

## APPENDIX A

### TOPA AND PALS

#### Procedures

For all tasks, three practice trials were provided. Here, when necessary, corrective feedback was given to the child. The practice trials were repeated once if necessary. Thereafter the test proceeded with no feedback. It was explained to the children that the researcher would no longer be able to assist them and that they must try their best to give the correct answer. The subjects were told that if they did not know the correct answer they should have a guess.

The subjects' score for each of the phonological awareness tasks were the total number of correct responses, and the maximum score for each task was 30. All tasks provided the subjects with three options, and the correct words were placed randomly and occurred approximately with equal frequency in all positions.

#### 1. Rhyme Recognition (PALS)

In this task the subjects were provided with the target word and asked to respond via a "yes", or "no" signal, which of three successive words rhymes with it. 3 practice items were given before the test began.

At the commencement of each test, the child was read the following scripted instructions:

"Today you are going to answer some questions. For some of them you will say Yes, if you think the answer is Yes and No if you think the answer is No. For others you will look at the Yes word written on the green paper - the one with a tick on it - if you think the answer is Yes. If you think the answer is No you will look at the No word written on the red piece of paper - the one with a cross on it. Come lets practice."

- a. *The tester then said, "Listen to this word – **bag**. One of these words that I am going to say will rhyme with bag. Listen carefully. – **nine, tag, cake**.*

*Do bag & nine rhyme? Spoken  
Do bag & tag rhyme? Spoken  
Do bag & cake rhyme? Spoken*

- b. The tester then said, "Listen to this word – **rock**. One of these words that I am going to say will rhyme with rock.  
Listen carefully. – **clock, game, fruit**

*Do rock & clock rhyme? Non-Spoken*  
*Do rock & game rhyme? Non-Spoken*  
*Do rock & fruit rhyme? Non-Spoken*

- c. The tester then said, "Listen to this word – **tire**. One of these words that I am going to say will rhyme with tire.  
Listen carefully. – **book, pot, fire**.

*Do tire & book rhyme? Non-Spoken*  
*Do tire & pot rhyme? Non-Spoken*  
*Do tire & fire rhyme? Non-Spoken*

**Tests for which marks were allocated.**

- i. The tester then said, "Listen to this word – **man**. One of these words that I am going to say will rhyme with man.  
Listen carefully. – **five, bed, can**.

*Do man & five rhyme?*  
*Do man & bed rhyme?*  
*Do man & can rhyme?*

- ii. The tester then said, "Listen to this word – **sail**. One of these words that I am going to say will rhyme with sail.  
Listen carefully. – **whale, tree, cow**.

*Do sail & whale rhyme?*  
*Do sail & tree rhyme?*  
*Do sail & cow rhyme?*

- iii. The tester then said, "Listen to this word – **coat**. One of these words that I am going to say will rhyme with coat.  
Listen carefully. – **duck, hand, goat**

*Do coat & duck rhyme?*  
*Do coat & hand rhyme?*  
*Do coat & goat rhyme?*

- iv. The tester then said, "Listen to this word – **bug**. One of these words that I am going to say will rhyme with bug.  
Listen carefully. – **hat, rug, tape**.

Do bug & hat rhyme?  
Do bug & rug rhyme?  
Do bug & tape rhyme?

- v. The tester then said, "Listen to this word – **dog**. One of these words that I am going to say will rhyme with dog.  
Listen carefully. – **nail, frog, boy**.

Do dog & nail rhyme?  
Do dog & frog rhyme?  
Do dog & boy rhyme?

- vi. The tester then said, "Listen to this word – **ball**. One of these words that I am going to say will rhyme with ball.  
Listen carefully. – **tent, pig wall**.

Do ball & tent rhyme?  
Do ball & pig rhyme?  
Do ball & wall rhyme?

- vii. The tester then said, "Listen to this word – **cat**. One of these words that I am going to say will rhyme with cat.  
Listen carefully. – **bat, horse, saw**.

Do cat & bat rhyme?  
Do cat & horse rhyme?  
Do cat & saw rhyme?

- viii. The tester then said, "Listen to this word – **lock**. One of these words that I am going to say will rhyme with lock.  
Listen carefully. – **boat, sock, pie**.

Do lock & boat rhyme?  
Do lock & sock rhyme?  
Do lock & pie rhyme?

- ix. The tester then said, “Listen to this word – **house**. One of these words that I am going to say will rhyme with house.  
Listen carefully. – **mouse, bike, fan**.

Do house & mouse rhyme?  
Do house & bike rhyme?  
Do house & fan rhyme?

- x. The tester then said, “Listen to this word – **box**. One of these words that I am going to say will rhyme with box.  
Listen carefully. – **leaf, gas, fox**.

Do box & leaf rhyme?  
Do box & gas rhyme?  
Do box & fox rhyme?

## 2. Beginning Sound Awareness (PALS).

In this task the subjects were provided with the target word and asked to respond via a “yes”, or “no” signal which of three words begins with the same sound as the target word. 3 practice items were given before the tests began.

- a. *The tester then said, “Listen to this word – **milk**. One of these words that I am going to say will begin with the “m” sound just like the “m” sound you hear in **milk**.*

*Listen carefully. – **moon, toes, soap**.*

*Do milk & moon begin with the same sound? Non-Spoken  
Do milk & toes begin with the same sound? Non-Spoken  
Do milk & soap begin with the same sound? Non-Spoken*

- b. *The tester then said, “Listen to this word – **fish**. One of these words that I am going to say will begin with the “f” sound just like the “f” sound you hear in **fish**.*

*Listen carefully. – **leg, bell, fence**.*

*Do fish & leg begin with the same sound? Spoken  
Do fish & bell begin with the same sound? Spoken  
Do fish & fence with the same sound? Spoken*

- c. The tester will say, "Listen to this word – **tail**. One of these words that I am going to say will begin with the "t" sound just like the "t" sound you hear in **tail**.

Listen carefully. – **flag, two, web**.

*Do tail & flag begin with the same sound? Non-Spoken*

*Do tail & two begin with the same sound? Non-Spoken*

*Do tail & web begin with the same sound? Non-Spoken*

### **Tests for which marks were allocated**

- i. The tester then said, "Listen to this word – **bat**. One of these words that I am going to say will begin with the "b" sound just like the "b" sound you hear in **bat**.

Listen carefully. – **bird, lips, ring**.

Do bat & bird begin with the same sound?

Do bat & lips begin with the same sound?

Do bat & ring begin with the same sound?

- ii. The tester then said, "Ready for the next one? Listen to this word – **rain**. One of these words that I am going to say will begin with the "r" sound just like the "r" sound you hear in **rain**.

Listen carefully – **bus, foot, rake**.

Do rain & bus begin with the same sound?

Do rain & foot begin with the same sound?

Do rain & rake begin with the same sound?

- iii. The tester then said, "Ready for the next one? Listen to this word – **sun**. One of these words that I am going to say will begin with the "s" sound just like the "s" sound you hear in **sun**.

Listen carefully - **door, seal, car**.

Do sun & door begin with the same sound?

Do sun & seal begin with the same sound?

Do sun & car begin with the same sound?

- vi. The tester then said, "Ready for the next one? Listen to this word – **cup**. One of these words that I am going to say will begin with the "c" sound just like the "c" sound you hear in cup.

Listen carefully - **cone, six, belt**.

Do cup & cone begin with the same sound?

Do cup & six begin with the same sound?

Do cup & belt begin with the same sound?

- iv. The tester then said, "Ready for the next one? Listen to this word – **heart**. One of these words that I am going to say will begin with the "h" sound just like the "h" sound you hear in heart.

Listen carefully - **mop, hose, tie**.

Do heart & mop begin with the same sound?

Do heart & hose begin with the same sound?

Do heart & tie begin with the same sound?

- v. The tester then said, "Ready for the next one? Listen to this word – **van**. One of these words that I am going to say will begin with the "v" sound just like the "v" sound you hear in van.

Listen carefully - **hay, vine comb**.

Do van & hay begin with the same sound?

Do van & vine begin with the same sound?

Do van & comb begin with the same sound?

- vii. The tester then said, "Ready for the next one? Listen to this word – **deer**. One of these words that I am going to say will begin with the "d" sound just like the "d" sound you hear in deer.

Listen carefully - **sink, lamp, doll**.

Do deer & sink begin with the same sound?

Do deer & lamp begin with the same sound?

Do deer & doll begin with the same sound?

- viii. The tester then said, "Ready for the next one? Listen to this word – **sheep**. One of these words that I am going to say will begin with the "sh" sound just like the "sh" sound you hear in sheep.

Listen carefully - **shoe, train, wheel**.

Do sheep & shoe begin with the same sound?

Do sheep & train begin with the same sound?

Do sheep & wheel begin with the same sound?

- ix. The tester then said, “Ready for the next one? Listen to this word – **rain**. One of these words that I am going to say will begin with the “**r**” sound just like the “**r**” sound you hear in rain.

Listen carefully - **bus, foot, rake**.

Do rain & bus begin with the same sound?

Do rain & foot begin with the same sound?

Do rain & rake begin with the same sound?

- x. The tester then said, “Ready for the next one? Listen to this word – **paint**. One of these words that I am going to say will begin with the “**p**” sound just like the “**p**” sound you hear in paint.

Listen carefully - **gum, pen, key**.

Do paint & gum begin with the same sound?

Do paint & pen begin with the same sound?

Do paint & key begin with the same sound?

### **3. Ending sound the same (TOPA)**

In this task the subjects were provided with the target word and asked to respond via a “yes”, or “no” signal which of three words ends with the same sound as the target word. 3 practice items will be given before the tests began.

- a. *The tester then said, “Listen to this word – **coat**. One of these words that I am going to say will have the same last sound as **coat**, it must end with the “**t**” sound just like the “**t**” sound you hear at the end of **coat**.  
Listen carefully – **van, seat, man**.*

*Do coat & van end with the same sound? Non-Spoken*

*Do coat & seat end with the same sound? Non-Spoken*

*Do coat & man end with the same sound? Non-Spoken*

- b. *The tester then said, “Listen to this word – **dog**. One of these words that I am going to say will have the same last sound as **dog**, it must end with the “**g**” sound just like the “**g**” sound you hear at the end of **dog**.*

*Listen carefully – **bead, dot, pig**.*

*Do dog & bead end with the same sound? Spoken*

*Do dog & dot end with the same sound? Spoken*

*Do dog & pig end with the same sound? Spoken*

- c. The tester then said, "Listen to this word – **chair**. One of these words that I am going to say will have the same last sound as chair, it must end with the "r" sound just like the "r" sound you hear at the end of **chair**.  
Listen carefully – **sheep, can, jar**.

*Do chair & sheep end with the same sound? Spoken*

*Do chair & can end with the same sound? Spoken*

*Do chair & jar end with the same sound? Spoken*

### Tests for which marks were allocated

- i. The tester then said, "Listen to this word – **ball**. One of these words that I am going to say will end with the "l" sound just like the "l" sound you hear at the end of ball.  
Listen carefully – **smile, horn duck**.

Do ball & smile end with the same sound?

Do ball & horn end with the same sound?

Do ball & duck end with the same sound?

- ii. The tester then said, "Ready for the next one? Listen to this word – **house**. One of these words that I am going to say will end with the "s" sound just like the "s" sound you hear in **house**.  
Listen carefully – **boat, dress, store**.

Do house & boat end with the same sound?

Do house & dress end with the same sound?

Do house & store end with the same sound?

- iii. The tester then said, "Ready for the next one? Listen to this word – **plane**. One of these words that I am going to say will end with the "n" sound just like the "n" sound you hear in **plane**.  
Listen carefully – **hook, sun, pail**.

Do plane & hook end with the same sound?

Do plane & sun end with the same sound?

Do plane & pail end with the same sound?



- iv. The tester then said, "Ready for the next one? Listen to this word – **gum**. One of these words that I am going to say will end with the "m" sound just like the "m" sound you hear in **gum**.

Listen carefully – **nail, farm, rug**.

Do gum & nail end with the same sound?  
Do gum & farm end with the same sound?  
Do gum & rug end with the same sound?

- v. The tester then said, "Ready for the next one? Listen to this word – **web**. One of these words that I am going to say will end with the "b" sound just like the "b" sound you hear in **web**.

Listen carefully – **tub, bowl, pet**.

Do web & tub end with the same sound?  
Do web & bowl end with the same sound?  
Do web & pet end with the same sound?

- vi. The tester then said, "Ready for the next one? Listen to this word – **cake**. One of these words that I am going to say will end with the "k" sound just like the "k" sound you hear in **cake**.

Listen carefully – **book, knife, ice**.

Do cake & book end with the same sound?  
Do cake & knife end with the same sound?  
Do cake & ice end with the same sound?

- vii. The tester then said, "Ready for the next one? Listen to this word – **tape**. One of these words that I am going to say will end with the "p" sound just like the "p" sound you hear in **tape**.

Listen carefully – **rake, rope, tail**.

Do tape & rake end with the same sound?  
Do tape & rope end with the same sound?  
Do tape & tail end with the same sound?

- viii. The tester then said, "Ready for the next one? Listen to this word – **man**. One of these words that I am going to say will end with the "n" sound just like the "n" sound you hear in **man**.

Listen carefully – **lock, lion, ant**.

Do man & lock end with the same sound?  
Do man & lion end with the same sound?  
Do man & ant end with the same sound?

- ix. The tester will say, "Ready for the next one? Listen to this word – **bulb**. One of these words that I am going to say will end with the "b" sound just like the "b" sound you hear in **bulb**.

Listen carefully – **loud, bus, rub**.

Do bulb & loud end with the same sound?

Do bulb & bus end with the same sound?

Do bulb & rub end with the same sound?

- x. The tester will say, "Ready for the next one? Listen to this word – **boat**. One of these words that I am going to say will end with the "t" sound just like the "t" sound you hear in **boat**.

Listen carefully – **nail, boot, house**.

Do boat & nail end with the same sound?

Do boat & boot end with the same sound?

Do boat & house end with the same sound?

## APPENDIX B DATA CAPTURE SHEET

Child No:					1-2
Age:					3-5
Race:					6
Gender:					7
Class:					8
Home Language:					9
Reading Group:					10
Time:					11-14
<b>Task 1</b>					
Test Order:					15
Spoken/ Non Spoken:					16
Order of Items:					17
<b>Results</b>	a				18-20
	b				21-23
	c				24-26
	1				27-29
	2				30-32
	3				33-35
	4				36-38
	5				39-41
Test Order:					42
Spoken/ Non Spoken:					43
Order of Items:					44
	6				45-47
	7				48-50
	8				51-53
	9				54-56
	10				57-59
					60-62
<b>Task 2</b>					
Test Order:					63
Spoken/ Non Spoken:					64
Order of Items:					65
<b>Results</b>	a				66-68
	b				69-71
	c				72-74
	1				75-77
	2				78-80
	3				81-83
	4				84-86
	5				87-89
Test Order:					90
Spoken/ Non Spoken:					91
Order of Items:					92
	6				93-95
	7				96-98
	8				99-101
	9				102-104
	10				105-107
<b>Task 3</b>					
Test Order:					108
Spoken/ Non Spoken:					109
Order of Items:					110
<b>Results</b>	a				111-113
	b				114-116
	c				117-119
	1				120-122
	2				123-125
	3				126-128
	4				129-131
	5				132-134
Test Order:					135
Spoken/ Non Spoken:					136
Order of Items:					137
	6				138-140
	7				141-143
	8				144-146
	9				147-149
	10				150-152

## APPENDIX C CODE FOR DATA CAPTURE SHEET

**Codes:**

**Race:**

1. = White
2. = Indian
3. = Coloured
4. = Black
5. = Asian
6. = Other

***Reading Cohort***

1. = Top
2. = Middle
3. = Bottom

***Mode of response***

1. = Spoken
2. = Non-Spoken

***Gender***

1. = Male
2. = Female

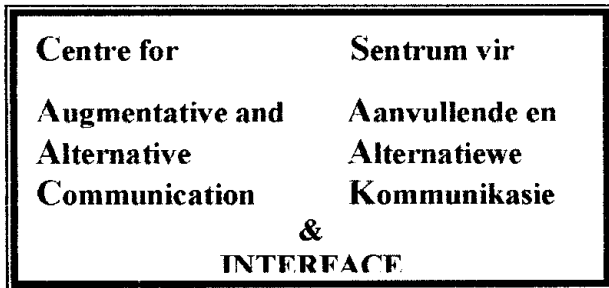
***Order of items presented***

1. = Questions 1 – 5
2. = Questions 6 – 10

***Language group***

1. = English
2. = Afrikaans
3. = Arabic
4. = Hindi
5. = Urdu
6. = Chinese
7. =Israeli
8. =Portuguese
9. =Taiwanese

**APPENDIX D**



1995: Education Africa Presidential Award for Special Needs  
1998: Rolex Award for Enterprise: Associate Laureate

**Fax/Faks: (012) 420 – 4389**  
**Tel: (012) 420 – 2001**

**Centre for Augmentative and Alternative Communication**  
**Sentrum vir Aanvullende en Alternatiewe Kommunikasie**  
**University of Pretoria**  
**PRETORIA, 0002**  
**SOUTH AFRICA**

The Principal  
Crawford Preparatory School  
Groenkloof  
Pretoria  
0002

Dear Mr. McLeod

**Re: Request for permission to conduct a research study at your school**

I am presently reading for a Masters Degree in Augmentative and Alternative Communication (AAC) at the University of Pretoria. Part of the course requirements is that I need to conduct a research study. The research will be a comparative study of two modes of response in a test of phonological awareness in typically developing Grade 1 children.

Phonological awareness is the metalinguistic skill whereby a person has acute awareness of, and can manipulate the individual sounds of a spoken language. The literature indicates that sound phonological awareness is a very good predictor of developing mature reading skills. Children who are unable to speak are able to develop phonological awareness although with more difficulty than their speaking peers. The aim of the study will be to establish whether non-spoken response modes would render the same results as spoken response modes. The results of this study would then be of assistance to educators of learners who have special educational needs to assess their abilities with a greater degree of accuracy.

The children will be assessed individually and the information will be treated with the strictest confidence. The test for each child should be completed in 15 minutes.

Apart from obtaining class-lists and the reading group into which each child is placed, I will not need to take up any of your teachers' teaching time. I would however, like to meet with them beforehand as a courtesy and explain the nature of the test as well the value it would provide to the field of AAC.

I would like to assess the children on the school premises at a time that will be optimal for both the child and the teacher. I would like to conduct the pilot study on the 28<sup>th</sup> and 30<sup>th</sup> of May. I would appreciate it if I could conduct the main study on the 16<sup>th</sup>, 17<sup>th</sup> 18<sup>th</sup>, 19<sup>th</sup> , and 23<sup>rd</sup> of July.

In appreciation

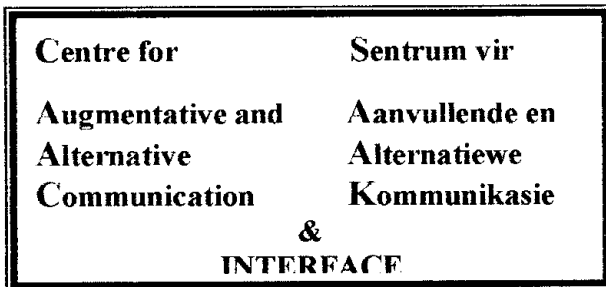
Maureen Casey

BA (Hons) DSE DE

Dr Juan Bommman

MA (AAC) Co-ordinator

APPENDIX E



1995: Education Africa Presidential Award for Special Needs  
1998: Rolex Award for Enterprise: Associate Laureate

Fax/Faks: (012) 420 – 4389  
Tel: (012) 420 – 2001

Centre for Augmentative and Alternative Communication  
Sentrum vir Aanvullende en Alternatiewe Kommunikasie  
University of Pretoria  
PRETORIA, 0002  
SOUTH AFRICA

July 4, 2002

Dear Parent/s

**Re: Request for permission for your child participate in a research study**

I am presently reading for a Masters Degree in Augmentative and Alternative Communication (AAC) at the University of Pretoria. Part of the course requirements is that I need to conduct a research study.

I am wanting to investigate whether a spoken response or a non spoken response would deliver the same results in a screening test of phonological awareness in Grade 1 children.

Phonological awareness skills are those skills whereby a child is aware of and is able to use the individual sounds of his/her language. This skill is of vital importance for the

development of good literacy skills. In fact, good phonological awareness skills are very good predictors of reading ability. It is therefore important for educators to be able to establish whether different response modes would render the same results under the same condition in typically developing children. This would then assist educators of children who have little or no functional speech to be able to assess these children with a greater degree of accuracy.

What I would require of your child is for him/her to be out of the class for about ten to fifteen minutes during one class day. Your child will be asked questions on rhymes and sounds within words. For one half of the test he/ she will be required to answer using spoken language and for the other half he will be required to answer by using eye-gaze.

Your child's name will not be reflected on the answer sheets for purpose of the test and all information will be treated in the strictest confidence in line with the ethical requirements of the University of Pretoria.

I would appreciate it if you would grant permission for your child to participate in this study. It will be of great assistance to future children who have severe communication difficulties, as well as to the educators who are entrusted with their education.

Yours truly,

Maureen Casey

BA (Hons) DSE DE

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**Reply form**

**I.....parent/guardian of .....  
grant permission for my child to participate in the research study on phonological  
awareness conducted under the auspices of the University of Pretoria.**

**Signed.....**

**Date.....**



### APPENDIX F

**Table 4.4.1 PERMANACE OF GROUP 1 AND GROUP 2 ON TASK 1A**

<b>The Mean, Standard Deviation and P- value for task 1a of this study</b>			
	<b>Mean Group One and Group Two</b>	<b>Standard Deviation</b>	<b>P- Value</b>
Task Order 1	13.6	1.6	0.1117
Task Order 2	14.6	0.7	
Task order 3	13.7	1.4	
Spoken	13.9	1.2	0.9949
Non-spoken	14.1	1.5	
Order of Items 1-5	13.9	1.6	0.3035
Order of Items 6 - 10	14.2	1.0	

**Table 4.4.2 PERFORMANACE OF GROUP 1 AND GROUP 2 ON TASK 1B**

<b>The Mean, Standard Deviation and P- value for task 1b of this study</b>			
	<b>Mean Group one and Group Two</b>	<b>Standard Deviation</b>	<b>P- Value</b>
Task Order 1	14.1	1.5	0.6963
Task Order 2	14.3	1.1	
Task order 3	14.1	1.8	
Spoken	14.1	1.7	0.5073
Non-spoken	14.3	1.2	
Order of Items 1-5	14.3	1.3	0.7239
Order of Items 6 - 10	14.0	1.6	

**Table 4.4.3 THE PERFORMANACE OF GROUP 1 AND GROUP 2 ON TASK 2A**

<b>The Mean, Standard Deviation and P- value for task 2a of this study</b>			
	<b>Mean Group one and group Two</b>	<b>Standard Deviation</b>	<b>P- Value</b>
Task Order 1	14.2	1.1	0.1676
Task Order 2	14.8	0.4	
Task order 3	14.6	1.4	
Spoken	14.3	1.2	0.1985
Non-spoken	14.6	0.9	
Order of Items 1-5	14.2	1.4	0.2933
Order of Items 6 - 10	14.7	0.6	

**Table 4.4.4 THE PERFORMANACE OF GROUP 1 AND GROUP 2 ON TASK 2B**

<b>The Mean, Standard Deviation and P- value for task 2b of this study</b>			
	<b>Mean Group one and Group Two</b>	<b>Standard Deviation</b>	<b>P- Value</b>
Task Order 1	14.4	1.1	0.1050
Task Order 2	15.0	0.0	
Task order 3	14.4	1.0	
Spoken	14.5	1.1	0.2022
Non-spoken	14.8	0.5	
Order of Items 1-5	14.7	0.6	0.7965
Order of Items 6 - 10	14.5	1.0	

**Table 4.4.5 THE PERFORMANACE OF GROUP 1 AND GROUP 2 ON TASK 3A**

<b>The Mean, Standard Deviation and P- value for task 3a of this study</b>			
	<b>Mean Group One and Group Two</b>	<b>Standard Deviation</b>	<b>P- Value</b>
Task Order 1	13.0	1.8	0.4110
Task Order 2	12.1	2.2	
Task order 3	13.2	2.0	
Spoken	12.4	2.2	0.2947
Non-spoken	13.2	1.7	
Order of Items 1-5	12.8	1.8	0.7566
Order of Items 6 - 10	12.9	2.2	

**Table 4.4.6 THE PERFORMANACE OF GROUP 1 AND GROUP 2 ON TASK 3B**

<b>The Mean, Standard Deviation and P- value for task 3b of this study</b>			
	<b>Mean Group One and Group Two</b>	<b>Standard Deviation</b>	<b>P- Value</b>
Task Order 1	12.8	1.6	0.3433
Task Order 2	12.4	2.4	
Task order 3	13.4	1.4	
Spoken	12.5	1.8	0.0756
Non-spoken	13.3	1.8	
Order of Items 1-5	13.4	1.4	0.1874
Order of Items 6 - 10	12.4	2.1	

### APPENDIX G

**Table 4.5.1 PERFORMANCE OF GROUP ONE AND GROUP TWO IN THE SPOKEN AND NON – SPOKEN MODE ON ALL TASKS**

<b>The Mean and Standard Deviation for Task 1a, 1b, 2a, 2b, 3a and 3b</b>					
<b>Group One</b>	<b>Mean</b>	<b>SD</b>	<b>Group Two</b>	<b>Mean</b>	<b>SD</b>
Task 1a	14.25	1.26	Task 1a	13.75	1.45
Task 1b	14.42	1.25	Task 1b	13.92	1.56
Task 2a	14.67	0.70	Task 2a	14.25	1.33
Task 2b	14.58	0.88	Task 2b	14.67	0.82
Task 3a	12.75	1.65	Task 3a	12.92	2.34
Task 3b	13.21	1.56	Task 3b	12.58	2.06



## APPENDIX I

**Table 4.5.1 Investigation of the interactions between the two groups for Task 1a are as follows:**

<b>Analysis of the mean, standard deviation and P-value for Group One and Group Two on Task 1a</b>					
<b>TASK 1A: Item 1-5</b>	<b>Group One</b>	<b>SD</b>	<b>Group Two</b>	<b>SD</b>	<b>P- Value</b>
<b>Task Order 1 (Sequenced 1,2,3)</b>					
Spoken	13.83	1.60	13.67	1.53	
Non-spoken	13.00	0.00	13.67	2.34	
<b>Task Order 2 (Sequenced 3,1,2)</b>					
Spoken	15.00	-	14.14	00.90	
Non-spoken	15.00	0.00	14.00	-	
<b>Task Order 3 (Sequenced 2, 3,1)</b>					
Spoken	15.00	-	13.50	1.38	
Non-spoken	14.17	1.60	13.00	-	
<b>Order of Items</b>					
1-5; 6-10 Spoken	15.00	0.00	13.44	1.33	
1-5; 6-10 Non-Spoken	14.22	1.39	12.67	3.22	0.0919
6-10; 1-5 Spoken	13.60	1.67	14.29	0.76	
6-10; 1-5 Non Spoken	14.43	0.98	14.20	0.84	

**Table 4.5.2 Investigation of the interactions between the two groups for Task 1b are as follows:**

<b>Analysis of the mean standard deviation and P-value for Group One and Group Two on Task 1b</b>					
<b>TASK 1B: Item 6 -10</b>	<b>Group One</b>	<b>SD</b>	<b>Group Two</b>	<b>SD</b>	<b>P- Value</b>
<b>Task Order 1 (Sequenced 1,2,3)</b>					
Spoken	14.67	0.58	13.83	1.94	
Non-spoken	14.17	1.33	14.00	1.73	
<b>Task Order 2 (Sequenced 3,1,2)</b>					
Spoken	14.57	0.78	14.00	-	
Non-spoken	15.00	-	14.00	1.41	
<b>Task Order 3 (Sequenced 2, 3,1)</b>					
Spoken	14.17	2.04	10.00	-	
Non-spoken	15.00	-	14.50	0.55	
<b>Order of Items</b>					
1-5; 6-10 Spoken	14.71	0.49	13.60	2.07	
1-5; 6-10 Non-Spoken	14.40	1.34	14.29	1.11	0.6958
6-10; 1-5 Spoken	14.22	1.72	13.00	2.65	
6-10; 1-5 Non Spoken	14.33	1.155	14.11	1.27	

**Table 4.5.3 Investigation of the interactions between the two groups for Task 2a are as follows:**

<b>Analysis of the mean standard deviation and P-value for Group One and Group Two on Task 2a</b>					
<b>TASK 2A:Item 1 - 5</b>	<b>Group One</b>	<b>SD</b>	<b>Group Two</b>	<b>SD</b>	<b>P- Value</b>
<b>Task Order 1 (Sequenced 1,2,3)</b>					
Spoken	14.60	0.55	14.50	0.71	
Non-spoken	14.50	0.71	13.60	1.67	
<b>Task Order 2 (Sequenced 3,1,2)</b>					
Spoken	14.83	0.41	14.33	0.58	
Non-spoken	15.00	0.00	15.00	0.00	0.2436
<b>Task Order 3 (Sequenced 2, 3,1)</b>					
Spoken	14.25	1.50	13.00	2.16	
Non-spoken	14.75	0.50	15.00	0.00	
<b>Order of Items</b>					
1-5: 6-10 Spoken	14.29	1.11	13.60	2.07	
1-5: 6-10 Non-Spoken	14.60	0.55	14.29	1.49	0.6550
6-10: 1-5 Spoken	14.88	0.35	14.00	0.82	
6-10: 1-5 Non Spoken	15.00	0.00	14.75	0.71	

**Table 4.5.4 Investigation of the interactions between the two groups for Task 2b are as follows:**

<b>Analysis of the mean, standard deviation and P-value for Group One and Group Two on Task 2b</b>					
<b>TASK 2B: Item 6-10</b>	<b>Group One</b>	<b>SD</b>	<b>Group Two</b>	<b>SD</b>	<b>P- Value</b>
<b>Task Order 1 (Sequenced 1,2,3)</b>					
Spoken	13.50	2.12	14.20	1.30	
Non-spoken	14.80	0.45	15.00	0.00	
<b>Task Order 2 (Sequenced 3,1,2)</b>					
Spoken	15.00	0.00	15.00	0.00	
Non-spoken	15.00	0.00	15.00	0.00	0.7432
<b>Task Order 3 (Sequenced 2, 3,1)</b>					
Spoken	14.00	1.41	14.50	1.00	
Non-spoken	14.50	0.58	14.50	1.00	
<b>Order of Items</b>					
1-5: 6-10 Spoken	14.75	0.50	14.63	0.74	
1-5: 6-10 Non-Spoken	14.86	0.35	14.50	1.00	0.2982
6-10: 1-5 Spoken	13.80	1.64	14.57	1.13	
6-10: 1-5 Non Spoken	14.71	0.49	15.00	0.00	

**Table 4.5.5 Investigation of the interactions between the two groups for Task 3a are as follows:**

<b>Analysis of the mean, standard deviation and P-value for Group One and Group Two on Task 3a</b>					
<b>TASK 3A: Item 1 - 5</b>	<b>Group One</b>	<b>SD</b>	<b>Group Two</b>	<b>SD</b>	<b>P- Value</b>
<b>Task Order 1 (Sequenced 1,2,3)</b>					
Spoken	12.14	1.57	15.00	-	
Non-spoken	13.00	-	13.57	1.81	
<b>Task Order 2 (Sequenced 3,1,2)</b>					
Spoken	12.17	2.23	9.00	-	
Non-spoken	14.00	-	12.33	2.34	
<b>Task Order 3 (Sequenced 2, 3,1)</b>					
Spoken	14.00	1.00	12.33	2.94	
Non-spoken	13.17	1.33	14.33	1.15	
<b>Order of Items</b>					
1-5; 6-10 Spoken	12.00	1.66	13.67	2.31	
1-5; 6-10 Non-Spoken	12.33	1.15	14.44	1.88	0.3281
6-10: 1-5 Spoken	13.14	1.95	11.40	3.21	
6-10: 1-5 Non Spoken	13.80	0.84	13.00	2.24	

**Table 4.5.6 Investigation of the interactions between the two groups for Task 3b are as follows:**

<b>Analysis of the mean, standard deviation and P-value for Group One and Group Two on Task 3b</b>					
<b>TASK 3B: Item 6 - 10</b>	<b>Group One</b>	<b>SD</b>	<b>Group Two</b>	<b>SD</b>	<b>P- Value</b>
<b>Task Order 1 (Sequenced 1,2,3)</b>					
Spoken	12.00	-	12.71	1.50	
Non-spoken	13.29	1.50	10.00	-	
<b>Task Order 2 (Sequenced 3,1,2)</b>					
Spoken	11.00	-	11.50	2.88	
Non-spoken	13.50	2.07	12.00	-	
<b>Task Order 3 (Sequenced 2, 3,1)</b>					
Spoken	13.00	1.41	13.33	0.57	
Non-spoken	14.00	1.00	13.67	1.97	
<b>Order of Items</b>					
1-5; 6-10 Spoken	12.80	1.48	12.57	1.27	
1-5; 6-10 Non-Spoken	14.43	0.79	13.80	1.30	0.4187
6-10: 1-5 Spoken	12.33	1.53	12.22	2.59	
6-10: 1-5 Non Spoken	12.78	1.72	11.67	2.89	