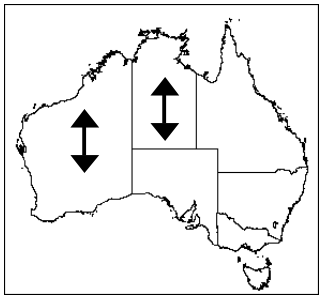
# Assessing children's comprehension of indigenous languages

Gillian Wigglesworth
School of Languages and Linguistics
The University of Melbourne, Australia

## Introduction

- Most of the 250 Indigenous Australian languages have been lost.
- No remaining Indigenous Australian languages by 2050, unless the current trend plateaus (McConvell & Thieberger 2001)
- Language maintenance and revival programmes, but very different abilities amongst children



# Australian Indigenous Languages

- Are undergoing very rapid language shift in many places
- Are often spoken by only a few hundred people
- Are varied and often mutually unintelligible
- Speakers may have varied traditional language background despite living in the same community

# Walmajarri

- Spoken in the north west of western Australia
- Spoken by fewer than 900 people in a variety of different communities
- Children in these communities not learning Walmajarri as a first language
- First language is Kriol

# Project Aims

1. Development of an assessment tool: how well do Indigenous children in a remote community understand the local Indigenous language?

2. Piloting the test in four Australian Indigenous communities

3. Evaluation of the effectiveness of the test.

4. Assessment of cross-community appropriateness, suitability for other age groups.

# Methodology

ACLA 1 - 3 communities, 4 years, child and child-directed speech

This paper: evidence of child's understanding of Indigenous language through formal testing

1. Comprehension (main study)
2. Production (smaller)

# Participants

- Three Indigenous Australian communities:
  C1, C2, C3 (2 smaller communities together)
- Child participants in three age groups:
  4;0-6;7 7;0-8;4 8;10-12;8
- Variable numbers of participants

C1: 19 (17 in production component)
C2: 37
C3: 24

# Phases of test development

Test items: 40 nouns identified as high, medium or low use, based on frequency in spoken language database (also numerous distractors)

Various semantic domains

Location of appropriate images based on PPVT

Piloted in urban Melbourne

Liaison with:

Programmer

Indigenous stakeholders

Indigenous speakers (of test items) - produced items for comprehension test, also approved images.

## Production test

- Smaller subset of children in C1, three weeks after comprehension test.
- Ad hoc, acted as pilot test.
- Comprehension test format, researcher highlighted item of interest (i.e. “correct” answer), child produced item.

## Pilot study: Comprehension

- Seven urban Australian English speaking children, aged 5-7 years
- 4 images for each target

# Recordings / Sounds

- Purchased recording devices and sent word-lists / instructions to Indigenous testing regions one male and one female speaker
- Used 50% male tokens , 50% female (alternating)
- Format of sound file for test:

  ____ token ____ token___

  (silence)

# Classification of items

| No. of speakers | Item classification | Number of items per classification | Examples of items (English) |
|---|---|---|---|
| 10+ | High use H | 11 | *dog, horse, hand, foot, grass, girl, boy, water* |
| 3-9 | Medium use M | 21 | *grasshopper, bird (gen.) emu (specific Aus. bird), mouth, eye, hill* |
| 1-2 | Low use L | 14 | *hat, wind, frog, face, cheek, tongue* |

# Final Comprehension Study

1) Child hears indigenous word for *bird* (x2)
2) Child selects appropriate image (answer recorded)
3) Child selects 'OK' for next item (when ready)

- Two practice items
- Child can choose to hear item numerous times if needed.
- All children saw same images in same order.

# Format of (auto generated) results

etc. 40 items

| | | | | H | H | M | M | M | M | L | L | L | L | H | H |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Dog | Horse | Emu | Sheep | Croc | Goanna | Caterpil | Kite | Kangard | Frog | Hand | Foot |
| Date | Comm | ID | Age | Test 1 | Test 2 | Test 3 | Test 4 | Test 5 | Test 6 | Test 7 | Test 8 | Test 9 | Test 10 | Test 11 | Test 12 |
| | | MA | 6;07 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| | | TU | 8;04 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 0 |
| | | JA | 8;04 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| | | BR | 7;04 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| | | NE | 8;11 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| | | AL | 9;00 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| | | DA | 9;01 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| | | ZA | 5;06 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 |
| | | KA | 5;09 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| | | RO | 5;09 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 1 | 1 |
| | | SC | 10;04 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| | | KE | 4;10 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 0 |
| | | CU | 10;11 | 1 | 0 | 1 | | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 |

etc. 80 children

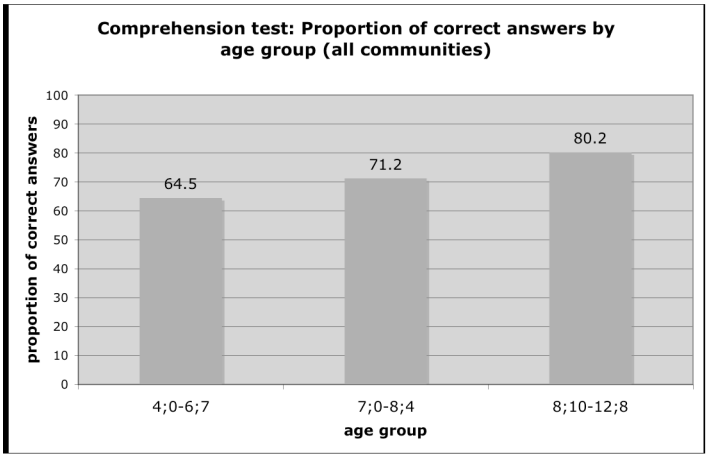
# Results

| Community | C1 | C2 | C3 |
|---|---|---|---|
| participant numbers | 19 | 37 | 24 |
| % correct (total) | 81.4 | 67.3 | 77.4 |
| No. items all correct | 9 | 5 | 9 |

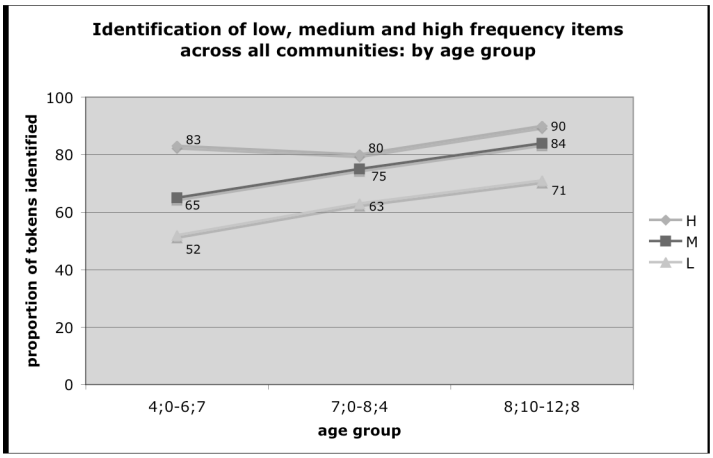
=80

e.g. 1480 possible correct answers (40 test items x 37 children)
996 actual (67.3%)

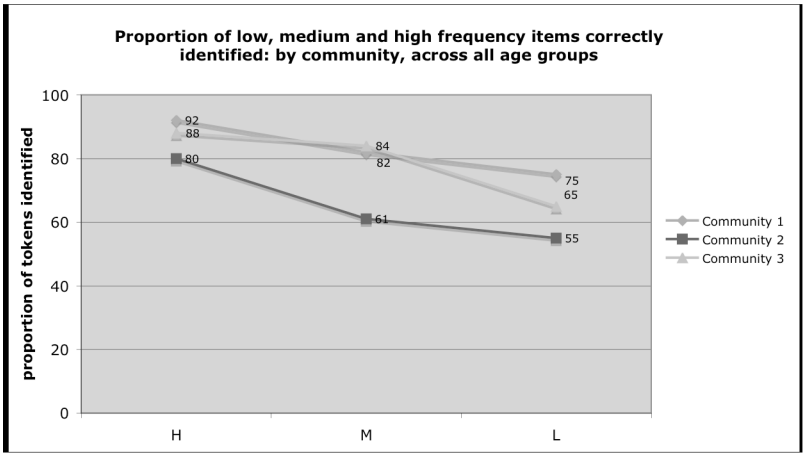
# Results



# Results




# Results



| item | identified | % | Class. |
|---|---|---|---|
| **Emu** | 80 | 100 | H |
| **Fire** | 80 | 100 | H |
| **Meat** | 80 | 100 | H |
| **Prickle** | 79 | 98.75 | H |
| **Girl** | 79 | 98.75 | H |
| **Water** | 79 | 98.75 | H |
| **"White" man** | 78 | 97.5 | H |
| **Dog** | 77 | 96.25 | H |
| **Goanna** | 77 | 96.25 | H |
| **Tree/stick** | 77 | 96.25 | H |
| **Vege** | 77 | 96.25 | H |
| **Caterpiller** | 72 | 90 | H |
| **Boy** | 72 | 90 | H |
| **Hat** | 72 | 90 | H |
| **Kangaroo** | 71 | 88.75 | H |
| **Head/hair** | 68 | 85 | H |
| **Beetle** | 67 | 83.75 | H |
| **Horse** | 65 | 81.25 | H |
| **Eye** | 65 | 81.25 | H |
| **Hand/arm** | 64 | 80 | H |
| **River** | 63 | 78.75 | H |
| **Nest** | 62 | 77.5 | H |
| **Foot** | 61 | 76.25 | H |
| **Croc** | 60 | 75 | H |
| **Navel** | 60 | 75 | H |
| **Hill** | 60 | 75 | H |
| **Frog** | 58 | 72.5 | H |
| **Tail** | 46 | 57.5 | M |
| **Tongue** | 42 | 52.5 | M |
| **Knee** | 40 | 50 | M |
| **Face** | 38 | 47.5 | M |
| **Bird** | 38 | 47.5 | M |
| **Kite** | 37 | 46.25 | M |
| **Nose** | 37 | 46.25 | M |
| **Fish** | 37 | 46.25 | M |
| **Cheek** | 34 | 42.5 | M |
| **Sheep** | 30 | 37.5 | L |
| **Grass** | 30 | 37.5 | L |
| **Tortoise** | 27 | 33.75 | L |
| **Cockatoo** | 19 | 23.75 | L |

Revised classification based on child comprehension

emu = *karnanganyja*

fire = *warlu*

meat = *kuyu*

| | |
|---|---|
| H | <70% |
| M | 40-70% |
| L | >40% |

cockatoo = *ngakalyalya*

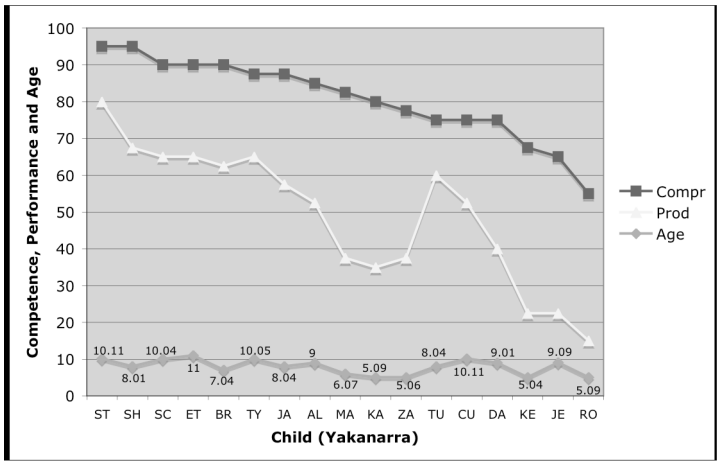
# Production Results

| Child | Age | %Prod |
|---|---|---|
| ST | 10;11 | 80 |
| SH | 8;01 | 67.5 |
| SC | 10;04 | 65 |
| TY | 10;05 | 65 |
| ET | 11;00 | 65 |
| BR | 7;04 | 62.5 |
| TU | 8;04 | 60 |
| JA | 8;04 | 57.5 |
| AL | 9;00 | 52.5 |
| CU | 10;11 | 52.5 |
| DA | 9;01 | 40 |
| ZA | 5;06 | 37.5 |
| MA | 6;07 | 37.5 |
| KA | 5;09 | 35 |
| KE | 5;04 | 22.5 |
| JE | 9;09 | 22.5 |
| RO | 5;09 | 15 |

| Item (Eng) | Item | no. /17 |
|---|---|---|
| water | ngapa | 17 |
| goanna | kakaji | 16 |
| prickle | kirli | 16 |
| girl | manga | 16 |
| boy | parri | 15 |
| dog | kunyarr | 15 |
| fire | warlu | 15 |
| turtle | wartaral | 1 |
| bird | wuru | 1 |
| navel | jalany | 1 |
| knee | nimirti | 1 |
| face | janginy | 0 |
| cheek | nguku | 0 |
| tail | nyawari | 0 |

all high frequency

# Comprehension vs. Production




# Discussion: General

- Frequency of items in input

Implications:

1. Education
2. Revitalisation

# Discussion: Issues

Comprehension test development:

- Liaison with indigenous stakeholders;
- Culturally appropriate images, plausible, feasible.

Conducting both tests:

- Familiarity with researcher;
- Not all items culturally appropriate (e.g. specific types of animals);
- Distracters should not be used twice (some items tested powers of deduction).

Production test:

- Unambiguous images required (i.e. water or glass?);
- Completely separate testing materials needed

# Acknowledgements

We gratefully acknowledge the time and assistance provided by:

Adult and child participants across all communities

AIATSIS

Karin Moses

Jane Simpson

Mal Sutherland

Caroline Jones

Debbie Loakes

Joshua Clothier

# References


- McConvell, P. and N. Thieberger (2001) 'State of Indigenous Languages in Australia 2001 *Australia State of the Environment Technical Paper Series (National and Cultural Heritage) Series 2* Canberra: Department of the Environment and Heritage.


# Contact details


Gillian Wigglesworth

gillianw@unimelb.edu.au

The University of Melbourne, Australia