

Dear viewer, the following document provides the appendices for a manuscript (IJMS579) submitted to the International Journal of Language and Communication Disorders (2006). These appendices contain individual stimuli used in experimental measures employed during a longitudinal study investigating children's phonological representations, phonological awareness and speech development.

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**Title:** The development of phonological representations in children with speech impairment

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## Appendix A

### *Phonological Representation Judgment Task Word Lists*

#### **Trial 1**

Instructions given to children. “You will hear me say ‘this is a telephone’. I want you to listen to how I say telephone. If I say it a good way – point to the happy face. If I say it not a good way – point to the cross.” \* = training items.

| <b>Word Gloss</b> | <b>Pronunciation</b> | <b>Type of Change</b>      |
|-------------------|----------------------|----------------------------|
| 1. *Telephone     | /tæləfoun/           | typical                    |
| 2. *Dinosaur      | /daɪnəsə/            | typical                    |
| 3. *Motorbike     | /məʊtəbaɪk/          | change each vowel          |
| 4. *Hippopotamus  | /hɪpəpəʊtəməs/       | delete unstressed syllable |
| 5. *Caterpillar   | /kætəpɪlə/           | typical                    |
| 6. Elephant       | /æləfɪnt/            | delete unstressed vowel    |
| 7. Kangaroo       | /kæŋgəru/            | typical                    |
| 8. Helicopter     | /hæləkɒptə/          | change unstressed vowel    |
| 9. Telephone      | /tæləfoun/           | delete unstressed vowel    |
| 10. Butterfly     | /bʌtəflaɪ/           | typical                    |
| 11. Caterpillar   | /kætəpɪlə/           | change stressed vowel      |
| 12. Motorbike     | /məʊtəbaɪk/          | change stressed vowel      |
| 13. Helicopter    | /hæləkɒptə/          | typical                    |
| 14. Dinosaur      | /daɪnəsə/            | delete unstressed vowel    |
| 15. Caterpillar   | /kætəpɪlə/           | change unstressed vowel    |
| 16. Elephant      | /æləfɪnt/            | typical                    |
| 17. Kangaroo      | /kæŋgəru/            | change unstressed vowel    |
| 18. Butterfly     | /bʌtəflaɪ/           | change stressed vowel      |
| 19. Elephant      | /æləfɪnt/            | change unstressed vowel    |
| 20. Motorbike     | /məʊtəbaɪk//         | change unstressed vowel    |
| 21. Telephone     | /təʊləfoun/          | change stressed vowel      |
| 22. Kangaroo      | /kæŋru/              | delete unstressed syllable |
| 23. Hippopotamus  | /hɪpəpəʊtəməs/       | typical                    |
| 24. Dinosaur      | /daɪnəsə/            | change stressed vowel      |
| 25. Hippopotamus  | /hɪpəpəʊtəməs/       | delete unstressed vowel    |
| 26. Caterpillar   | /kætəpɪlə/           | delete unstressed vowel    |
| 27. Butterfly     | /bʌtəflaɪ/           | change unstressed vowel    |
| 28. Motorbike     | /məʊtəbaɪk//         | typical                    |
| 29. Elephant      | /ɜləfɪnt/            | change stressed vowel      |
| 30. Motorbike     | /məʊtəbaɪk/          | delete unstressed vowel    |

## Trial 2

Instructions given to children “You will hear me say the word ‘crocodile’. I want you to listen to how I say telephone. If I say it a good way or the right way – point to the green tick. If I say it a wrong way or not quite the right way – point to the red cross. Even if you think it’s nearly the right way – point to the red cross.” \* = training items.

| Word Gloss      | Pronunciation | Type of Change                 |
|-----------------|---------------|--------------------------------|
| 1. *Crocodile   | /krɒkədail/   | typical production             |
| 2. *Giraffe     | /dʒɪrɪf/      | change stressed vowel          |
| 3. *Computer    | /kɪmpjʊtə/    | typical production             |
| 4. *Spaceship   | /spæɪʃɪp/     | change stressed vowel          |
| 5. *Monster     | /mɒnstə/      | typical production             |
| 6. Hospital     | /hɒspɪtəl/    | common speech production error |
| 7. Toaster      | /təʊstə/      | change unstressed vowel        |
| 8. Ambulance    | /æmbjulɪns/   | typical production             |
| 9. Monster      | /mounstə/     | change stressed vowel          |
| 10. Computer    | /kɪmpjʊtə/    | change unstressed vowel        |
| 11. Crocodile   | /krɒkədail/   | typical production             |
| 12. Spaceship   | /speɪʃɪp/     | typical production             |
| 13. Caterpillar | /kætəpɪlə/    | change stressed vowel          |
| 14. Banana      | /bɪnənə/      | typical production             |
| 15. Giraffe     | /dʒɪrɪf/      | typical production             |
| 16. Hospital    | /hɒspɪtəl/    | change stressed vowel          |
| 17. Ambulance   | /æmbliɪns/    | common speech production error |
| 18. Butterfly   | /bʌtəflaɪ/    | change stressed vowel          |
| 19. Monster     | /mɒnstə/      | typical production             |
| 20. Caterpillar | /kætəpɪlə/    | change unstressed vowel        |
| 21. Garage      | /gærɪdʒ/      | typical production             |
| 22. Crocodile   | /krɒkədeɪl/   | change stressed vowel          |
| 23. Computer    | /kɪmpjʊtə/    | typical production             |
| 24. Kangaroo    | /kæŋru/       | delete unstressed syllable     |
| 25. Ambulance   | /æmbjuləns/   | change unstressed syllable     |
| 26. Spaceship   | /speɪʃɪp/     | change stressed syllable       |
| 27. Banana      | /bɪnənə/      | typical production             |
| 28. Toaster     | /təʊstə/      | change stressed vowel          |
| 29. Hospital    | /hɒspɪtəl/    | typical production             |
| 30. Garage      | /gærudʒ/      | change unstressed vowel        |

### Trial 3

Instructions provided were the same as trial 2.

| Word Gloss      | Pronunciation | Type of Change                 |
|-----------------|---------------|--------------------------------|
| 1. *Crocodile   | /krɒkədail/   | change stressed vowel          |
| 2. *Computer    | /kɪmpjʊtə/    | typical production             |
| 3. *Spaceship   | /spɑɪʃɪp/     | change stressed vowel          |
| 4. Monster      | /mɒnstə/      | typical production             |
| 5. Spaghetti    | /spæɡɒti/     | change stressed vowel          |
| 6. Ambulance    | /æmbjʊləns/   | typical production             |
| 7. Gorilla      | /gɒrələ/      | change unstressed vowel        |
| 8. Caterpillar  | /kætəpɪlə/    | typical production             |
| 9. Giraffe      | /dʒɪrɑːf/     | change stressed vowel          |
| 10. Helicopter  | /helɪkɒptə/   | typical production             |
| 11. Hamburger   | /hæmbɛɪɡə/    | change stressed vowel          |
| 12. Microphone  | /maɪkrəfoun/  | change unstressed vowel        |
| 13. Caterpillar | /kætəpɪlə/    | change unstressed vowel        |
| 14. Spaghetti   | /spæɡeti/     | typical production             |
| 15. Hamburger   | /hæmbɒɡə/     | change stressed vowel          |
| 16. Helicopter  | /heləkɒptə/   | change unstressed vowel        |
| 17. Monster     | /mɒnstə/      | change stressed vowel          |
| 18. Giraffe     | /dʒurɑːf/     | change unstressed vowel        |
| 19. Microphone  | /maɪkrəfoun/  | typical production             |
| 20. Gorilla     | /gɒrɪlə/      | change unstressed vowel        |
| 21. Spaghetti   | /pɪzɡeti/     | common speech production error |
| 22. Ambulance   | /ambjʊləns/   | change stressed vowel          |
| 23. Hamburger   | /hæmbɜːɡə/    | typical production             |
| 24. Helicopter  | /helɪkɒptə/   | typical production             |
| 25. Monster     | /mʌnstə/      | change stressed vowel          |
| 26. Giraffe     | /dʒaɪrɑːf/    | change unstressed vowel        |
| 27. Caterpillar | /kætəʊpɪlə/   | change unstressed vowel        |
| 28. Microphone  | /maɪkrɪfoun/  | change unstressed vowel        |

## Appendix B

### ***Non-word Learning Stimuli Lists***

Instructions given to children. “We are going to learn some new words. First you will see pictures of the word and hear me say the name of the word. After you have learned about the word you will see and hear the word again. This time you will need to show me if the word is said the right way or a wrong way. If it is right point to the green tick. If it is wrong point to the red cross.”

#### **Trial 1**

##### **Target Non-Words**

##### **Transcription of each task item**

- |                            |  |
|----------------------------|--|
| 1. /blaig/ (training item) | /blaig/, /flaig/, /blaig/, /blæg/.                     |
| 2. /gwɔimz/                | /gwɔimz/, /gwɔmz/, /gwʌmz/, /gwɔimz/.                  |
| 3. /mælətʃed/              | /mælətʃep/, /mæləʃed/, /mælətʃed/, /mæloutʃed/.        |
| 4. /krepdislʌv/            | /krepdislʌv/, /krepdislʌv/, /krɒpdislʌv/, /kredislʌv/. |
| 5. /tʃɜfout/               | /tʃifout/, /tʃɜfout/, /tʃɜfʊt/, /tʃɜfoug/.             |
| 6. /kustɒn/                | /kustɒn/, /kustbip/, /kustɒn/, /kʊftɒn/.               |

## **Trial 2**

Instructions given to children “We are going to learn some new words. First you will see pictures of the word and hear me say the name of the word. After you have learned about the word you will see and hear the word again. This time you will need to show me if the word is said the right way or a wrong way. If it is right, point to the green tick. If it is wrong, point to the red cross. Even if you think the word is not quite right point to the red cross.”

| <b>Target Non-Words</b>    | <b>Transcription of each task item</b>                  |
|----------------------------|---|
| 1. /glaim/ (training item) | /glaim/, /glam/, /glaim/, /glæm/.                       |
| 2. /dʒɜːgɜː/               | /dʒɜːgɜː/, /dʒuːgɜː/, /dʒɜːgɜː/, /dʒɜːgɜː/.             |
| 3. /bæzdətʃoud/            | /bæzdətʃud/, /bæzdətʃoud/, /bazdətʃoud/, /bizdətʃoud/   |
| 4. /trɒknifaiʃ/            | /trɒknifeiʃ/, /trɒknifaiʃ/, /trɒknifaiʃ/, /trʌknifaiʃ/. |
| 5. /hɔɪpənɜːb/             | /hɒpənɜːb/, /hɔɪpənɜːb/, /hɔɪpənɜːb/, /hɔɪpənɜːb/.      |
| 6. /wɒtauzɪn/              | /wɒtauzɪn/, /wʌtauzɪn/, /wɒtazɪn/, /wɒtauzɪn/.          |

## **Trial 3**

| <b>Target Non-Words</b>         | <b>Transcription of each task item</b>                |
|---------------------------------|---|
| 1. /ʃɜːkɒufaim/ (training item) | /ʃɜːkɒufaim/, /ʃɜːkɒfaim/, /ʃɜːkɒufaim/, /ʃɜːkɪfaim/. |
| 2. /tɒpʌunɜːg/                  | /tɜːpʌunɜːg/, /tɒpʌunɜːg/, /tɒpʌnɜːg/, /tɒpʌunɜːg/.   |
| 3. /fɔɪrælɪb/                   | /fɔɪreɪlɪb/, /fɔɪrælɪb/, /fɔɪrælɪb/, /fɔɪrælɪb/.      |
| 4. /pɒdʒrɪni/                   | /pɒdʒræni/, /pɒdʒrɒni/, /pɒdʒrɒni/, /pɒdʒrɪni/.       |
| 5. /tʃɒvludɪn/                  | /tʃɒvludɪn/, /tʃɒvlɒdɪn/, /tʃɒvlɒdɪn/, /tʃɒvlɒdɪn/.   |
| 6. /flɛŋgɪʃʌm/                  | /flɛŋgəʃʌm/, /flɛŋgɪʃʌm/, /flɛŋgʊʃʌm/, /flɛŋgəʃʌm/.   |

## Appendix C

### **Real and Non-word Repetition Task Word List**

Instructions given to children. “I am going to say some words. I want you to say the words back to me. The first 10 words are words you will have heard before. The next group of words are made-up words that you will not have heard before.”

#### **Real Word Stimuli presented at each trial.**

|           |            |           |           |              |
|-----------|------------|-----------|-----------|--------------|
| Gymnasium | Helicopter | Ambulance | Volcano   | Stopwatch    |
| Asteroid  | Frozen     | Hospital  | Australia | Kindergarten |

#### **Trail 1 - Non Word Stimuli**

| <b>Gloss</b>      | <b>Phonetic Transcription</b> |
|-------------------|-------------------------------|
| 1. Steyboose      | /steibus/                     |
| 2. Flowdarshay    | /floudafei/                   |
| 3. Kazartog       | /kəzatɔg/                     |
| 4. Munobleem      | /mʌnoublim/                   |
| 5. Snaipouseedy   | /snaipousidi/                 |
| 6. Nookloudayshot | /nɔkluodeiʃɔt/                |
| 7. Chickoufer     | /tʃɪkɔufɜ/                    |
| 8. Rangafayjop    | /ræŋgəfeidʒɔp/                |
| 9. Wigenzord      | /wɪɡɪnzɔd/                    |
| 10. Yomwadgi      | /jɔmwadzɪ/                    |

#### **Trial 2**

| <b>Gloss</b>      | <b>Phonetic Transcription</b> |
|-------------------|-------------------------------|
| 1. stoufoodeykep  | /stɔfudeikep/                 |
| 2. pauzemunt      | /pauzəmʌnt/                   |
| 3. vathernog      | /vəθɜnɔg/                     |
| 4. chengooplim    | /tʃɛŋɔplɪm/                   |
| 5. ruzfeewikle    | /rʌzfiwɪkɔ/                   |
| 6. dershoucromp   | /dɜʃɔukrɔmp/                  |
| 7. straleespenook | /strælispenɔk/                |
| 8. gromlɜmnɛp     | /grɔmlɜmnɛp/                  |
| 9. clouseihup     | /klɔuseihʌp/                  |
| 10. yawjoovain    | /jɔdʒɔvɪn/                    |

### **Trial 3**

#### **Gloss**

1. cherpleedek
2. maglefaut
3. weamzugri
4. shonggurnfrad
5. tusgerbiv
6. koospraiduti
7. naizungflaikrep
8. yeedimprog
9. horlibreswid
10. tuckooyamwidgee

#### **Phonetic Transcription**

- /tʃɛplidek/
- /maglɛfaut/
- /wimzugri/
- /ʃɒŋgɜnfræd/
- /tʌsdʒɛbiv/
- /kɔspraidʌti/
- /naizʌŋflaikrep/
- /jidiɪmpɹɔg/
- /hɔlibreswid/
- /tʌkujæmwɪdʒi/



## **Appendix D**

### **Non-word reading task stimuli**

This task was presented at trial 3 only. The instructions presented to children. “Here are some words. They are made-up words. I want you to try and read them for me.”

| <b>Word presented</b> | <b>Correct response<br/>(Transcription)</b> | <b>Distracter Items used on<br/>receptive-based version*</b> |
|-----------------------|---|--|
| 1. vab                | /væb/                                       |  |
| 2. kos                | /kɒs/                                       |  |
| 3. sim                | /sɪm/                                       |  |
| 4. dup                | /dʌp/                                       |  |
| 5. mov                | /mɒv/                                       |  |
| 6. tob                | /tɒb/                                       |  |
| 7. zug                | /zʌg/                                       |  |
| 8. hud                | /hʌd/                                       |  |
| 9. tiz                | /tɪz/                                       |  |
| 10. sep               | /sep/                                       |  |
| 11. plob              | /plɒb/                                      |  |
| 12. bling             | /blɪŋ/                                      |  |
| 13. bruch             | /brʌtʃ/                                     |  |
| 14. trock             | /trɒk/                                      |  |
| 15. twud              | /twʌd/                                      |  |
| 16. cliz              | /klɪz/                                      |  |
| 17. thrad             | /θræd/                                      |  |
| 18. whan              | /wæn/                                       |  |
| 19. gluff             | /glʌf/                                      |  |
| 20. swek              | /swek/                                      |  |
| 21. feen              | /fi:n/                                      |  |
| 22. poy               | /pɔi/                                       |  |
| 23. zie               | /zai/                                       |  |
| 24. hoob              | /hub/                                       |  |
| 25. yoat              | /jout/                                      |  |
| 26. mape              | /meip/                                      |  |
| 27. roit              | /rɔit/                                      |  |
| 28. gice              | /gais/                                      |  |
| 29. pute              | /put/ or /pjut/                             |  |
| 30. lawp              | /lɒp/                                       |  |

\*receptive-based version presented to participant with complex communication needs only.