can't expect him to go to speech quickly, so we erm...

MT - Going through all the...

Mother - Yeah. And there are things for us which are equally as important and significant, and he doesn't make vocalisations that are inappropriate or embarrassing, or anything like that when we're out in public, so erm...no it's not an issue for us.

MT - Good. Does he use any words at home, so you've said that he uses "effin" for "seven"...

Mother - He has, I think, said a few words, but he only ever says them once, or maybe twice, and you think, did he actually say that? Or didn't he? And the first few times I thought it was just coincidental, but now I think, well actually, I think he is saying these words...

MT - Yes.

Mother - Or his version of these words, and it tends to be when he's not really thinking about it, erm so he's caught off guard...and it's almost like he thinks "Ooh I didn't mean to do that, I won't let myself do that again"...

MT - (laughs) So frustrating...

Mother - So he has said the word "bubble", during play circle in that context, and he's also said the word "Dada" in context, and I think years ago when he was very small, he might have said the word "Hello" in context.

MT - Right.

Mother - But you'd have to be really listening out to get those.

MT - And "bubble" once.

Mother - Yes just once. And I think he went through a phase when he said "Hiya" and he would get into a little 'hiya' exchange to my husband, where they would say

“Hiya” to each other repeatedly. But I don’t know if he recognised that as a greeting, or if he quite liked the turn-taking with his Dad, so...

MT - So that was a phase and then it stopped?

Mother - He does that on and off. He’s been doing that on and off for about eighteen months.

MT - OK. So he really does have the ability to speak doesn’t he?

Mother - I think he has.

MT - It’s just him choosing.

Mother - I think so, and that gives us a bit of hope because again I think he, when he said “Dada” it was because he was playing on the landing, and my husband snuck up the stairs and jumped out at him and went “Boo” like that, and he went “Dada” - and it was almost like, he wasn’t expecting it, and we were over the moon, but he’s never said it again (laughs)...so er...I do think he does have the words in his head. His comprehension has come on in leaps and bounds over the last two years, so I say to him now in the morning “Paul it’s toilet time” and he springs up and goes into the toilet, he takes his trousers off, so he understands what we’re saying, so that I understand is the first step towards speech so er...

MT - So would you say a small amount, or hardly at all, in terms of actually using words? A small amount probably?

Mother - I’d probably say hardly at all.

MT - Hardly at all, OK.

Mother - To never...to never...somewhere, I mean I can’t say never, because he has said three words, but that is very rare.

MT - Yes. So the next one - is your child’s use of words echolalic or repetitive, would you say with with the “Hiya” exchange, is that a sort of echolalic, sort of...



Mother - Yes I would say, it was a kind of...to the extent that he's doing it is echolalic or repetitive, so yeah...

MT - Right. And yes what's your main way of communicating with Paul at home? Do you use signs or speech? Is he understanding everything you say?

Mother - Um...He seems to understand most of what we say, so it tends to be speech with a physical or visual prompt if we need it, so for example if say "breakfast time" and I might show him breakfast cereal or something like that, but he seems to understand most of what we're saying. If he wants to communicate with us, we're trying to get him to use PECS, and he does use PECS, for some things.

MT - Right.

Mother - Very motivating things.

MT - And last one - what are you hoping your child will get out of music therapy in relation to vocalising and verbal communication?

Mother - I suppose our fantasy is that he might join in with the songs, those sort of things...

MT - Be motivated...yeah...

Mother - And that speech might come from that, you know?

MT - Yes.

Mother - But I mean that's what we're hoping for in terms of vocalising.

MT - Yeah.

### **Appendix 6.1.7**

#### **Pre-intervention interview with Remiel's parents**

Father - Yes he sings actually - singing is er...music going back but the words doesn't come out.

Mother - Yes "Ei-i-Ei-i-Oh"...

MT (music therapist) - So would you say he is vocalising a lot?

Mother/Father - Yes, yes.

Father - Ordinarily he would say something but...not properly you can't understand what he says. You know...but sometimes he can understand things.

Mother - He (hums tune to 'Twinkle')

MT - Oh wow yes - 'Twinkle Twinkle Little Star'?

Mother - Yes! He likes nursery rhymes - yes.

MT - OK.

Mother - He watches video nursery rhymes...

Father - He really likes music - yes...

Mother - Yes...

MT - Good. Do you sing back to him?

Mother - Oh yes, yes, if he wants, I sing! Yes he wants.

Father - We sing together. Exactly yes.

MT - And he likes you to join in?

Mother - 'Wheels on the bus' - he "Ting ting" singing

Father - Singing yes.

Mother - Yes and "Sip sip" - oh everything yes..."Beep beep" oh yes he sing yes...

MT - Oh great!

Mother - 'Row Your Boat' (laughs)

MT - Yes.

Mother - Clap your hands...yes everything he do - clap and stamp, your head,  
(laughs) yes...

MT - So he's very interactive?

Mother - Yes!

MT - That's great. So you quite often have music on? Does he watch television?

Mother - Yes. And he put the computer on.

Father - He does this himself.

MT - Oh I see. He can do this independently?

Mother - Yes.

MT - Amazing. Great! So you said you sing with him a lot? And when he was a baby  
did he babble or use his voice to sort of engage later on?

Father - He did.

Mother - Yes...

MT - A little bit?

MT - So you said already, one of my questions was, is your child's vocalising  
communicative and expressive?

Father - Yes, yes.

MT - So it sounds as if he uses it...Does he use it if he's feeling sad or if he's feeling  
happy, does he use it in a different sort of way depending on his mood?

Father - Yes.

MT - He's using it to express different feelings and...yeah.

Father - Yes, yes. When he get angry (laughs)...“er” (high pitched sound)

MT - When he's angry are there particular sounds that he makes?

Father - Er he cries loudly and says “Mum” - he says “Mum”.

Mother - Yes. "Ahh" and "Bah"... Yes different sounds. (laughs)

Father - Yes sometimes he says something when he cries, but we can't understand...

"ehyeh" (high-pitched)

MT - But you can't understand, then he gets more angry because you can't understand what he is trying to express?

Mother - (Laughs)

MT - (Laughs) And when he's happy, are there different sounds that he makes when he's happy?

Mother - Yes.

MT - What sort of sounds does he make? Does he sing more when he's happy?

Um...are they higher sounds or lower sounds or...

Mother - Yes.

Father - When he's happy yes, always say something.

MT - Yes, yes...great.

Mother - Yeah.

MT - So vocalising is very important to him?

Mother - Yes

Father - Hmm.

Mother - Yes sometimes on the phone...he put the video and...>>>>>>....listening to two by phone? (laughs)

Father - (laughs) Yes.

MT - Oh I see OK! (laughs)...this is really interesting.

Mother - (laughs)

MT - And does he have siblings? Do you have other children?

Father - Er no.

MT - So is vocalising an issue, or do you have strong feelings about his vocalising? It sounds as if you're very pleased that he vocalises.

Father - Yes we are very happy.

Mother - Yes.

Father - So usually we pray in the morning.

MT - Yes.

Father - When we pray he come and pray with us - he says "say something" - he close his eyes and pray. We say "Amen" and he say "Aayen".

MT - (laughs) Oh lovely!

Mother - He sing some hymns. He says...um...he singing some hymns.

MT - Yes.

Mother - Yes our language.

MT - Oh right. So does Remiel...do you speak English with him at home, or a different language?

Father - Yes we speak both.

MT - Both OK. And what's your other language?

Mother and Father - Singalese.

MT - OK. Singhalese - how do you spell that? S-I-N-G?

Father - (spells it out)

MT - And what is your religion?

Father - Christian.

Mother - Christian.

MT - So when you say you're praying...you're speaking as you're praying, so it's not silent prayer?

Father - No we are speaking...for some prayer.

Mother - Sometimes silent, but he want pray with...yeah...(laughs)

MT - (laughs) That's lovely.

Mother - Hmm.

MT - So you said "Amen" – "ahyen"... "ahyen"

Father – "Ayhen".

Mother – "Ahyen". (laughs)

Father - He says "God bless" as well.

Mother - Yes.

MT - Ah lovely!

Mother – "Jesus"... "Jesus"... Yeah. (laughs)

MT – "God bless" - what/how does that come out?

Mother - Erm.... "God"...he sounds erm..."blessss"...I think like that. Erm...

Father - That's why he's trying to speak...

Mother - Yes.

Father - Yes but he...

MT - That's very good.

Father - Usually can't really mouth - if he like doesn't come the word....he try to...I don't know...

MT - Yes - he doesn't get the sound out, but he's trying to communicate verbally - that's really encouraging...So is the speech therapist here going to work with him?

Have you met the speech therapists?

Father - Er ...(>>>) we are going to meet her on 25th or something.

MT - OK. Yes that's good.

Father - Yes.

MT - Great! So you have described...the types of words and sounds...so can you think of words that he tries to say?

Father - So you mean...?

MT - Just...just any other words. It's just I'm trying to sort of record the sounds that he can say now and then I'll ask you at the end of the year and work out which sounds he's learnt over the course of the year.

Father - Oh...he speaks lots of words actually.

MT - Yeah. So can he say "Hello", "Bye"?

Mother and Father - Yes, oh yes.

Mother - "Bye".

Father - He says "Bye".

Mother - "Bubye".

Father - "Hello" he can say "Hello".

Mother - Yeah. "Mummy", "Dad" ...yeah...

Father - In our language he says lots of words - like "Granny" in our language called "Sia" for the "Granny". He is very clear with that one. And for the "grandfather" "Sia"...and "Granny" in our language is "Achi".

MT - "Achi".

Mother - Yes "Achi".

Father - He speaks properly those two words doesn't he?

Mother - Yes...

Father - And uncle in our language "Marma" he says correctly.

MT - "Marma"...

Father - Yes lots of words...

Mother - Yes.

Father - Lots of words...

MT - Yes. Brilliant!

Mother – “So much love” in our language “Goda ardeli”. He says ‘Godaaaa Arrrdeli’!

Yes!

Father - He says...

MT - That’s quite hard...

Mother – Yes. (laughs)

Father - It is actually that...

MT - What does that mean?

Mother – “So much love.”

Father - Yes. In our language.

Mother - Yes...

Mother and Father – “Goda Ardeli”.

Mother - Like that “Godaaaa Arrrdeli”!

Mother and MT - (laughing)

Father - Yes that is important you know...er I think probably if somebody gives vocal exercises you know...he may speak...we really have hope.

MT - Yes it sounds very hopeful yes. Yes and what I do in music therapy sessions - I sing lots of songs - I sing part of a phrase and then wait for the child to sing the last word in the phrase - that will encourage verbal turn-taking...and I also encourage them to use their voice expressively with the music, that hopefully gets him more used to using his voice with other people outside the family as well...one more



question...is your child's, is Remiel's, does he use echolalic or repetitive phrases, so does he say things over and over again?

Father - He still does something...closing the doors...he does this...

MT - OK so that's more sort of actions? Does he do this vocally and verbally - repetitively?

Father - Vocally?

Mother - Hmm?...No.

MT - So you've really answered that one..."How do you communicate with your child at home?"...so it's all sort of verbal and vocal and singing of hymns...that's great...

Father - Yes.

MT - So do you sing songs in Singalese as well or in English or, because you said he does nursery rhymes - and is that - so that's, from the computer or from the TV? And do you do Singalese songs?

Father - Singalese songs as well...we did before...

Mother - Yeah we did before but now...(laughs)

Father - Now not so much...now we live (here)...

MT - Not so much now? Yeah, so you used to sing songs...

Father - Yes when he was three years/two years...

Mother - Yes...hmm...

MT - OK. Is that because you're encouraging him to try to speak more English?

Father - Yes exactly, yes we would like him to speak more English actually...

MT - OK.

Father - Yes we stopped because sometimes we think it maybe confused for him...

MT - Yes.

Father – It's really our language...

MT - Yes...yes...Great.

Mother - Yes he really likes the piano...

MT - Oh does he like the piano?

Mother - Yes...before music therapy...

Father - He had music therapy with...

MT - With Amelia? Was it or with...?

Mother and Father - Dawn!

MT – Dawn? Yes she's on our team...yes she's great!

Mother and Father - Yes she's lovely!

Father - So we got some video - he's playing nicely...

Mother - Yes...piano, drums...(laughs)

MT - And did you go to the sessions with him?

Mother - Yes.

MT - You went with him yes... That's really good that he's had music therapy because I think if they start when they're really young it can help in all sorts of ways...in terms of engaging and communication...yes that's really good...

Mother and Father - Yes...

MT - How long did he have sessions with Dawn?

Mother - Started March...I think 'til June...

MT - June...OK so three months...

Mother - Three, four months. Hmm yes.

MT - Great. OK well I think that's all I need to know - that's brilliant... really helpful - especially...it's interesting actually because I usually start working with a child and then meet with the parents at the end of term...but I think this is really good for me to

have this background information about Remiel before I start working with him - so  
his music therapy sessions will start after half-term...

## **Appendices 6.2 Parent interviews post-intervention**

### **Appendix 6.2.1 Post-intervention interview with Bella's mother**

MT (music therapist) - OK. I don't really have to ask this (laughs) but does Bella enjoy listening to music at home? A lot, quite a lot...

Mother - A lot (laughs) yes...

MT - What is her favourite type of music?

Mother - I think it's the radio at the moment. (laughs) It's because we have 'Heart' radio playing all the time.

MT - So pop music?

Mother - Yes.

MT - And do you sing with Bella at home?

Mother - Yes. A lot.

MT - And how much vocalising would you say Bella uses at home?

Mother - A lot.

MT - And is her vocalising communicative or expressive, or both?

Mother - I suppose it's expressive in the way that if she's upset, you know she does different ranges, hearing her vocalising...

MT - Yes. And in a communicative way?

Mother - Yeah I think so.

MT - OK. And can you describe the range of moods...so you say if she's sad she'll...

Mother - Yes she sort of, her tone ever so slightly changes, like when she gets off the bus, she'll suddenly be hungry and want some juice, she'll start babbling, and it's almost the same, but it's just got, it's really hard, this little undertone, where you can just hear this little change in her voice, and it's like, oh that's not her happy, chatty kind of sound.

MT - Yes. And what other moods...um...

Mother - Happiness she really, yeah, you can hear that.

MT - And so is vocalising an important part of Bella's life?

Mother - Yes. (laughs)

MT - (laughs) Is vocalising an issue and do you have strong feelings about it?

Mother - Only when it goes on all night. (laughs)

MT - Only when it goes on all night. (laughs)

Mother - Yes. (laughs) In a happy way as well.

MT - Gosh. She doesn't wear herself out then?

Mother - No...no, no. She'd been at school all day on Friday >>>> and then last week she went to sleep at half past ten, the she got up at three o' clock in the morning. And just wanted to vocalise! (laughs)

MT - Oh my goodness. Bella that doesn't sound too nice for Mum and Dad...!  
(laughs)

Mother - Oh she's a lot better than what she was. (laughs)

MT - (laughs) Um...so though generally you feel positive about it?

Mother - Oh yeah, yeah...

MT - And does Bella use any words at all at home, or is she starting to?

Mother - No.

MT - So the types of sound that she uses...

Mother - I mean it's just what she was doing there. (Bella is in room and vocalising)

MT - Sort of "Ahhhh".

Mother - But it can be very different.

MT - Yes there's a range of sounds...

Mother - Yes she's got a lot of range.

MT - So laughing, babbling...And what's your main way of communicating with Bella at home?

Mother - Talking.

MT - Do you use signs and touch?

Mother - We do - there's four signs that we use that we got from the school.

MT - Is that sort of PECS?

Mother - No it's um...a bit like sign language, so we've been doing lifting up, and touching, down for down Bella.

MT - Oh I see.

Mother - It's like if I'm in the bath. And hello and goodbye - so we shake her hand. And touch her hand, and stuff like that.

MT - Oh I didn't realise that...so hello is...

Mother - So five (loud vocalising from Bella)...Hello missy! Hello!

MT - I suppose when I go in I tend to say "Hello Bella", so perhaps I should go like that?

Mother - Yeah.

MT - OK.

Mother - >>> (chatting to Bella)

MT - So waving her hand means goodbye. (loud vocalising from Bella). Sorry what was that for goodbye?

Mother - So then it's up - stroke up - and then down.

MT - OK. And what do you feel that Bella has got out of music therapy in relation to her vocalising and verbal communication? (loud vocalising from Bella)

Mother - (laughs) Like that - I think she seems a bit more responsive in...you know, apart from when you talk to her she'll now - it's almost like a response to you

although she's not forming the words, that quite often you feel as if she is trying to communicate.

MT - Yes. Great! That's it!

### **Appendix 6.2.2 Post-intervention interview with Charlie's mother**

MT - So, does Charlie now enjoy listening to music at home?

Mother - Yeah he does.

MT - A lot, or quite a lot?

Mother - He likes listening to it in the car.

MT - So then, quite a lot then?

Mother - >>>

MT - A small amount?

Mother - Mostly in the car.

MT - And is that pop music, or radio?

Mother -Yes. He doesn't like it if you switch the song off halfway through.

MT - Yes that's what I was meaning actually about the musical structures - he knows, doesn't he, if it's not complete, and it is quite a good way of getting his attention.

Mother - Definitely, he likes the sound of the drums and the guitar, and stuff like that.

MT - And would you say you sing with Charlie a lot at home, or quite a lot, a small amount?

Mother - I'd say medium.

MT - Small amount, quite a lot?

Mother - I wouldn't say a lot.

MT - Small amount. And how much vocalising does Charlie now use at home?

Mother - A lot more than he used to, you know he makes that "Ugh" noise.

MT - So would you say that kind of noise is communicative or expressive? So it's communicative ...and it's also expressive?

Mother - >>>>

MT - So taps...to get attention?



Mother - Yes >>>>>>

MT - Yes. At the same time as making that growly sound?

Mother - He tends to do a lot of that with Dom (brother) - when he wants Dom's attention - at times.

MT - OK. That's really nice. So would you say that vocalising is an important part of Charlie's life?

Mother - Yes.

MT - Is it an issue - do you have strong feelings about Charlie's vocalising?

Mother - Yeah >>>>>

MT - Does Charlie use any words at home?

Mother - He repeats "Mum" and "Mama", and "Sav" >>>> and it sounds like he tries to say "D" but it comes out >>>>

MT - Yes.

Mother - It sounds like - when he tries to say "cat" that the sound is coming.

MT - Yes.

Mother - And then he'll try again, and it's gone. It's like it's...you know.

MT - "Cat", attempting to say "Cat". So would you say his use of words or sounds are echolalic or repetitive?

Mother - He repeats, so, well the "Mum" and "Dad" - that's all he can say, but everything else is...I thought if he'd be able to say "Mama", "Dada" then he'd be able to say "Dom", but he doesn't...

MT - "Dom..m"

Mother - But he can say "Mama", but he doesn't do "o" sounds. I'm trying to work out what words are actually hard to get out.

MT - Yes.

Mother - Then I think >>>> If things are >>>> then he can babble. It's how you pronounce it...at the back of the throat. But it comes from the front.

MT - Have you had advice from the speech therapist about it, because it might be good, now that he's starting to develop more what he's saying. Perhaps they could give you some tips on what to do at home?

Mother - It's PECS. Yeah.

MT - PECS. OK.

Mother - I think it's when he decides to...I think.

MT - Yes, yes.

Mother - Because if he can say >>>

MT - Yes.

Mother - It's getting him to try sounds...

MT - Yes.

Mother - I think music's helping him.

MT - Yes I do think it has. Especially that regularity of weekly music sessions, and then also doing some music sessions in class, I think has really helped him. It's given him the confidence of using his voice in a regular way, as a social thing, has been good, yes. And so, what is your main way of communicating with Charlie at home?

Mother - Through his PECS.

MT - And verbally?

Mother - Yes. He understands what you say, it's just getting him to show us what he wants. Sometimes it can be the same thing all the time...or you have to switch over on what he wants. Picking up a cereal bar, and I'm like "No" because he's already had one, and I say pick up something like "fruit", and then he'll go and find a picture.

Something like that. >>>> (laughs)

MT - Yes (laughs). Well it's a good place to start.

Mother - Yes, not like, you know, bless him.

MT - Hmm. And what do you feel Charlie has got out of music therapy in relation to vocalising and verbal communication?

Mother - He seems to have got more sounds, new sounds, yup.

MT - OK. Brilliant. I think we're there!

### **Appendix 6.2.3 Post-intervention interview with Elliot's parents**

MT (music therapist) - So does Elliot now enjoy listening to music at home, would you say a lot, quite a lot, a small amount?

Mother - Elliot likes listening to music doesn't he? He doesn't seem to...he likes listening to Libby's shuffle desk. (interruptions from sibling)

MT - OK. So would you say a small amount?

Mother - Quite a lot.

MT - And do you sing with Elliot at home now a lot, a small amount?

Father - I'd say a small amount.

Mother - A small amount, yeah.

MT - Actually if you could build it into your routines, every time you clean his teeth, a song every time you get him dressed, that would be great, yes. Um...how much vocalising does Elliot now use at home? A lot, quite a lot...

Mother - Vocalising...a lot, quite a lot, a small amount?

Father - What's vocalising?

MT - How much vocalising, any sort of vocal sounds...does he use at home?

Father - How much vocalising does he use?

MT - Does he use at home?

Father - Um...I'd say hardly any...

Mother - Vocal doesn't just mean talking, it means "blublublublublalaaa".

Father - Oh yeah I mean, a lot, I was only in the shower this morning thinking "Shush"!

MT - Good, great! (laughs)

Mother - (laughs)

MT - Would you say that his vocalising is communicative or expressive?

Father - Expressive, definitely, yeah.

MT - And - expressive - a lot, quite a lot...

Father - Yeah a lot.

MT - And could you describe the range of moods that Elliot might express through vocalising?

Mother - Um, anger, frustration, happiness...

Father - Yes it's almost like a constant that he has to do.

MT - Yes.

Father - Yes all range of emotions really.

MT - Brilliant. And so is vocalising an important part of Elliot's life...yes?

Father - Yes.

MT - Is vocalising an issue? Do you have strong feelings about it?

Mother - It's not an issue - sometimes he can get very loud, and I tend to be "Shush" - it can be very loud.

Father - Yes it can be a disruption - sometimes he will wake up at four in the morning, and be loud and vocalising - then that's not ideal.

Mother - No that's just who he is, so it's not really an issue...

Father - (laughs) That's not what you say at four in the morning...

MT - (laughs) No!

Mother - He could say "Hello Mummy how are you?" at four in the morning and I'd still say "Shut up!".

MT - (laughs) So...does Elliot now use any words at home?

Mother - Um, he says "Bye" quite a lot, "Mum", "Dad"...

Father - I'm sure he does say "Dad" - "Tickle"...so I'd say he's probably got around five words - five to ten words - probably got five words...

Mother - Yes. And he says “bag”...

Father - And they are loose still...though we do feel that they are the words.

MT - Yes, yes. Great. And so would you say a lot, quite a lot, small amount?

Mother - Well that's quite a lot for Elliot, but a small amount generally, but that's quite a lot of words for Elliot.

Father - Yeah.

MT - And what about the frequency of when he uses them?

Mother - The frequency is better than it was before...

Father - It's very little.

Mother - But it's better than it was before, like years ago.

Father - Yeah but it's still very little. He's just at the very start of...

MT - And would you say that Elliot's use of words or sounds is echolalic or repetitive, so is he sort of repeating things you're saying, or is he understanding?

Mother - No. I think he used to have echolalia with Libby, but I don't think he does any more, no...

MT - OK.

Mother and Father - >>>>>>>>>>

MT - And what is your main way of communicating with Elliot at home? Do you use signing?

Father - We tried.

Mother - We tried and stopped using it...but apparently he started again at school using PECS, so we're going to have a go over the Summer holidays...

MT - So PECS over the Summer...great. And what do you feel that Elliot has got out of music therapy in relation to vocalising and verbal communication?

Mother - I truly think that without music therapy I don't think he would have been getting the "Byes" and the...eye contact, his concentration.

Father - Yes the one-to-one focusing, you know, I'm sure there is an element of echolalia that goes on at the start of his understanding, but then he's learnt the context of that word, so...

Mother - Yes and the music therapy is helping to, sort of, to get that, can sort all that...the music therapy session can pretty much...I think that really does...

MT - The repetition and the structure?

Mother - Yes. (interaction with sibling)

MT - Great! I think that's it just about...Anything else?

#### **Appendix 6.2.4 Post-intervention interview with Kieran's mother**

MT (music therapist) - So does Kieran now enjoy listening to music at home?

Mother - Yes a lot.

MT - And what type of music does he enjoy most?

Mother - All types but actually quite likes heavy rock.

MT - OK. Presumably Mark's classical playing as well?

Mother - Yes classical music as well, Mark plays the piano, but he quite likes the heavy rock that Mark likes.

MT - OK.

Mother - Things that have a strong heavy beat, yes.

MT - OK. And do you now sing with Kieran at home, a lot, quite a lot?

Mother - Oh quite a lot yes we all sing.

MT - A lot?

Mother - Quite a lot yes.

MT - And how much vocalising does Kieran now use at home?

Mother - A lot.

MT - Great. Would you say it's communicative or expressive, or both?

Mother - It's both, yes, yes.

MT - And could you describe the range of moods that Kieran will express through vocalising?

Mother - Happy, when he's very happy and excited...his kind of interest and wonderment at the world, with 'Wow' .....

MT - Yes!

Mother - When he wants something. When he's cross. When he's anxious - he has very different sounds for all these things.



MT - Yes. Great. And so vocalising is an important part of Kieran's life.

Mother - Yes.

MT - And is it an issue - do you have strong feelings about Kieran's vocalising?

Mother - Oh yes very positive yuh, yuh, yuh, um...because I strongly want him to talk. He wants to talk.

MT - Yes. And it does really sound like he's trying to form words doesn't it?

Mother - Yup, yup, "more" has been coming out quite a lot, but if you point out to him that he's saying "more" then he stops saying it. I'm not sure why.

MT - Yes. And so that answers the next question - does he use words at home?

Mother - Yes he says "more" and "hello" and "wow", "dinner", "in there".

MT - Brilliant!

Mother - "Dinner" - yes that's his favourite word!

MT - (laughs)

Mother - He comes in the kitchen and it's "dinner, dinner", but it kind of means food in general.

MT - Yes. It's brilliant isn't it because you weren't sure that his vocal chords were going to allow him to do that.

Mother - Yes, he's working it out, he's working out how to speak more on the out breath. His "Hello" is more on the in breath. But the rest he's saying really quite nicely.

MT - Would you say his use of words is echolalic or repetitive?

Mother - No.

MT - And what is your main way of communicating with Kieran at home?

Mother - Just talking.

MT - And what do you feel that Kieran has got out of music therapy in relation to vocalising and verbal communication?

Mother - He's definitely become >>> (louder?)

MT - Great! (laughs)

Mother – It's not always great when he's going "Ahhh" - you know his cross air sound? It's very loud! I just thought I'd say "Shhsh" to Kieran but...

MT - (laughs)

Mother – "Shshh". Of course with air in the wrong key/pitch or whatever Mark starts to get stressed...

MT - Yes.

Mother - Of course Mark finds it offensive...

MT - Yes if it's not in the right pitch. (laughs)

Mother - Oh well...Kieran will have to change it, or Mark will have to live with it....

MT - Oh gosh. Yes.

### **Appendix 6.2.5 Post-intervention interview with Mark's mother**

MT - So does Mark enjoy listening to music at home?

Mother - Yes.

MT - And so what sort of music does he now listen to?

Mother - He listens to a lot of nursery rhymes on Youtube.

MT - And you said he goes and puts that on?

Mother - Yeah he types in what he wants to listen to. And if he likes the song, he'll listen to that certain part. And you know, like you say, he has a funny sense of humour, it could be like a little noise in a certain tune, he'll keep re-winding it and laughing.

MT - Yes. And do you still sing with Mark a lot at home?

Mother - Yeah. Quite a lot, yeah.

MT - And how much vocalising, I guess as separate from verbal interaction, does he vocalise a lot at home?

Mother - It's a lot now, it's a lot now. Yuh.

MT - Great. And would you say that Mark's vocalising is now communicative or expressive, or both? A lot, or..

Mother - Both yeah. he can let you know what he wants.

MT - Yes. So he will use his voice a lot?

Mother - Yeah.

MT - And could you describe the range of moods that Mark might express through vocalising?

Mother - Um like...if he has a headache he'll coMT up to you, and you say 'Oh no' and as I watch he goes 'Mark's head' and he'll put his hand on there to let you know.

If he's got a tummy ache.....the only thing he doesn't really verbalise is when he's unhappy, he'll just have a tantrum, or he's frustrated....

MT - He runs around screaming?

Mother - Yeah, definitely. And also, like, if we're listening to music and there's a high pitch within that song, he will just scream. I don't know what is wrong, but he'll cover his ears and he'll just start screaming, but even if it's a song that he knows, he'll wait for the song to get to that part before he starts screaming. So he'll get prepared himself to scream, yeah.

MT - Oh. Yes. Interesting.

Mother - Hmm.

MT - And if he's happy, has he got particular vocal sounds when he's happy?

Mother - When he's happy, he smiles a lot, you know, he does the hand gesture, jumps up and down, and then he, you just, you can tell when he's happy really, he's just lively, jumping up, stuff, just laughing. But not necessarily saying he's happy or anything. But his actions show that he's happy, more than anything.

MT - Yes. And would you say that vocalising is an important part of Mark's life?

Mother - Yes. (laughs)

MT - Is vocalising an issue - do you have strong positive or negative feelings about it?

Mother - I would like him to be more um vocal, because especially when there's something wrong and he can't say what's wrong, so therefore the tantrums start, so if he was more vocal that would help.

MT - Yes. So communicate more effectively?

Mother - Yes.

MT - OK. Does Mark use words a lot at home, quite a lot, small amount?

Mother - A lot, yeah.

MT - Can you describe the types of words and sounds that Mark uses at home?

Mother - He'll let you know when he's hungry, he'll tell you what he wants to eat, what he wants to drink, tell you he's tired, when it's bedtime, he'll let you know when he wants to have a shower...

MT - So he'll actually say 'bedtime'?

Mother - He'll say 'bedtime', he'll say 'shower', he'll say 'milkshake' or 'sandwich' or 'egg' or depending on what he wants to eat.

MT - OK. Would you say M's use of sounds is echolalic or repetitive?

Mother - Yeah he does. He does sometimes....

MT - It can be repetitive but I don't know if I would say it's echolalic because he's not sort of copying directly and then saying it over and over again...

Mother - He will copy what you say, but it's not over and over and over again, but if it's something he likes the sound of, he does say it over and over again. At the moment he's got this thing at the moment where he adds '.com' at the end, I don't know why, but he adds '.com' on the end, so if it's a word that he likes, you know, say like, he does. The little boy in his class called 'B' - he loves B and you know, when I say to him 'How was school today' he'll say 'B .com'! You know, so he will add '.com' on the end.

MT - (laughs)

Mother - So if there's a word that he likes, he'll add '.com', yeah, he's got a massive cheesy grin, I don't know what that's got to do with anything, but he seems to like it! But if I want him to say something, if i say the word and add '.com' onto it, he will then say it.

MT - Oh. (laughs) Yes oh brilliant.

Mother - Yes. (laughs)

MT - Oh right. And what is your main way of communicating with Mark at home?

Mother - Verbal.

MT - Does he use any signs or PECs or....

Mother - He has a PECS book, but because he understands a lot, so I don't.....I started using it with him, but his understanding is really good, and so I don't really use it, and he can let you know what he wants without the PECS book. So....

MT - And do you feel that Mark has benefitted from music therapy in relation to vocal and verbal communication?

Mother - Definitely.

MT - In what sort of ways do you feel?

Mother - He's more vocal. He expresses himself a lot more. Um he seems to be listening to music a lot more than he used to, and especially if he likes a song, I mean it still works whenever he's upset if I put music on, it calms him down, but that still works.

MT - Great. Yes that's nice.

Mother - Yes, so that's all good, yeah.

MT - And you said nursery rhymes?

Mother - He likes nursery rhymes but there's also like, on my music play listing, he's got music on his iPad and there's one song that, whenever he's upset I just put that on, it doesn't matter what or where we are, as long as I've got the headphones, then he just has that one repeat, and it calms him down.

MT - Brilliant. Great! that's it!

### **Appendix 6.2.6 Post-intervention interview with Paul's mother**

MT (music therapist) - Does Paul now enjoy listening to music at home?

Mother - Yes...>>>>>> he enjoys listening to pre-recorded settings on his >>>> up tempo, lively pieces, um...but then he also really likes listening to piano, classical pieces, we downloaded him some Chopin, Debussy...

MT - That's a change then from when we last met...

Mother - I think so, I think he liked anything noisy, he likes anything that plays music, noisy toys, you know his toy microphones, anything - he's got the sound machine at home, special effects are things he likes... He particularly likes listening to music. He's got a small MP3 player with a built in speaker and I woke up one night and he had it in bed with him, and he hadn't played with it for a while, and he was playing some piece of classical music quietly to himself...he had been enjoying that.

MT - (laughs) Ahh...Right. And do you now sing with Paul a lot at home, quite a lot...

Mother - Quite a lot. Yes.

MT - So you said teeth cleaning?

Mother - Teeth cleaning, things like being washed, going to the toilet, um...he quite often will hum something and we'll recognise it, and then we'll sing the song, so it might be something like "Baa Baa Black Sheep", or "There were three in the bed and the little one said" and it will be very noticeable - he might do an action, and we all join in. Or we might spend the rest of the day singing it. (laughs)

MT - (laughs)

Mother - Because it's very clear that if he realises we've picked up on something that he's sung he's really delighted.

MT - Yes OK. And would you say that Paul's vocalising is communicative or expressive at home, at the moment?

Mother - I would say so >>>>

MT - And a lot, quite a lot?

Mother - Er...a small amount...I think.

MT - For both of those?

Mother - Yes, yes, I mean he...I wouldn't say he vocalises quite a lot, it's a moderate amount. Kind of in between a small amount and quite a lot.

MT - Yes, yes.

Mother - Well maybe it would be...yes...somewhere between...

MT - Yes I'll put somewhere in between...And can you describe the range of moods that Paul might express when he's vocalising?

Mother - Definitely expresses delight, um...

MT - Frustration?

Mother - Yes, yes frustration...I think surprise as well, and kind of glee, um...not really, I don't think he'd really express that with the vocalisation, well yes, yes he might do actually, possibly. I'm just trying to think if was sad...

MT - He'd probably just go quiet?

Mother - I think he'd just go quiet, and then if he was really sad he might weep for a bit, but it wouldn't really come out as vocalisation.

MT - Yes. It's really when it's more extreme?

Mother - Yes.

MT - And would you say that vocalising is an important part of Paul's life?

Mother - Hmm. I'd say yes.

MT - And is vocalising an issue, or do you have strong feelings about it?



Mother - It's not a negative thing for us at all. We're always really happy whenever he does anything vocal. I wish he did it a lot more. I wish he was really noisy. Using his voice >>> with other things. (laughs)

MT - (laughs) Yes. And does he use words at home?

Mother - Between hardly at all and never. Once every couple of months, he might say one word, or we think he's said a word.

MT - And can you describe the types of words and sounds that he uses at home?

Mother - He does this "U-E-A U-E-A U-E-A" repetitive sound. And kind of variations on that. And he also does a "Hiya hiya hiya" thing, sometimes you can get him to say that. Um...take turns saying that, and recently if I've been holding him up in front of the mirror, so I've been cuddling him in front of the mirror, he's just, he did say "Ba ba ba" or "Ma ma ma".

MT - Ooh.

Mother - (talking to sibling) Liz can you think of other sounds that Paul makes at home? You copy him sometimes. What does he say? >>>> He says "Yow-ee-yow-ee-yow-ee-yow" doesn't he?

Sibling - "Yow-ee-yow-ee-yow-ee-yow".

Mother - "Yow-ee-yow-ee-yow-ee-yow". And he interacts with the dog a lot, and I think he sometimes tries to say the name "Alfie", but it comes out more "Aaal".

MT - Ahh. (laughs)

Mother - We'll try and get the dog to teach him!

Sibling - Yes. (singing)

MT - Um...so is Paul's use of sounds echolalic or repetitive?

Mother - >>> But not, no.

MT - And what are your main ways of communicating with Paul at home?

Mother - Um...we I suppose the main way that we communicate with him is through just speaking, um...and singing, and um...a small amount of PECS.

MT - Did you say he wasn't keen on PECS?

Mother - No. Well he was um...not focused on it as much at home. Lots of things get in the way, and I had a chat with his speech therapist about the way that he repeatedly picks all the cars up and puts them behind the radiator, and things like that. (laughs)

MT - So there's a bit of a >>> pattern then isn't there?

Mother - Yes. We're finding that really hard at home, although I know he's getting on well with it at school. So we're working out some strategies to try and deal with that at home, maybe have pointing charts. Just have...rather than have a book, have boards...in different rooms, so that he's less - faced with a whole book...

MT - Yes.

Mother - But mainly we speak to him, and he seems to get what we're saying. It's very clear that he understands.

MT - And he's just so much more willing to engage and interact >>> he's got that basic understanding of what you're saying, he wants to engage. Eye contact >>>>>

Mother - Yes and it's occurred to us that he's actually a very compliant child, actually, you know when it's bath time, or toilet time...He usually springs up...

MT - He's aware...

Mother - Oh yes, and then, he likes to go along with what's being asked of him, unless he's got some kind of issue, that's not sorted out, and then...yuh...

MT - And what do you feel he's got out of music therapy in relation to vocalising and verbal communication?

Mother - Um...I think he does, I think he is vocalising in a more varied way, and he's not...I don't know, he just seems more, whether this is linked, he just seems much

more keen - he listens at lot more rather than just hearing I think. He's listening to what we're saying. He really does enjoy listening to music. I've noticed him quite clearly singing nursery rhymes, >>>>

MT - Oh great.

Mother - Humming along...

MT - Great!

### **Appendix 6.2.7 Post-intervention interview with Remiel's parents**

MT (music therapist) - So does Remiel enjoy listening to music at home now a lot, or quite a lot, or a small amount?

Father - He's very happy I think.

MT - I'm sorry...listening to music - does he listen to music at home?

Mother - Yes, yes.

Father - Yes.

MT - He likes nursery rhymes?

Mother - Yeah.

Father - Nursery rhymes.

MT - So would you say he listens to music a lot when he's at home?

Father - Yes.

Mother - Hmm.

MT - And do you sing still with Remiel at home?

Mother – Yes. (laughs)

Father - We sing...what do you call that?

Mother - Hymns.

Father - Yah he sings hymns as well you know. He can sing, you know >>>> some hymns you know?

MT - Great!

Father - Yes.

MT - OK. And how much vocalising, so sort of expressing himself through vocalising, does Remiel do at home?

Father - He's always vocalising, you know, but it's not clear what the word, but >>>> not everything he wants to say, yes...

MT - Fantastic yeah.

Mother - He say...in the kitchen, everything he knows - microwave, he say "micro-wave", "washing machine", "fridge".

Father - Everything...we do something as a family...

Mother - Everything - he wants water - he says "water".

MT - Actually I might write this down as you're saying it...so "washing machine"...

Mother - Yes the only thing he says is "microwave", "washing machine" >>> (laughs)

MT - (laughs) He likes to name things.

Mother - Yes. And colours, he show the colours...

Father - Colours, colours, he will always say - he will repeat after me, you know, then he show us. He wants to repeat after us.

MT - Yes.

Father - He asks "green, green" - we have to say otherwise he >>> (laughs)

Mother - (laughs)

MT - (laughs)

Father - Until we say "yes green", we say "yes green" and he still says >>>>>

MT - So he's satisfied once you've said it.

Mother - Yes.

MT - Oh brilliant, brilliant. Um...and just going back to the vocalising, so would you say the sort of babbling "ba ba ba ba ba", sort of, his own vocal sounds, does he do that a lot, or a little bit...

Father - A lot.

MT - And would you say his vocalising is communicative or expressive, or both, and how much of each of those - is it more communication or self-expression?

Father - It is both, I think, like that, yeah.

MT - A lot?

Father - Lots yes.

MT - And can you describe the range of moods that Remiel might express through vocalising? If he's angry or sad would you hear it vocally in his voice?

Father - Yes yes. When he get angry he go "Ahh" - he continue to vocalise - we can't understand sometimes, but "Ahh".

Mother - Yes.

Father - And so like "Ahh yay yay".

MT - So if he gets frustrated about something that he's trying to tell you about?

Father - Yes.

MT - And if he's sad or happy - do you hear that vocally as well?

Father - Yes, yes.

MT - Yes. So >>>. And, so vocalising is an important part of his life. And do you have strong feelings about it, you know, if it goes on and on and on, does it feel annoying to you - or do you like to hear him expressing himself? How do you feel about it?

Father - Yes sometimes, you know, sometimes we can't understand when he vocalise, so if we just can't understand it he >>>. So sometimes it's a little bit...(laughs)

MT - Frustrated?

Father – Yes. (laughs) So if we can't understand he get angry...(laughs). We've been trying to...

MT - Yes it's very frustrating for him.

Father - Yes.

MT - But mostly you're happy with his progress?

Father - Yes exactly really.

Mother - Yes.

Father - Progress is really good.

Mother - Hmm.

MT - Yes.

Mother - And he understands. Yeah.

MT - Very good understanding.

Father - He can understand now what we say...everything he can understand. "Please can you bring that one" and he will bring that one.

Mother - Yes.

MT - Yes.

Father - Sometimes the front door key we will put in the hall, and we sometimes we see the key is missing, and we say "Where did you put the key" - then he'll go and find it.

MT - And he's hidden it somewhere. (laughs) My daughter does that!

Mother - (laughs)

Father - (laughs)

MT - "Where have you put them?" (laughs)

Mother and Father - (laughs)

Father - Before he didn't know what we say, but now it's very good. A hundred percent improved.

MT - Yes.

Father - Understanding, concentration, really...

MT - Oh concentration has really improved, yeah. And would you say that Remiel's use of sounds and words is echolalic, or repetitive? Sometimes he will repeat things, won't he, things that he's heard, over and over again?

Father - Yes. Yes sometimes he repeats something like, yeah, sometimes “doors doors doors” or...

Mother - Switching on the lights.

Father - Switching on the lights.

MT - And doing the same things?

Father - Yuh, and one thing he's - so when we get a telephone call from someone else, he ready to answer that call, some place you're upstairs, >>>> one room there >>>>(laughs) >>>> if we are in other place he get angry. He get >>>> it's all like that, yeah. (laughs)

MT – Yes. (laughs) Yes, yes, yes. So he's being very directive about what you can and can't do?

Mother - Yes.

Father - Yes those kind of things, you know.

MT - So what would you say is your main way of communicating with Remiel? So verbally?

Father - Yes verbally. Actually we don't use the PECS at home because we feel he doesn't need it.

Mother - Yeah, he can understand. Yes.

MT - That's the main thing isn't it, that he can communicate. Yes.

MT - And what do you feel that Remiel has got out of music therapy in relation to vocalising and verbal communication?

Father - Sorry?

MT - And do you feel that Remiel has benefitted from music therapy in terms of developing his vocal...

Father - Exactly yes.



Mother - Yes.

Father - Yuh I think it has ...more talking...more verbal communication. Yes - word coming out of his mouth - with the music, yes, very good.

Mother - Yes.

MT - Great. Well thank you!

## **Appendix 6.3 Teaching assistant interviews pre-intervention**

### **Appendix 6.3.1 Pre-intervention interview with Dean (TA) for Ashraf**

MT (music therapist) - How much vocalising would you say Ashraf uses in school - a lot, quite a lot, a small amount?

Dean - I'd say a lot.

MT - A lot. Yes so would I! (laughs)

Dean - Yes.

MT - Um is his vocalising communicative or expressive, or both?

Dean - Um...it's both really - depends what he wants.

MT - A lot quite a lot - I know I meant to separate these two actually, if we just do communicative...

Dean - Communicative - again a lot if he wants something.

MT - A lot - yes. And expressive?

Dean - Yeah. Again a lot. If he's hurt or upset, or...

MT - And can you describe the range of moods that Ashraf might express through vocalising?

Dean - Um happy, um angry...

MT - And what sort of sounds does he make?

Dean - Happy, happy he will do a little laughing sound and just kind of little sounds, a bit like laughing but not quite. And just general tone of voice - you can tell if he's happy or sad...

Me - Yes. OK, what about angry?

Dean - His tone of voice lowers.

MT - OK.

Dean - It's generally accompanied by body actions, but it's just kind of the tone of his voice changes.

MT - Sad?

Dean - Yeah. Upset or sad, he will cry, and really like sometimes says "unhappy" a lot.

MT - Yes. He'll actually say "unhappy"?

Dean - Or it sounds like "unhappy" - I don't know if it's specifically...

MT - Yeah. So is vocalising an important part of the child's life - yes definitely with Ashraf! Is vocalising an issue in class and do you have strong feelings about it?

Dean - No it's not an issue, it's good for us that he does vocalise.

MT - And does he use many words in school? And would you say a lot, quite a lot, a small amount...?

Dean - Um quite a lot.

MT - And can you describe the types of words and sounds that Ashraf uses in school?

Dean - Yes I mean "Hello" - he uses "happy" for if he drops his toys he'll say "happy" to kind of get your attention, but he can say most of our names...

MT - "Happee"?

Dean - And most names of staff around the school.

MT - Yes. I don't know if he says "Jo" - he says "music" for me...

Dean - He says "music" for you, but I think if you kept saying your name... I think it's because we say our names.

MT - I'll have to teach him that. Yes, yes OK.

Dean - Um "fizzy" he uses for a computer programme. "Ball", um I'm just trying to think, like most toys that he wants like "puzzle", "jigsaws".

MT - So he'll say "puzzle", "jigsaw". So he's got quite a wide range. Would you say that he can say twenty or so words?

Dean - Yes probably about twenty. If he doesn't know the word he'll just say "happy".

MT - OK (laughs)

Dean - (laughs) But yes I'd say compared to last year his word bank has increased.

MT - Yeah. OK. Is his use of sounds echolalic or repetitive? It sounds like it's mostly meaningful and in context.

Dean - Yes quite meaningful.

MT - How do you mostly communicate with Ashraf at school?

Dean - Um...his understanding is more than his vocalisation.

MT - Does he still use PECS?

Dean - Yes for choosing, he still uses PECS.

MT - Yes, so this is still, because I've got his chart, so that is still...

Dean - Yes that will still be good. He'd still be able to pick what he wants.

MT - I think I need a few more songs on there.

Dean - But again you could probably right say, like, what song?

MT - Oh yeah, you just say it. I might just move on to that actually. And do you sing with Ashraf in class? A lot, quite a lot, a small amount?

Dean - Um not specifically with him. We have music time and circle...

MT - Every day or?

Dean - Yes every day.

MT - Every day. Great!

Dean - And he'll sing to that sometimes, the rest of the time he just does the actions.

MT - So that's quite a lot then so...that's great. Um any particular songs - actually I sort of know this because of the songs I do with him, although...

Dean - 'Wheels on the bus'?

MT - Are there any that aren't on here that you can think of that he likes - that you've done recently?

Dean - I mean do they need to be songs that you'd be able to play, or...there are songs on the whiteboard that we listen to, 'Little Red'...I think it's 'Little Red'. I know it's about a horse and it trots, and gallops and runs...

MT - I don't know the tune but, um, I wonder if I can find it somewhere...

Dean - Yes it would be on Youtube children's songs. I can't remember the name of it specifically. The rest of them are what we do quite a lot of.

MT - Yes, great. OK. And what do you think Ashraf will get out of music therapy in relation to vocalising and verbal communication?

Dean - Um...I think it will probably help him increase his vocalisation and verbal communication, because he likes songs, so if he can gain, you know, with using his voice, he'll probably take it back to the classroom.

MT - Yeah. I think singing is really important for him isn't it? It's fantastic you're singing with him every day.

Dean - He will respond well to music, he will sit and listen to it.

MT - Yes. So brilliant...

### **Appendix 6.3.2 Pre-intervention interview with Dean (TA) for Charlie**

MT (music therapist) - Ashraf, I know but Charlie I don't know apart from I supervised J, the music therapy student who was working with him. So I have seen video of him in music therapy, and I've spoken to Mum, so how much vocalising, he uses a lot doesn't he?

Dean - It's a lot, yeah.

MT - Um communicative or expressive?

Dean - Um again it's a bit of both, I'd say more expressive than communicative.

MT - Yes that's what I thought...the impression from Mum...Communicative - quite - do they or?

Dean - Yup, I mean it's kind of hard to determine because it sounds the same, but if he wants something, then he'll make a lot of noise until you look at him.

MT - Yeah. OK. So it is both then?

Dean - But it's not proper verbal communication.

MT - No, no I realise that.

Dean - It's way off.

MT - So range of moods.

Dean - Um...really just happy and sad. There's not much of a middle ground.

MT - Doesn't get angry?

Dean - No not really no.

MT - I know Mum said he's throwing things at home a lot.

Dean - I haven't seen him do that in class, here it just seems to be that if he's unhappy he's just upset.

MT - So happy sounds are high-pitched?

Dean - Yeah, kind of high-pitched, kind of like screaming but not...

MT - (laughs) And sad?

Dean - Sad is again, screaming, but accompanied by tears - usually goes on longer.

MT - OK. Um so vocalising is important isn't it because it's expressive. Is it an issue in class, and do you have strong feelings about it?

Dean - No again it's not an issue. I mean it's good for us that he is making noises.

Sometimes we have to tell him to be quiet but...

MT - OK. If he's disturbing the others or something?

Dean - Yes sometimes he will go off...

MT - Yeah. Great. Does he use words? No. I'll say 'never'. Um so on to sounds - so we've done sounds. So you say he's not using? Oh would you say his use of sounds is echolalic or repetitive - sounds like they could be repetitive?

Dean - Could be repetitive - I don't think it's echolalic.

MT - No. Um and how do you mostly communicate with him?

Dean - Um...talk to him, um, to do "Hello" he does use PECS as well. If he wants to say "Hello" we'll hold up our hand and do high five.

MT - OK.

Dean - So it's kind of body motions as well.

MT - High five...so...Do you sing with him in class, so presumably a lot if you're doing the same as with Ashraf.

Dean - Yes circle time.

MT - And any particular songs that you use in class? I know he is very responsive to songs isn't he?

Dean - Yeah. I don't know if there is any - no particular song that he likes - he seems to like everything we put on.

MT - Yeah. Actually I think Mum said he doesn't like very high-pitched sounds...so I can't remember...

Dean - I don't know because we haven't had any high-pitched singing...

MT – No. (laughs) Great. Nearly there! And what do you think Charlie might get out of music therapy in relation to vocal and verbal communication?

Dean - Again the same kind of thing as Ashraf - I think kind of taking it back to class - if he learns to use his voice he'll sing...and maybe he'll start forming words.

MT - Yes. I really do hope so because Mum's so desperate isn't she for him to learn to be able to speak...well of course.

Dean - Yes I don't know how late Dom (brother) was in speaking - it might be that he starts to use words.

MT - Yes because she feels that his vocalising hasn't really developed in the last five years. She said she didn't really feel that there had been a big change. How old is Charlie? (tape cut out)



### **Appendix 6.3.3 Pre-intervention interview with Dana for Elliot**

MT (music therapist) - So we're talking about Elliot, and ...um how much vocalising would you say that Elliot uses in school, a lot, quite a lot...

Dana - It can be all of those depending on his mood really...um...Yes some days he's very very quiet, other days you can't shut him up really! Yes anything from not at all to tonnes...

MT - Yes. OK. And would you say his vocalising is communicative or expressive...

Dana - A lot.

MT - So, communicative and expressive...both of them a lot?

Dana - A lot yes.

MT - And could you describe the range of moods that Elliot might express through vocalising?

Dana - Ooh um happy, excited, scared, testing...(laughs)

MT - (laughs)

Dana - Yeah sort of, I don't want to, hungry, different noises for different...

MT - OK well we'll deal with the actual sounds in the next bit. So um...>>>

Dana - Definitely that's a very very clear one, one of the clearest ones. And fear is one of the clearest ones as well.

MT - Brilliant, and would you say, it sounds like vocalising is very important...Is vocalising an issue in class? Do you have strong feelings about it?

Dana - No. No not an issue in a negative way...

MT - So I'll say it's positive?

Dana - Yes. Definitely. I mean it's his way of talking to us.

MT - Yes. Yeah. Um...OK. Does Elliot use any words in class? Would you say a lot, quite a lot...

Dana - Er a small amount, because it depends on his...I mean he's said random colours before, said his sister's name quite a lot, "Yibbee yibbee".

MT - Yes Mum said about that.

Dana - He's said my name a couple of times...

MT - So if we're describing types of words and sounds, so um..."Yibb-ee" with the emphasis on the "ee".

Dana - Yeah. "Yibb-ee". (laughs)

MT - (laughs) And so staff names.

Dana - Yes, and "Maaam-ee".

MT - Um...and yes you said that certain sounds he makes for fear or hunger?

Dana - Yeah. It's um hard because you don't know how noises...it's "Yeh-ee"...

MT - If he's scared?

Dana - Yes like "Yah-eeee".

MT - "Yah-eeee".

Dana - And for happy he's like "Ah-ha". (laughs)

MT - (laughs) "Aahh". So it's from up to down?

Dana - Yes.

MT - OK. And hungry?

Dana - "Nam nam nam"... "Nam nam" It's something to put in! (laughs)

MT - (laughs) It's brilliant Dana! You're so good at this!

Dana - Well I've been working with him non-stop.

MT - Um...anything else?

Dana - Excited and happy is usually giggling and things like that. He'll sort of go "Hee hee", which is very different from his actual laugh, through his teeth sort of giggle, that he does through excitement or really happy - then he'll laugh properly.

MT - Yes. Yes. And would you say his use of words is echolalic or repetitive at all?

Dana - Sometimes, like with colours, when he has said them I have felt that he's said them because we've said them, it's never a sort of, I mean with his parents, like sort of "Mummee" and "Libbee" - those are just free, things that he says just off of his own bat, and my name he said just off of his own bat. But other things, in a work setting, a lot of the time when he says things, it has been...

MT - And would he say it repeatedly, or just the once because he's heard it?

Dana - No he never says it more than once, it's once in a blue moon he'll say sort of "Blue".

MT - So it's not, by echolalic I meant sort of over and over again, so he doesn't do that?

Dana - No he doesn't.

MT - Um...sometimes copies words but not echolalic...How do you communicate with Elliot mostly at school?

Dana - Er...short verbally, er...and photographs if we need them to back up the words, signing occasionally, if he's really not focusing on either what you're saying to him, photos, symbols and things like that.

MT - And...do you sing with Elliot in the class?

Dana - Yes quite a lot.

MT - And are there any particular songs that you use in class that Elliot might respond to in music therapy?

Dana - Ooh um, he likes 'Twinkle Twinkle', 'Grand Old Duke of York', we've got a brilliant reggae 'Humpty Dumpty' that he quite likes...

MT - (laughs)

Dana - Um...trying to think of the other ones that he sings...‘Hickory hickory dock’...it goes with the movements up your arms, and then...‘Round and round the garden’ he quite likes as well.

MT - Yes OK. And what do you think Elliot might get out of music therapy in relation to vocalising and verbal communication?

Dana - I’m hoping it will relax him around it, um...it’s almost as if it builds up in him and then he does it by accident, almost like it just comes out - it’s like “Ooh ooh I said a word!” - “I must never do that in school!”

MT - (laughs)

Dana - So I’m hoping that he gets that it’s OK to vocalise in school - that it’s got a purpose behind it, it’s not just a random, there’s more to life than just shouting for food, or you know...saying “No I don’t want to!” - that you know you can talk to people and it’s fun.

MT - Yes. Rather than it being communicative - yes. Brilliant. Thank you!

Dana - Is that alright?

#### **Appendix 6.3.4 Pre-intervention interview with Nina for Remiel**

MT (music therapist) - Right so...talking about Remiel - How much vocalising does Remiel use in school? Would you say a lot, quite a lot, small amount...

Nina - Small amount.

MT - Small amount. And would you say that his vocalising is either communicative or expressive, and we can split those two up because I realised they don't...

Nina - Do you want to clarify the difference between communicative and expressive?

MT - So communicative - does he seem to want to communicate something to you by vocalising and using his voice?

Nina - No it's more expressive, yuh.

MT - OK so would you say he uses it expressively, a lot or quite a lot, or small amount?

Nina - Very little.

MT - OK so, hardly at all, or...

Nina - Hardly at all

MT - And so he doesn't communicate with it either? You wouldn't say that he uses his voice in a communicative way?

Nina - No he doesn't - not to me anyway.

MT - So if I say - hardly at all. Or never, would you say?

Nina - He tends to kind of follow you, you know if he wants something, and he can stay very close to you, not actually trying to communicate verbally...

MT - Yes OK.

Nina - If that makes any sense?

MT - So then you may not be able to answer this one - can you describe the range of moods that Remiel might express through vocalising and verbalising?

Nina - Um...yes I can - he protests when he doesn't want to do something, he gets frustrated if you ask him to work and he doesn't want to do the work, and excitement...um...happy when he's laughing.

MT - OK....um what sort of sounds does he make when he's happy?

Nina - "Eeeh" when he's excited.

MT - Great. And so happy is laughing...

Nina - Yeah laughing and then yuh....

MT - So what about the protest, um, actually I've got another section about the types of sounds...

Nina - It's the same kind of sound really, not er... "Eeeh"

MT - "Eeeh" sound

Nina - Yuh. It will be. You can see it on his face, he's kind of "Ahh" kind of thing. When he's throwing things on the floor. I can see that it's frustration, you know, I don't want to do it, kind of thing. Um...one sound he made the other day, when we were doing music, and we were doing 'Old Macdonald has a Farm', and he was actually um...the following day when he was doing work station, he was doing an animal puzzle, and the lady was working with him showing him an animal - and he went "Ee-i-ee-i-o".

MT - Ooh really?

Nina - Yes it was only once, but he did. And I have noticed that when we have music in the classroom only once again, we were singing 'Old Macdonald had a Farm' and he was playing on his instrument, he was following the beat, and he was actually, like he knew the song - you know what I mean?

MT - Yes.

Nina - Um...yuh, so it was like there was a kind of recognition there.

MT - Yes. So are there other songs as well that he knows?

Nina - That was the only one.

MT - It was just that song?

Nina - Yuh. Um...and he was smiling so he knew, he knew the song, and this morning as well, I was helping him to take off his coat when he arrived, and he went to me something like "Meeee Me Ow" so I thought - oh that's funny! So I kind of copied him, and I was looking at him and I was going "Meee Me Ow it's my bag" and he was happy. Whether it means anything with his language, or whether it was just a sound he produced.

MT - I'll tell you what his parents said...

Nina - And he was amused because I copied him, I don't know, but um...so every so often he would produce sounds.

MT - I'll tell you what they said because it's quite interesting isn't it, to know what they're doing at home. (looking through notes). It was lovely meeting them actually.

Nursery rhymes - so they said 'Wheels on the Bus', they said 'Tiny tiny' - Singalese songs when he was younger which they now sing in English to try and keep him...They said he would sing 'Twinkle twinkle Little Star' tune - not the words...

Nina - Oh right.

MT - (sings) 'Row Your Boat', claps and stamps, "Beep beep", when angry says Mum a loud "Aahh" - increasing frustration if parents cannot understand...

Nina - Yeah so that's again - same kind of thing.

MT - If happy - singing, chooses songs from mobile phone.

Nina - How does he sing then? Does he sing in his own language, or just hums?

MT - Apparently they pray in the morning, and he sort of goes "Ayen" for "Amen", "Je" for "Jesus" - he can't say God but "bless".

Nina - So what religion are they? Are they Muslims or...no they're not Muslims are they? What are they?

MT - They're Christian.

Nina - Oh they are Christian. Oh.

MT - Um "Mama", "adeni",

Nina - Yuh what's that "ee" yuh..

MT - "Ee-I" - yes yes so that's consistent...

Nina - Hmm. Yuh he's made some "oo" sounds as well. But again it's completely out of context just, you know, when I'm sitting beside him, and where did that come from? But he did it because there is nobody else there. Um...

MT - Unexpected yes.

Nina - But he is a changed child. When he first started at school he didn't want to interact with anybody, he wasn't sure what was expected of him, now he interacts with the children, the adults, and um even physically he's a lot more stable on his feet, and he's not afraid of trying things. He's really different.

MT - Yuh. Good. So would you say that vocalising is an important part of his life?

Nina - I wouldn't say so no.

MT - Although it sounds from what you've said as if it is - he's expressing himself.

Nina - Yes if that's what you mean - yes, but what I'm trying to say that he doesn't have the need to really produce sounds, to express himself, he doesn't seem to have that need. But yes it is important from the point of view that er...you know, for exactly...

MT - OK. For developing communication...

Nina - To understand how he feels. Yeah. Um....



MT - So would you say that vocalising is an issue in class and do you have strong feelings about it?

Nina - What do you mean by an issue - an issue for the teacher?

MT - Is it difficult or....or is it something that is an issue - or something - um...

Nina - Who is it an issue for, is what I'm trying to say?

MT - For you, or for R (teacher), or you know, teaching staff.

Nina - I don't think so because we do encourage them to actually vocalise, make sounds, as much as possible, and we try to understand what they're saying, to give a meaning to their sounds. as you would with a very young child. So...

MT - So you feel positive that ...yeah...

Nina - Oh yuh. And I know R (teacher) would too.

MT - And so, does Remiel use any words in school? Quite a lot, small amount?

Nina - Not that I know of. Not a word, you know...

MT - OK. And would you say his use of sounds is echolalic or repetitive - does he copy things that he hears?

Nina - No he doesn't repeat any of what he >>> . I mean like this morning, when I repeated his sounds, he just stood there smiling, and like "Oh this is nice", you know...

MT - Yes, yes.

Nina - And I kept doing it.

MT - Yes.

Nina - But he did not go on, and for that reason - he didn't, he could have - he didn't...

MT - No. And so what is your main way of communicating with Remiel at school?

Nina - He's got PECS and, what else do we do, he does PECS mainly...

MT - And spoken?

Nina - You know what he does a lot of is following, joining in, he follows children, kind of, trying to talk to them, or takes them by the hand, he would follow. And that's how he gets to know what he has to do.

MT – Yes, yes.

Nina - He physically follows people. Which is good actually - he has understood that there is a routine, about being with other kids. He will actually....get integrated.

MT - Yes. And do you sing with Remiel in class a lot, quite a lot, a small amount?

Nina - You mean to adults in the classroom.

MT - Yes in a group, or just generally.

Nina - Well normally when we have music we do it, which is once a week.

MT - OK. Only once a week...right. A small amount. That's interesting because Dana said that in K's (teacher) class they have a music slot every day.

Nina - Every day? Well if we get time we do the 'Hello' song, which is not very often, because there is so much going on. You know we've got two children who need standing frames >>>> it's really difficult.

MT - Yes. And finally what do you think Remiel will get out of music therapy in relation to vocalising and verbal communication?

Nina - I think he maybe will, kind of, loosen up, he will be able to actually be more spontaneous, and because I have noticed actually that he does like music...

MT - Yes.

Nina - Um. The last time we did music together he was actually - he had a beater - and he was actually using it against the cymbal.

MT - So he was motivated...

Nina - So he uses the cymbal the way he wanted to use it...and I left him to do it, he was really enjoying it. Yes he is really motivated by music, so we did the start and stop song, and he really followed that. He was waiting for R's (teacher) instructions to start and stop.

MT - Right. Great!

Nina - So that was really good.

MT - Great.

Nina - So that's why I think he will benefit from it.

MT - Great! Thank you very much!

## **Appendix 6.4 Teaching assistant interviews post-intervention**

### **Appendix 6.4.1 Post-intervention interview with Dean for Ashraf**

MT (music therapist) - So how much vocalising does Ashraf now use in school?

Dean - Loads yeah, a lot yeah, he speaks all the time.

MT - Um and would you say his vocalising is communicative or expressive, or both?

Dean - Definitely both, yuh.

MT - And could you describe the range of moods that Ashraf might express through vocalising at school?

Dean - Happy, tired, angry, upset, generally excited, that's about all his moods.

MT - Yes brilliant. So vocalising is an important part of his life. Is vocalising an issue in the school and do you have strong feelings about it?

Dean - No I don't think it's an issue at all. It's a positive thing.

MT - Does Ashraf use words at school? A lot, quite a lot, yeah?

Dean - Yes.

MT - Um, he says everything really doesn't he? OK lots of words so lots of words... I won't get you to try and think of every single word that he says....!

Dean - He was singing yesterday 'Grand Old Duke of York'

MT - Lovely! I've just been doing the video analysis of the sessions, and it was lovely seeing your sessions with him. Really impressive - really good. So is his use of words or sounds echolalic or repetitive?

Dean - I wouldn't say it's echolalic - it's sometimes repetitive - but then it's mainly individual words.

MT - And so things that he's heard people say, that he likes the sound of?

Dean - Yeah. But then it's also, he's learning names and stuff, so it's also...

MT - So it's part of that language process?

Dean - Yes.

MT - And how do you mostly communicate with Ashraf at school?

Dean - Talking.

MT - And do you sing with Ashraf in class, a lot, quite a lot, small amount?

Dean - Quite a lot. I mean we do music on the board, which he will sing along to, and yesterday he was spontaneously singing - that he does and we carry on.

MT - Yeah. And do you feel that Ashraf has made progress in relation to music therapy aims over the last 24 weeks in relation to verbal and vocal communication?

So my aims were social skills, use of the voice, singing...

Dean - Yes I would say so.

MT - And do you feel Ashraf has made progress in relation to his vocal and verbal communication as a result of your one-to-one sessions with him.

Dean - It's hard to tell, but probably. I mean he was vocal before. But now he's even more vocal than when we first started. But I don't know if that's in relation to...

MT - It's a team effort really isn't it? With everything that's going on.

Dean - Yeah.

MT - Great! Thank you! Oh yes I was just going to say - I haven't managed to...his Mum hasn't been in at all to do questionnaires...

Dean - She probably won't.

MT - No.

#### **Appendix 6.4.2 Post-intervention interview with Dean for Charlie**

MT (music therapist) - So how much does Charlie now vocalise in school, a lot, quite a lot...

Dean - A lot.

MT - Would you say his vocalising is communicative or expressive or both?

Dean - Both.

MT - A lot, quite a lot?

Dean - A lot, yeah.

MT - Can you describe the moods that Charlie would express through vocalising?

Dean - Again happy, upset, are the two main ones. Occasionally excitable.

MT - Yes, yes. Those are his two main...

Dean - There's not a huge range.

MT - Yeah. And would you say vocalising is an important part of Charlie's life?

Dean - Yeah.

MT - And is vocalising an issue in school or do you have strong feelings about it?

Dean - No it's not an issue. It's good for him to vocalise so we know what he wants.

MT - Does Charlie now use any words at school?

Dean - Not really words, no. It's more still the sounds.

MT - So hardly at all, would you say?

Dean - Yes.

MT - And can you describe the types of words and sounds that Charlie uses at school?

Dean - Yeah I mean if he's upset then it's like an upset noise, like crying and shouting, and there's also for happy, it's kind of shouting as well.

MT - Yes with a smiley face?!

Dean - With a happier tone. And a smiley face, yeah.

MT - Yeah. And sometimes one goes into the other doesn't it...his moods seem to swing quite quickly...

Dean - Yes his moods can change quite quickly.

MT - And are Charlie's use of words echolalic or repetitive?

Dean - I wouldn't say they're echolalic.

MT - No.

Dean - And again repetitive - he maybe does it a lot, but I don't know whether it's repetitive...

MT - So repeated sounds, but...interestingly Mum said that he says "Mama" and "Dada" at home.

Dean - He might do but...

MT - Yeah, yeah, and some...well she felt, and I felt actually, that his range of sounds this year seems to be more variable. Don't know if you...

Dean - I didn't work with him last year, so I don't know...He's been quite vocal this year.

MT - Yes. And what's your main way of communicating with Charlie at school?

Dean - PECS. And he understands vocal/words, so talking.

MT - Yes, so. Do you sing with Charlie in class quite a lot, a lot?

Dean - Yes again I mean we all do the music sessions, at the start of break, at the end of break, and when we come in.

MT - So it's built into your structure, is that a daily thing?

Dean - Yes it's a daily routine. Kind of songs that they get to pick from the board, and then they get to sing along to it.

MT - That's really good. Because I don't think they do that in every class do they?

With music as part of the integrated thing.

Dean - No they don't.

MT - And do you feel that Charlie has made progress in relation to his music therapy aims, so socially, vocally, over the last 24 weeks in relation to vocal and verbal communication?

Dean - Yes. I would say so. He was much more co-operative at the end of the sessions than when we started, so I guess progress was made.

MT - Well I would say that in his ability to sit, make eye contact, and just generally being communicative.

Dean - Yes.

MT - And I certainly found in my sessions, at first he was crying and really unsettled, and once we got into the routine he had much better communication. Yeah. And do you feel that Charlie made progress in his use of vocal and verbal communication as a result of your one-to-one sessions with him?

Dean - Yeah. I mean as I said, his one-to-ones did progress, so...

MT - Yes. Fantastic! Thank you!



### **Appendix 6.4.3 Post-intervention interview with Joy for Elliot**

MT (music therapist) - How much vocalising would you say Elliot now uses in school? A lot, quite a lot, hardly any, any sort of babbling or vocal sounds?

Joy - A lot.

MT - Is Elliot's vocalising communicative or expressive?

Joy - Both. Definitely both. Very very expressive and very very communicative.

MT - Could you describe the range of moods that Elliot might express through vocalising?

Joy - He definitely expresses when he's upset, he definitely expresses when...I can't understand his words, but he uses lots of vocal sounds, because when he's happy, when he's playful, when he's anxious. Well for everything, he is very expressive Elliot.

MT - Yeah.

Joy - Extremely so. You can tell. It's not neutral.

MT - So would you say that vocalising is an important part of Elliot's life?

Joy - Absolutely.

MT - Is vocalising an issue in school, or do you have strong feelings about it?

Joy - Is it an issue?

MT - So is it an issue in terms of distracting or disturbance, in terms of the group in the class?

Joy - No not on the whole. Although it can get lost. because we are quite a loud expressive group, well they have turned out more expressive in the last few months, I have noticed, but it is quite a loud class. Their voices might get lost and they're not always, sort of, turned and seen to. Um, but no noise isn't a problem, on the whole...

MT - Great. Does Elliot use any words at school, a lot, quite a lot, a small amount, and what sort of words does he use?

Joy - Oh...I've written them down as we've gone along and off the top of my head...it's one of those things...

MT - "Bye" - he says "Bye"...

Joy - Oh he's been saying quite a few words lately - he says "Ellio ellio".

MT - So would you say he's using words quite a lot?

Joy - Yes. He says it in... >>>> he says about a word, if you're with him on a one-to-one, and you're present, you can pick up in fifteen minutes, you can pick up, or it's quite easy to hear crystal clear words, I'd say about six words in that time. It could be within a song, it could be talking, it could be echolalia too.

MT - Oh that's interesting because that's the next thing actually...are any of his sounds echolalic or repetitive - so they can be, but then they...?

Joy - Yes I wouldn't say that it's typical echolalia, not typical echolalia where everything is an echo. But quite often I would be talking playfully with him, and you'll hear the key words come straight back at me. It's wonderful. And that's the word that he's usually motivated by. It's not just repeated like a robot.

MT - So actually he's not really echolalic?

Joy - No it's not really that but...

MT - Yeah that's what his parents said actually, that he used to be more echolalic and now it's more sort of >>> (disturbance with someone coming in)

MT - OK we'll keep going. So how would you mostly communicate with Elliot at school?

Joy - Me personally - I get down to his eye level, with lots of fun singing intonations...

MT - That's perfect!

Joy - I make my voice as musical and as fun as possible because Elliot loves that. I use my eyes, I use celebrations and that can be loud, and there can be a great big smile >>>>... What was the question?

MT - How do you communicate? So signs, verbal...?

Joy - He loves praise. He loves a lot of very tactile - touch, hugs and rough and tumble...he loves a whole mixture does Elliot.

MT - Yup.

Joy - And he loves one-to-one >>>.

MT - And do you sing with Elliot a lot in class?

Joy - Yes we do - we do quite a lot of singing. Every day...a few times a day.

MT - Yes.

Joy - But not one-to-one. As a group.

MT - As a group.

Joy - I will sing to him as I'm changing him, and taking him places, I usually make up a rhyme on my way to an activity, and make it repetitive, and he jollies along and it makes him want to come and do whatever we're doing.

MT - And do you feel that Elliot has made progress in relation to music therapy aims over the last 24 weeks, in relation to vocal and verbal communication? So in other words, do you feel that the way he's using his voice has improved through doing music therapy?

Joy - Yeah, but I must admit I found he was really quite easy to work with anyway, but don't forget I haven't been the first one to work with him in the school, there have been two or three of them (TA's) haven't there? So I didn't see him right from the

start. I would have loved to see him from the start, and to see the improvement. Did he have video taken?

MT - Yes, yes and I can, I can show you that.

Joy - I would really be interested.

MT - The thing that really is noticeable, with his parents, is how static he can be now, and how he can engage for prolonged periods of time, whereas I would do a song or something and then he'd be off around the room. One of the things that you said that was really helpful was having less instruments in the room, that made a big difference.

Joy - Because they're a distraction. And that's a sunrise thing. The less distractions you have, the more engaged...you've got to be the most interesting thing in the room. The music is part of you, and not you part of the music, otherwise you have loads of instruments - they're twinkly - they make great noises, then they've lost you. "Oh I want to do my own thing - I'll see how that vibrates...".

MT - (laughs) Yes.

Joy - That's the way I see it.

MT - I mean I would say he's using his voice much more, and more words are coming out, so there's been a definite progression in that.

Joy - Does he have lots of one-to-one at home? He strikes me as....

MT - Um I'm not sure. No they did say that there's a TA who worked with him at home, but I don't know who that is...

Joy - Ja (TA) - Ja used to.

MT - OK.

Joy - Oh A (TA), could be A.

MT - And do you feel that Elliot has made progress in his use of vocalising and communication as a result of your one-to-one sessions with him?

Joy - Well I'd like to think so! (laughs)

MT - Yes! (laughs)

Joy - Because as the weeks came on before he was ill, he was saying a little bit more, he was more involved, and was looking forward to the session. He'd even take my hand, come to the room, yeah. Definitely. I don't even know if I've given you all my notes with all the bits of language?

MT - Yes please.

Joy - I need to do that.

MT - Great yes I haven't had Dean's either. Yes thank you for reminding me.

Joy - I had all his language that he said in sessions so we can see all the different things that he was saying, and yuh...

#### **Appendix 6.4.4 Post-intervention interview with Nina for Remiel**

MT (music therapist) - So how much vocalising would you say that Remiel now uses in school?

Nina - Depending on occasions - he can be quite vocal, but it's more kind of unexpected when he does. I would say he's more vocal now than he used to be, yes.

MT - So would you say a lot, quite a lot, a small amount?

Nina - Kind of average, if that makes sense.

MT - So it depends on his mood, or how he's feeling, or on what he's trying to communicate?

Nina - Yes state of mind, yuh.

MT - OK. And is Remiel's vocalising communicative or expressive in the class, a lot, quite a lot, a small amount?

Nina - It's more expressive than communicative. Communication isn't something that really comes naturally to him. He's quite happy to actually stay in one corner of the room, because I'll ask him, kind of thing...but expressive, yes because I think he does express feelings, through his behaviour, actions, and um facial expressions as well.

Very much through facial expressions actually. And smiling and laughing and...yuh.

MT - That's interesting because I think of him as being very communicative in music therapy...

Nina - Right OK.

MT - So he's obviously showing different things in different contexts. Um OK.

Nina - Yes.

MT - OK. And could you describe the range of moods that Remiel might express through vocalising - well you said laughing...

Nina - Happy. Playful. Um serious - you know that if you look at him with a serious face, he will be kind of looking at you in the same way, what's going on?

MT - Yes. And what sort of vocal sounds would he make if he was feeling serious, or would he go quiet?

Nina - He stays quiet. He finds vocal...I mean if I made a sound myself he would try to repeat that sound, um...and sometimes he will shriek with a high pitched voice when he gets really excited, you know, because I tend to, when I interact with him I tend to over-do it, and he will respond to that. He finds it very amusing. And sometimes anger...I have seen him one day actually frustration, that wasn't during music, but again he was at his workstation, and he didn't want to do it, he actually picked up a jigsaw and threw it on the floor and went "Errhhhhh".

MT - Oh right yes, that's interesting. It sounds quite spontaneous - an expression of anger.

Nina - Yeah.

MT - So that sounds like there's much more of a range now than there was at the beginning of the year.

Nina - Oh yes I do think so yes.

MT - So is vocalising an important part of Remiel's life? Yes it is isn't it? Is vocalising an issue in school and do you have strong feelings about it?

Nina - Well it is in the class room certainly when the teacher tries to teach and Remiel is making a noise, like shrieking, and every so often he will stand up, and from a seated position obviously, on a chair, at circle time, he will stand up and start shrieking for no reason at all. I suppose he is vocalising more...I'm not quite sure what it is about, but whether it is excitement, or just wanting attention, I don't know, but you know, yes it can be disruptive when the teacher is trying to teach. Do I have

strong feelings about it? I think it's great! For me I think a child is trying to say something, trying to express something, therefore you should be reacting to it in a positive way, and maybe extend it, but then I'm not a teacher...No but it's true, we have to kind of go...

MT - Yes, yes, yes. When he does the shrieking, you don't know what the feeling - is it attention seeking? Or is it spontaneous excitement...

Nina - Yes spontaneous yuh. And sometimes it is out of context, I don't know quite why it is, or whether it's just physical, because he gets up from sitting position at the same time, so he's kind of...

MT - Yes.

Nina - So I'm not quite sure what's happening >>>>

MT - Yes. Does Remiel now use words at school quite a lot, a lot, a small amount?

Nina - Do you know what, the other day I found it really amazing, I never forget, he was sitting down doing some painting with R (teacher), and R sometimes kind of motivates the children to do art work by counting at the same time as using a paintbrush, or printing, and she went "One, two" and he went "three four five six seven eight"...

MT - So it's not just echolalic...yuh.

Nina - For the first time, and I just went "What? Where's that coming from?"

MT - Hmm.

Nina - So I wouldn't say it was words...well that was words, but - yes he's more vocal than he used to be.

MT - So small amount, quite a lot?



Nina - A small amount I would say, yuh. And the words as well, because I know he can talk, I do speech therapy with him as well, I have encouraged him when he goes home in the evening to say "Bye bye". Because he can say it.

MT - Oh yes, yes, yes.

Nina - I mean if you don't encourage him he will just say "Bye" (whispered) but I say "No, Remiel say Bye bye" and he'll say "Bye bye". And the other thing that he did really well the other day - we were going to the bus to go home, and I wasn't sure which bus it was, and I said to him "Remiel which one is your bus? Where is your bus?" and he pointed to the bus - the right one - and he said "Bus" again that was so clear, he obviously understood what I had said, and it was brilliant.

MT - Yes.

Nina - So I would say his understanding is actually getting a lot better. Receptive language as well is really improving.

MT - Yes. OK. And the sort of songs that we do in music therapy, and the songs that you've done with Remiel, does that come out in other contexts, or is that confined to the music space?

Nina - You know where I have seen a kind of, um, a very positive consequence from it, is when he is doing music, in a small group in the classroom situation with R (teacher) he's actually playing his instrument, he's joining in, he's actually trying to sing the words, he's trying to repeat the actions, which he never did, it took ages for him to do it. So I think he's actually transferring knowledge from our one-to-one sessions, to the classroom.

MT - That's great.

Nina - Which is difficult for R (teacher) to see because she's busy teaching, she's looking at everybody, but I am sitting kind of, on the side, and you know, I am

looking at him, because I am so used to working with him on a one-to-one, and I can see the improvement.

MT - Yes.

Nina - So he is much more spontaneous.

MT - Yes, Yes. Great! Are Remiel's sounds now ever echolalic or repetitive?

Nina - Remind me what that means?

MT - Echolalic means where they just repeat what you say...

Nina - And repetitive?

MT - The same, yeah. Or if they're saying the same thing over and over again.

Nina - Yeah I think it is more kind of echolalic... Yes I think it is, yeah.

MT - But also, also not, isn't it, because some of it is echolalia and when we're singing together he's often copying what you're saying, but sometimes it sounds as if he's saying "three four five" "Bus", "Bye bye" then it's in context.

Nina - Yeah true. And even sometimes when I do one-to-one singing with him, I mean in music therapy, he will actually, when I ask him to repeat you know, I sing a song, the whole song, and then I'm waiting for him to repeat, and so I look at him, and he sings, but he sings the part of it that he wants to sing, not the whole thing. He has surprised me a couple of times just singing the whole song, but lately whenever I do singing with him, it is very much what he wants... what he chose to actually repeat, you know, what segments of the song he actually wanted to use.

MT - OK. So how, what is your main way of communicating with Remiel now in school? So verbally?

Nina - Verbally, he uses PECS as well. I use sign language with him because I have used Makaton now for a long time, and I think it does reinforce speech actually, and he does get it, and when I go like this to him, he knows it is his turn to speak, you

know. And facial expressions, I will actually look at him, and I know he is looking at my eyes, and he is waiting for me to initiate, you know, to kind of cue him to start doing something. Modelling, you know, modelling behaviour, and actions, speech and um...play, that kind of thing. What else...we use photographs as well.

MT - Wow amazing range.

Nina - Yuh.

MT - And do you sing with Remiel a lot in class, or small amount?

Nina - We don't apart from when we do music with R. (teacher)

MT - How often does that happen?

Nina - When we play sometimes, like if we're on the see saw I will go - we will sing 'Row Row your Boat' or 'See Saw Marjory Daw'.

MT - So singing isn't built in to the class timetable?

Nina - It is at a set time.

MT - Do you sing "Hello" in the morning? Or sing "Goodbye"?

Nina - We don't so much. We used to. We used to do that before, like every morning, but now we don't. It's very rare. Maybe there is no time, I don't know. It just happens maybe once a week...

MT - Once a week? Right...

Nina - Whenever I start one-to-one session with Remiel I always start with it. I always sing a "Hello" song, and when we finish "Music is finished now" which I have improvised, and he knows because it's always the same song. So I do give him a beginning and ending, every time we do music together.

MT - Hmm. Brilliant. So do you feel that Remiel has made progress in relation to music therapy aims over the last 24 weeks, in relation to vocal and verbal communication?

Nina - I think very much like for the basic communication, and the kind of like, smiling, looking into your eyes, waiting for you to sing, interacting with you, smiling with you, responding to you, picking up something off a table and looking for your approval, “yes we are going to do something with this, let’s engage with it”, communicating enjoyment, doing something with somebody, which before at the beginning when he was first at school, it was very much like “I don’t really want to interact with anybody, I don’t need it, I don’t want it”, so yes I would say he’s a different child, yes.

MT - Great.

Nina - And he seems to have a better understanding of language, like language actually has a purpose, it’s not just a sound. It is a way of communication, and exchange. I think that’s why he understands - it is an exchange.

MT - Great. And do you feel that Remiel has made progress in his use of vocal and verbal communication as a result of your weekly sessions with him?

Nina - I feel more from the point of view of interaction, maybe rather than vocal or verbal, and I suppose, yuh, you know, when I’ve done songs with him - new songs and stuff, and he’s tried to learn them. The tune - he’s tried to learn some of the words, sometimes he’s been really responsive, a couple of times he has actually sang a whole song, all the words of the song.

MT - Brilliant.

Nina - So yes but I would say it’s kind of...um...it’s not continuous, you know. Every so often he’ll do it. But yes I suppose he’s shown an ability for language, which he did not have before.

MT - Hmm.

Nina - You know like, he can do it eventually if he's given continuity, I think. He's kind of motivated and pushed in the right direction, I think he would do it more, but using language. So I think it's actually been a good introduction for him, and to actually show him that you can use language to have fun. Because that was part of my session, because I'm not a music therapist, you know my singing, my playing is nothing like yours. So it was very much about...

MT - Yes but that's, yes...

Nina - Having fun, having a rapport, engaging, and I think I got that.

MT - Hmm. Yes. Brilliant. Thank you Nina. Well I think your sessions with him have been fantastic! I do think it has made a big difference, and also for him to have two slots of musical interaction, singing, and as you say, developing eye contact, social skills, listening, turn-taking, all that sort of thing...

Nina - And wanting it as well, you know like R (teacher) will say "OK Remiel go with Nina" you know, "music" and the advancement...

MT - Yes really enthusiastic.

Nina - He was happy to do it.

MT - Yes.

Nina - And he knew what was expected of him, which at first we would play, and look at the instruments on the table, and he would just wait for me to do something, but recently he went to choose something and then at me and "OK take it! It's fine", and he did move on. He did choose - that's the good thing about it as well, he started making choices.

MT - Yes.

Nina - Which he never did before.

MT - I know, I mean that was one of the things we talked about, wasn't it? The fact that he was so limited in his ability to just do things independently, and he really can now.

Nina - Yuh.

MT - Yes. I must let you go Nina! Thank you!

## Appendix 6.5 Pre-intervention interview with Paul's mother with analysis comments

Emergent themes	Original transcript – interview with Paul’s mother – October 16 <sup>th</sup> 2012	Exploratory comments – Descriptive (normal text) Linguistic ( <i>italic</i> ) Conceptual ( <u>underlined</u> )
Particular musical taste – selective and controlled	<p>Music therapist (MT) - right, so the first question is...does Paul listen to music at home. Does he listen to it a lot...or...quite a lot...or small amount?</p> <p>Mother - He does, he likes listening to music that he can control, so he programmes his keyboard at home to play music of his choice, so he can select the tracks that he wants to listen to, and he plays with musical toys a lot that play nursery rhyme-type music.</p> <p>MT - Yes.</p> <p>Mother - Erm and he plays those a lot, it’s probably the sort of toy that he is most interested in.</p> <p>MT - Yes.</p>	<p>Selective musical taste – control over electrical/ musical toys – gives Paul an opportunity to feel empowered</p> <p><u>Familiar songs provide security and then Paul can engage in enjoyable musical activities</u></p>
Inconsistent appreciation/ responsiveness	<p>Mother - But he does enjoy it when we put music on the stereo, he dances around a lot but we have given him, for his last birthday, a kind of robust MP3 player with speakers and he doesn’t seem actually that interested in that, so I don’t know why that is</p>	<p><i>V coherent/eloquent and clear responses</i></p> <p><u>Parents anticipation of particular responses/ things that Paul will respond to/frustration that there is such inconsistency in his behaviour and reaction to things?</u></p>

<p><b>Use of routines/ predictability to encourage engagement</b></p> <p><b>Paul as ‘initiator’ – parents willing music-makers/ interaction partners</b></p>	<p>MT - Not so keen (writing)...yeah.</p> <p>Mother - I think perhaps the other toys have also the kind of lights and that kind of visual stimulation as well...</p> <p>MT - So the repeated pattern, so he can control that?</p> <p>Mother - I think so...yeah.</p> <p>MT - Great. And so he does listen to music a lot...but all music that he can control?</p> <p>Mother - A lot yeah.</p> <p>MT - And do you sing with him and does he enjoy sort of being sung with at home?</p> <p>Mother - Yes he’s got a few favourites that he initiates really, erm, I suppose we’ve got out of the habit of singing nursery rhymes to him, I think because he’s just that little bit older but he does initiate ‘Grand Old Duke of York’ and ‘Pattercake Pattercake’ - and he initiates those with actions, and he enjoys it when we sing those and he clearly shows that he knows when we are getting to various parts of the song, he knows when we’re supposed to pat hands, and he knows</p>	<p>Additional stimulation re sounds plus lights</p> <p><u>Paul as controller of sounds – then activity becomes pleasurable for him</u></p> <p>Need for control over sounds/selective in what he can process/enjoy</p> <p><i>Detailed/informative</i></p> <p>Initiation from Paul – parents take pleasure in this</p> <p><i>Repetition of ‘initiates’ and clearly pleased with this</i></p> <p>Able to predict patterns of interaction/enjoyment in shared games/anticipatory exchange</p> <p><u>Parents delighted to facilitate Paul’s control over them –</u></p>
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	<p>when we're supposed to be lifting up in the air, and that kind of thing.</p> <p>MT - (writing) can anticipate...</p> <p>Mother - But I mean all of us sing quite a lot at home to the radio and things like that, and I think he...</p> <p>MT - There's a lot of music going on around him?</p> <p>Mother - Yeah.</p> <p>MT - Yeah yeah. And how much vocalising is he using at home - would you say a lot, or quite a lot, or small amount?</p> <p>Mother - I'd say somewhere between quite a lot and a small amount, because he, erm, if he really wants something he will make a sound which has a bit of urgency to it, erm..</p> <p>MT - Yes I think I know that (sound).</p> <p>Mother - Yeah he does a kind of "Uh uh uh".</p> <p>MT - Yes, I know he does that when he wants the ocean drum...</p> <p>Mother - And he'll do that when he wants something a lot, but he</p>	<p><u>very effective in encouraging enjoyable exchanges that Paul can happily participate in</u></p> <p><u>Paul's enjoyment of predictability/patterns/reciprocal interactive exchanges</u></p> <p>Paul benefits from parents capacity to engage through singing</p> <p>Communicating through vocalising</p> <p><i>Difficulty articulating specific sounds/remembering?</i></p> <p>Varied vocal intonation to communicate specific message</p>
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<p><b>Communication through vocalising/ inconsistent vocal use</b></p>	<p>doesn't really do that many other vocalisations I think. Sometimes it seems as if he's saying "thank you", and he'll do a little two tone thing, he'll say "Uh ha" and I wonder if that's his way of saying "thank you". You know he's mirroring what he's saying. He does that occasionally, erm, and then he does a lot of other sing-songie motifs that you can...he used to do a lot more than he does now - he used to be able to initiate them - he could sing them and he'd get that you'd copied something that he'd done a lot - and then he'd do it back, but he's not doing that quite so much at the moment.</p>	<p><i>Good memory for past behaviours and how these relate to current behaviour</i></p> <p>Sparse vocal contributions, though some consistent use of particular sounds...</p> <p><u>Paul's clear communication, but inconsistent use and not progressive development</u></p> <p><u>Frustration re lack of consistent vocal development</u></p> <p>Doing less vocally than previously</p>
<p><b>Verbal regression</b></p>	<p>MT - Yes. I think I noticed in music therapy that that was kind of phasic. Because I found that for a while he would always, if I stopped before the end of the word in a phrase of a song, he would vocalise at that pitch, and then he seemed to stop doing that for a bit...yeah...</p>	
<p><b>Enjoyment of routines leads to productive learning</b></p>	<p>Mother - Yes. And we did counting at home and he sits on the toilet...he counts to ten, I realised about six months ago that he, if I stopped counting he would fill in the gaps and he would try</p>	<p>Patterns/use of routines at home</p>

<p><b>Familiarity of concepts leads to loss of interest</b></p>	<p>hurrying me along so he could get off...</p> <p>MT – Yes. (laughs)</p> <p>Mother - And there was a time when he was making sounds, vocalisations that mirrored the numbers, so, he would say “Effin” for example for “seven”, but he hasn’t done that for a while but there was a period when he was doing that quite a lot, and erm, he would say “Ooh” for example, when I said “two”, but I think, as with other things, he will go through a phase where he realises he’s got it, and he’ll show you that he’s got it, and then he just seems to lose interest, and there’s no real incentive for him to carry on showing that he can do it.</p> <p>MT - Yes. Yes.</p>	<p><u>Some pleasure in repetition of sounds but then this is lost....</u></p>
<p><b>Effective use of vocal interaction when motivated</b></p>	<p>Mother - Now if he’s on the toilet and he wants me to hurry up with the numbers he just goes “ugh” (laughs)...every time I say a number he just says “ugh” and I let him get away with that being the number otherwise we’d be there all day!</p> <p>MT – Yes. (laughs) Oh golly...erm, OK. So would you say that his vocalising is communicative or</p>	<p>Phases of particular sounds/words – then switches off</p> <p><i>Lots of detail – v open/informative</i></p>

<p><b>Expressive use of voice</b></p>	<p>expressive - a lot or quite a lot - it sounds like he's very selective when he makes...</p> <p>Mother - Yes a small amount, yes. I say when he does do...when he does make a vocalisation it does seem to be very expressive...so...</p> <p>MT - Yes it is isn't it...yeah.</p>	<p>Expressive vocalising in addition to communicative attempts</p>
<p><b>Clear communication when attempting to convey information</b></p>	<p>Mother - Communicative or expressive...yes I think quite a lot...yeah yeah. Because I think when he is, he doesn't perhaps make vocalisations very much, but when he does it seems like he really is trying to communicate something.</p> <p>MT - So make it clear with a request...</p>	<p><u>Minimal vocal interaction, but always very specific communicative intention when it occurs</u></p>
<p><b>Purposeful use of voice</b></p>	<p>Mother - Yes, but also if he's playing happily he might make happy sing song noises, so that's kind of expressive. He is expressing his emotions.</p> <p>MT - Yes.</p> <p>Mother - I don't think he makes random vocalisations that don't seem to mean anything.</p> <p>MT - No, no. So is vocalising an important part of Paul's life? Yes it is isn't it?</p> <p>Mother - Erm I</p>	<p><u>Has Mum perhaps had to justify these sounds in other contexts?</u></p> <p><i>V definite "He is expressing his emotions"</i></p> <p>Not 'free' vocalising – always with intent</p>

<p><b>Selective and intelligent use of voice i.e. when he wants to communicate</b></p>	<p>think...erm..</p> <p>MT - At times...</p> <p>Mother - I think if the choice is between yes and no I think I'd have to say no, because he is generally quite a quiet boy, it's not like he's noisy and shouty and doing funny noises all the time, that's not him at all.</p> <p>MT - OK. We'll put no, but does use it in phases to communicate need.</p> <p>Mother - Yes.</p> <p>MT - OK. Is vocalising an issue, or do you have strong feelings about it at all?</p>	<p><i>Hesitation here</i></p> <p><i>Interesting response as she has just said that his communication is always v clear/specific, though the hesitation seems to be about quantity of vocal contributions</i></p> <p><i>Seems difficult to articulate response to this and slightly contradicts previous answers, but this possibly reflects Paul's inconsistent use of his voice?</i></p> <p>Primarily quiet vocally</p> <p>Use of alternative forms of communication to speech</p>
<p><b>Satisfaction with current communication levels, although desire for speech over time</b></p>	<p>Mother – Erm...I wouldn't say it was an issue for us, or that we had strong feelings about it, I mean we went through a phase of having very strong feelings about wanting him to talk, which I think has petered out a bit now, because I think we appreciate that he is quite communicative without speech, and there are many different shades towards speech and that we can't expect him to go to speech quickly, so we erm...</p> <p>MT - Going through all the...</p> <p>Mother - Yeah. And</p>	<p><u>Acceptance that there are alternative forms of communication in addition to speech – reduced desire/desperation for speech?</u></p> <p>Previous desire for speech to develop but less intense pressure now</p> <p>Acceptance of alternative communication</p>

<p><b>Paul's capacity for speech, though selective in using it</b></p>	<p>there are things for us which are equally as important and significant, and he doesn't make vocalisations that are inappropriate or embarrassing, or anything like that when we're out in public, so erm...No it's not an issue for us.</p> <p>MT - Good. Does he use any words at home, so you've said that he uses "effin" for "seven"...</p> <p>Mother - He has, I think, said a few words, but he only ever says them once, or maybe twice, and you think, did he actually say that? Or didn't he? And the first few times I thought it was just coincidental, but now I think, well actually, I think he is saying these words...</p>	<p><u>Acceptance of Paul and his abilities/limitations – seems v healthy attitude/outlook</u></p> <p><u>Awareness that things could be more challenging</u></p>
<p><b>Control</b></p>	<p>MT - Yes.</p> <p>Mother - Or his version of these words, and it tends to be when he's not really thinking about it, erm so he's caught off guard...and it's almost like he thinks "Ooh I didn't mean to do that, I won't let myself do that again"...</p>	<p>Occasional word use – very controlled</p>
<p><b>Advanced level of understanding re verbal communication</b></p>	<p>MT - (laughs) So frustrating...</p> <p>Mother - So he has said the word "bubble", during play circle in that</p>	<p>Accidental verbal contribution</p> <p>Very controlled use of words</p>

<p><b>Phasic use of speech</b></p>	<p>context, and he's also said the word "Dada" in context, and I think years ago when he was very small, he might have said the word "hello" in context.</p> <p>MT - Right.</p> <p>Mother - But you'd have to be really listening out to get those.</p> <p>MT - And "bubble" once.</p> <p>Mother - Yes just once. And I think he went through a phase when he said "Hiya" and he would get into a little "Hiya" exchange to my husband, where they would say "Hiya" to each other repeatedly. But I don't know if he recognised that as a greeting, or if he quite liked the turn-taking with his Dad, so...</p>	<p><u>Capacity to speak but chooses not to</u></p> <p><i>Mother is detailed and informative throughout interview – passing on as much information as possible</i></p>
<p><b>Occasional word use gives parents optimism</b></p>	<p>MT - So that was a phase and then it stopped?</p> <p>Mother - He does that on and off. He's been doing that on and off for about eighteen months.</p> <p>MT - OK. So he really does have the ability to speak doesn't he?</p> <p>Mother - I think he has.</p> <p>MT - It's just him choosing.</p>	<p>Pleasurable exchanges with father but doesn't seem to want to extend this</p> <p><u>Need for control over-rides desire for pleasurable interaction with parents</u></p> <p>Knowledgeable about social exchanges but chooses not to conform</p> <p><u>This must be painful for parents, but mother is able to discuss in a practical way</u></p>

<p><b>Acceptance of current communication levels and hopeful for future development, due to intelligence and understanding</b></p>	<p>Mother - I think so, and that gives us a bit of hope because again I think he, when he said “Dada” it was because he was playing on the landing, and my husband snuck up the stairs and jumped out at him and went “Boo” like that, and he went “Dada” - and it was almost like, he wasn’t expecting it, and we were over the moon, but he’s never said it again (laughs)...so er...I do think he does have the words in his head. His comprehension has come on in leaps and bounds over the last two years, so I say to him now in the morning “Paul it’s toilet time” and he springs up and goes into the toilet, he takes his trousers off, so he understands what we’re saying, so that I understand is the first step towards speech so er...</p> <p>MT - So would you say a small amount, or hardly at all, in terms of actually using words? A small amount probably?</p> <p>Mother - I’d probably say hardly at all.</p> <p>MT - Hardly at all, OK.</p> <p>Mother - To never...to never...Somewhere, I mean I can’t say never, because he has said three words, but that is very</p>	<p><u>Hope for future verbal development</u></p> <p>Choosing control over social exchange</p> <p>Demonstration of enjoyment of social exchange provides optimism for future development in verbal interaction</p> <p><u>Intelligence is not doubted</u></p> <p>Mother able to appreciate positive developments in Paul’s levels of understanding</p> <p><u>Positive outlook</u></p> <p><i>Speaks with pride in Paul’s positive achievements</i></p> <p><i>Almost seems to contradict earlier statements, but is</i></p>
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<p><b>Optimistic re future communication development and positive impact of music therapy</b></p>	<p>MT - And last one - what are you hoping your child will get out of music therapy in relation to vocalising and verbal communication?</p> <p>Mother - I suppose our fantasy is that he might join in with the songs, those sort of things...</p> <p>MT - Be motivated...yeah...</p> <p>Mother - And that speech might come from that, you know?</p> <p>MT - Yes.</p> <p>Mother - But I mean that's what we're hoping for in terms of vocalising.</p> <p>MT - Yes.</p>	<p>Verbal development through singing</p> <p><u>Positive outlook and good understanding of what music therapy might offer</u></p> <p><i>Use of word 'fantasy' maybe implies that there is limitation to their expectation of what can be realistically achieved?</i></p> <p><i>Final positive statement</i></p>
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## Appendix 6.6 Post-intervention interview with Nina (TA) for Remiel with analysis comments

Emergent themes	Original transcript – interview with Nina (TA) for Remiel July 21 <sup>st</sup> 2013	Exploratory comments - Descriptive (normal text) Linguistic (italic) Conceptual (underlined)
Capacity for Remiel to express himself vocally but often choosing not to	<p>MT (music therapist) - So how much vocalising would you say that Remiel now uses in school?</p> <p>Nina - Depending on occasions - he can be quite vocal, but it's more kind of unexpected when he does. I would say he's more vocal now than he used to be, yes.</p> <p>MT - So would you say a lot, quite a lot, a small amount?</p> <p>Nina - Kind of average, if that makes sense.</p> <p>MT - So it depends on his mood, or how he's feeling, or on what he's trying to communicate?</p> <p>Nina - Yes state of mind, yuh.</p> <p>MT - OK. And is Remiel's vocalising communicative or expressive in the class, a lot, quite a lot, a small amount?</p> <p>Nina - It's more expressive than communicative. Communication isn't something that really comes naturally to him.</p>	<p>Increase in vocal interaction</p> <p><i>V detailed/informative throughout</i></p> <p>Free expressive behaviour</p>

<p><b>Remiel drawn into communicative exchanges through desire to express himself – spontaneous vocalising</b></p>	<p>He's quite happy to actually stay in one corner of the room, because I'll ask him, kind of thing... but expressive, yes because I think he does express feelings, through his behaviour, actions, and um facial expressions as well. Very much through facial expressions actually. And smiling and laughing and...yuh.</p> <p>MT - That's interesting because I think of him as being very communicative in music therapy...</p> <p>Nina - Right OK.</p> <p>MT - So he's obviously showing different things in different contexts. Um OK.</p> <p>Nina - Yes.</p> <p>MT - OK. And could you describe the range of moods that Remiel might express through vocalising - well you said laughing...</p> <p>Nina - Happy. Playful. Um serious - you know that if you look at him with a serious face, he will be kind of looking at you in the same way, what's going on?</p> <p>MT - Yes. And what sort of vocal sounds would he make if he was feeling serious, or would he go</p>	<p>– spontaneous but less in directly communicative way</p> <p><u>Is this difficult in class context – frustrating for staff?</u></p> <p><u>Remiel 'drawn out' by music – communicative aspect of personality comes to the fore?</u></p> <p>Contrast in Remiel's interaction in different contexts</p> <p>Remiel trying to interpret adult behaviour – good observational skills</p>
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<p><b>Range of moods expressed vocally</b></p>	<p>quiet?</p> <p>Nina - He stays quiet. He finds vocal...I mean if I made a sound myself he would try to repeat that sound, um...and sometimes he will shriek with a high pitched voice when he gets really excited, you know, because I tend to, when I interact with him I tend to over-do it, and he will respond to that. He finds it very amusing. And sometimes anger...I have seen him one day actually frustration, that wasn't during music, but again he was at his workstation, and he didn't want to do it, he actually picked up a jigsaw and threw them on the floor and went "Errhhhhh".</p> <p>MT - Oh right yes, that's interesting. It sounds quite spontaneous - an expression of anger.</p> <p>Nina - Yeah.</p> <p>MT - So that sounds like there's much more of a range now than there was at the beginning of the year.</p> <p>Nina - Oh yes I do think so yes.</p> <p>MT - So is vocalising an important part of Remiel's life? Yes it is isn't it? Is</p>	<p><u>Remiel able to anticipate behaviour/good awareness of turn-taking</u></p> <p><i>Apologetic? Or just emphasising a point?</i></p> <p>Capacity to express emotion clearly</p> <p><u>Remiel responsive to exaggerated communication - drawn into exchanges with encouragement and direction – why does he need so much encouragement? Where does the resistance come from – control?</u></p>
<p><b>Nina's commitment to the children – detailed and reflective responses</b></p>	<p></p>	<p><i>Positive response to increase in vocalising</i></p>

	<p>vocalising an issue in school and do you have strong feelings about it?</p> <p>Nina - Well it is in the class room certainly when the teacher tries to teach and Remiel is making a noise, like shrieking, and every so often he will stand up, and from a seated position obviously, on a chair, at circle time, he will stand up and start shrieking for no reason at all. I suppose he is vocalising more...I'm not quite sure what it is about, but whether it is excitement, or just wanting attention, I don't know, but you know, yes it can be disruptive when the teacher is trying to teach. Do I have strong feelings about it? I think it's great! For me I think a child is trying to say something, trying to express something, therefore you should be reacting to it in a positive way, and maybe extend it, but then I'm not a teacher...No but it's true, we have to kind of go...</p> <p>MT - Yes, yes, yes. When he does the shrieking, you don't know what the feeling - is it attention seeking? Or is it spontaneous excitement...</p> <p>Nina - Yes spontaneous yuh. And sometimes it is</p>	<p>Despite potentially disruptive impact of Remiel's loud vocalising, Nina feels very positive about it</p> <p><u>Nina possibly going against general staff attitudes of controlling the children in class context</u></p> <p>Inconsistent use of voice –</p>
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	<p>vocal than he used to be.</p> <p>MT - So small amount, quite a lot?</p> <p>Nina - A small amount I would say, yuh. And the words as well, because I know he can talk, I do speech therapy with him as well, I have encouraged him when he goes home in the evening to say "Bye bye". Because he can say it.</p> <p>MT - Oh yes, yes, yes.</p> <p>Nina - I mean if you don't encourage him he will just say "Bye" (whispered) but I say "No, Remiel say Bye bye" and he'll say "Bye bye". And the other thing that he did really well the other day - we were going to the bus to go home, and I wasn't sure which bus it was, and I said to him "Remiel which one is your bus? Where is your bus?" and he pointed to the bus - the right one - and he said "Bus" again that was so clear, he obviously understood what I had said, and it was brilliant.</p> <p>MT - Yes.</p> <p>Nina - So I would say his understanding is actually getting a lot better. Receptive language as well is really improving.</p>	<p><i>Definite - determination to increase Remiel's verbal skills</i></p> <p><u>Remiel can respond with direct instruction – excellent knowledge and capacity to speak</u></p> <p>Encouragement from adults leads to increased verbal communication</p> <p><i>Very positive statements contrasting with pre-intervention interview</i></p>
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<p><b>Transfer of skills from Nina's sessions to class base</b></p>	<p>MT - Yes. OK. And the sort of songs that we do in music therapy, and the songs that you've done with Remiel, does that come out in other contexts, or is that confined to the music space?</p> <p>Nina - You know where I have seen a kind of, um, a very positive consequence from it, is when he is doing music, in a small group in the classroom situation with R (teacher) he's actually playing his instrument, he's joining in, he's actually trying to sing the words, he's trying to repeat the actions, which he never did, it took ages for him to do it. So I think he's actually transferring knowledge from our one-to-one sessions, to the classroom.</p> <p>MT - That's great.</p>	<p><u>Clear descriptions of transfer of skills to class base</u></p> <p>Transfer of vocal and musical abilities from 1:1 context to group setting during music lesson</p> <p><i>Very positive!</i></p>
<p><b>Definite increase in motivation and musical involvement in class context</b></p>	<p>Nina - Which is difficult for R (teacher) to see because she's busy teaching, she's looking at everybody, but I am sitting kind of, on the side, and you know, I am looking at him, because I am so used to working with him on a one-to-one, and I can see the improvement.</p> <p>MT - Yes.</p> <p>Nina - So he is much more</p>	<p>Nina's capacity to notice Remiel's involvement and social developments</p>

<p><b>Remiel very motivated by song structures –</b></p>	<p>spontaneous.</p> <p>MT - Yes, Yes. Great! Are Remiel's sounds now ever echolalic or repetitive?</p> <p>Nina - Remind me what that means?</p> <p>MT - Echolalic means where they just repeat what you say...</p> <p>Nina - And repetitive?</p> <p>MT - The same, yeah. Or if they're saying the same thing over and over again.</p> <p>Nina - Yeah I think it is more kind of echolalic... Yes I think it is, yeah.</p> <p>MT - But also, also not, isn't it, because some of it is echolalia and when we're singing together he's often copying what you're saying, but sometimes it sounds as if he's saying "three four five" "Bus", "Bye bye" then it's in context.</p> <p>Nina - Yeah true. And even sometimes when I do one-to-one singing with him, I mean in music therapy, he will actually, when I ask him to repeat you know, I sing a song the whole song, and then I'm waiting for him to repeat, and so I look at him, and he sings, but he</p>	<p><u>Remiel again demonstrating capacity to sing whole song but being selective about when he does</u></p> <p>Remiel engages with singing but on his own terms</p>
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<p><b>development in speech</b></p>	<p>sings the part of it that he wants to sing, not the whole thing. He has surprised me a couple of times just singing the whole song, but lately whenever I do singing with him, it is very much what he wants...what he chose to actually repeat, you know, what segments of the song he actually wanted to use.</p> <p>MT - OK. So how, what is your main way of communicating with Remiel now in school? So verbally?</p> <p>Nina - Verbally, he uses PECS as well. I use sign language with him because I have used Makaton now for a long time, and I think it does reinforce speech actually, and he does get it, and when I go like this to him, he knows it is his turn to speak, you know. And facial expressions, I will actually look at him, and I know he is looking at my eyes, and he is waiting for me to initiate, you know, to kind of cue him to start doing something.</p> <p>Modelling, you know, modelling behaviour, and actions, speech and um...play, that kind of thing. What else...we use photographs as well.</p>	<p><i>Definite ideas on how to facilitate better communication in Remiel</i></p> <p>Remiel has excellent understanding of speech/signs/PECS - can use all of these</p> <p><u>Very intensive use of</u></p>
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	<p>MT - Wow amazing range.</p> <p>Nina - Yuh.</p> <p>MT - And do you sing with R (teacher) a lot in class, or small amount?</p> <p>Nina - We don't apart from when we do music with R.</p> <p>MT - How often does that happen?</p> <p>Nina - When we play sometimes, like if we're on the see saw I will go - we will sing "Row Row your Boat" or "See Saw Marjory Daw".</p> <p>MT - So singing isn't built in to the class timetable?</p> <p>Nina - It is at a set time.</p> <p>MT - Do you sing "Hello" in the morning? Or sing "Goodbye"?</p> <p>Nina - We don't so much. We used to. We used to do that before, like every morning, but now we don't. It's very rare. Maybe there is no time, I don't know. It just happens maybe once a week...</p> <p>MT - Once a week....? Right moving on...</p> <p>Nina - Whenever I start one-to-one session with Remiel I always start with it. I always sing a "Hello"</p>	<p><u>variety of motivating strategies to develop speech and understanding – does this put pressure on Remiel?</u></p> <p>Very limited use of music in class context</p> <p>Consistent use of musical frameworks in Nina's sessions with Remiel</p> <p><i>Repeated frameworks –</i></p>
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<p><b>All communication skills increased during research phase</b></p>	<p>song, and when we finish “Music is finished now” which I have improvised, and he knows because it’s always the same song. So I do give him a beginning and ending, every time we do music together.</p> <p>MT - Hmm. Brilliant. So do you feel that Remiel has made progress in relation to music therapy aims over the last 24 weeks, in relation to vocal and verbal communication?</p> <p>Nina - I think very much like for the basic communication, and the kind of like, smiling, looking into your eyes, waiting for you to sing, interacting with you, smiling with you, responding to you, picking up something off a table and looking for your approval, “yes we are going to do something with this, let’s engage with it”, communicating enjoyment, doing something with somebody, which before at the beginning when he was first at school, it was very much like “I don’t really want to interact with anybody, I don’t need it, I don’t want it”, so yes I would say he’s a different child, yes.</p>	<p><i>security</i></p> <p>Nina’s use of music contrasts that in class context – excellent understanding of musical structures to support communicative development</p> <p><u>Excellent progress within musical structures – music provides positive, engaging stimulus without putting undue pressure</u></p> <p><i>Nina very informative – detailed descriptions – has clearly spent lots of time reflecting on needs of children</i></p>
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<p><b>Nina's sessions very effective in extending Remiel's word use</b></p>	<p>MT - Great.</p> <p>Nina - And he seems to have a better understanding of language, like language actually has a purpose, it's not just a sound. It is a way of communication, and exchange. I think that's why he understands - it is an exchange.</p> <p>MT - Great. And do you feel that Remiel has made progress in his use of vocal and verbal communication as a result of your weekly sessions with him?</p> <p>Nina - I feel more from the point of view of interaction, maybe rather than vocal or verbal, and I suppose, yuh, you know, when I've done songs with him - new songs and stuff, and he's tried to learn them. The tune - he's tried to learn some of the words, sometimes he's been really responsive, a couple of times he has actually sang a whole song, all the words of the song.</p> <p>MT - Brilliant.</p> <p>Nina - So yes but I would say it's kind of...um... it's not continuous, you know. Every so often he'll do it. But yes I suppose he's shown an ability for language, which he did not</p>	<p>Excellent verbal development – songs increasing word bank</p> <p><u>So motivated by music that this provides the impetus for speech</u></p>
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<p><b>Nina's musical limitations did not prevent her sessions from being very effective in extending Remiel's social skills</b></p>	<p>have before.</p> <p>MT - Hmm.</p> <p>Nina - You know like, he can do it eventually if he's given continuity, I think. He's kind of motivated and pushed in the right direction, I think he would do it more, but, using language. So I think it's actually been a good introduction for him, and to actually show him that you can use language to have fun. Because that was part of my session, because I'm not a music therapist, you know my singing/my playing is nothing like yours. So it was very much about...</p> <p>MT - Yes but that's, yes...</p> <p>Nina - Having fun, having a rapport, engaging, and I think I got that.</p> <p>MT - Hmm. Yes. Brilliant. Thank you Nina. Well I think your sessions with him have been fantastic! I do think it has made a big difference, and also for him to have two slots of musical interaction, singing, and as you say, developing eye contact, social skills, listening, turn-taking, all that sort of thing...</p> <p>Nina - And wanting it as well, you know like R</p>	<p><i>Slight defensiveness? But confident in the knowledge that the way she has worked with Remiel has extended his communicative abilities – expression of pride in this</i></p> <p><u>Nina expresses awareness of her musical limitations, but capacity to work very successfully with Remiel using music to support language development</u></p> <p>Remiel really enjoyed Nina's sessions</p> <p><u>Musical framework provided security</u></p> <p>Excellent progress in decision-making</p>
<p><b>Remiel's increased confidence and self-</b></p>		

<p><b>esteem, as well as improved language use</b></p>	<p>(teacher) will say “OK Remiel, go with Nina” you know, music and the advancement...</p> <p>MT - Yes really enthusiastic.</p> <p>Nina - He was happy to do it.</p> <p>MT - Yes.</p> <p>Nina - And he knew what was expected of him, which at first we would play, and look at the instruments on the table, and he would just wait for me to do something, but recently he went to choose something and then at me and “OK take it! It’s fine”, and he did move on. He did choose - that’s the good thing about it as well, he started making choices.</p> <p>MT - Yes.</p> <p>Nina - Which he never did before.</p> <p>MT - I know, I mean that was one of the things we talked about, wasn’t it? The fact that he was so limited in his ability to just do things independently, and he really can now.</p> <p>Nina - Yuh.</p> <p>MT - Yes. I must let you go Nina - Thank you!</p>	<p><u>Increased confidence made it possible for Remiel to make decisions</u></p>
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