Language is caught not taught

Supporting parents in monitoring and understanding their child's functional listening skills to guide implantation decisions, maximise listening and learning opportunities and its effect on outcomes

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WHAT IS THE FUNCTIONAL LISTENING INDEX-PAEDIATRIC (FLI-P)?

A tool for children with hearing loss from birth through to 6 years of age

- To measure and track the development of listening skills in everyday contexts/real life contexts
- Based on stages of listening development (*See References & Acknowledgements)
- 6 phases, 64 items
- Early to advanced skills
- Beyond detection & discrimination
- Includes auditory skills required in every day listening situations including distance, noise, digital signal and subtleties of language conveyed through audition
- Appropriate for children with:
  - all levels & types of hearing loss
  - all devices
  - all levels of social and family context
  - with/without additional needs & medical diagnoses
  - a primary language other than English
- Has been in use with 0-6yr old children with hearing loss in cochlear implant & early intervention programs since 2013
- Have now collected group and individual data with over 2000 data points for 500 children
- **Statistical validation shows listening skills on the FLI at 3yrs are predictive of language skills at 5 years**

WHY FUNCTIONAL LISTENING?

- Children's worlds are noisy places
- Communication needs much more than 'detection' and 'discrimination'
- **Cognitive components of listening involving the brain, are key to communication development**
- Audiograms and speech perception testing cannot tell us how a child listens in daily life
- Understanding how children are using sounds in their everyday environments provides valuable information to guide the candidacy process
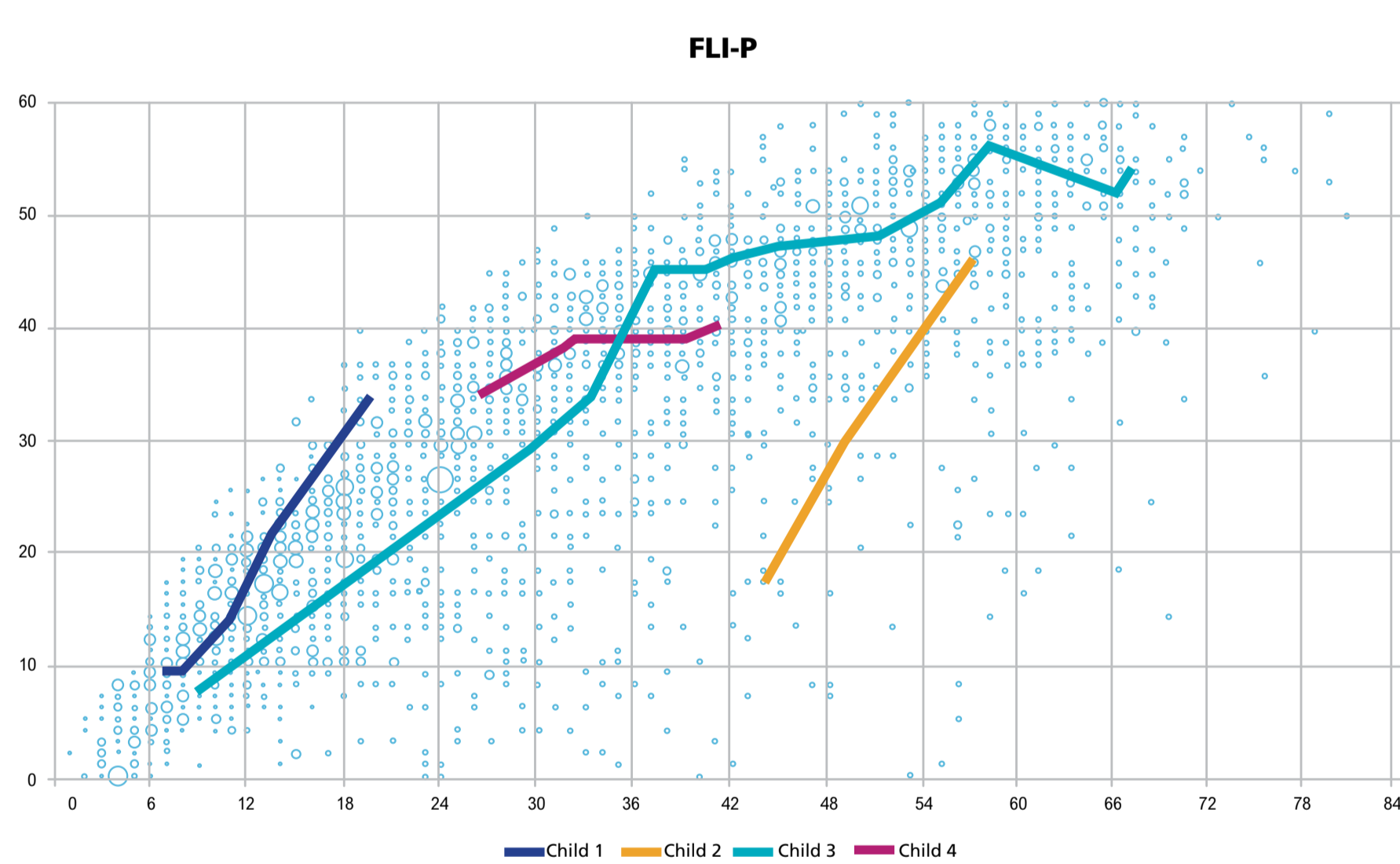
WHY PARENTAL INPUT?

- **Learning happens best in a child's natural environment**
  - Parents and caregivers are the best ones to support this
  - Shaping & influencing every day interactions provides the platform for constant learning and integration
  - Tools such as the FLI-P can support parents to:
    - identify and seize listening opportunities in everyday life,
    - provide motivation, and
    - reinforce focus on listening skill development

EXAMPLE:
'To demonstrate auditory association of environmental sounds (e.g. turns to a door on doorknock)' (1.1)
VS
'Knows what some of the sounds around us are'(2.0)

FLI-P 1.1 Vs FLI-P 2.0

The current study set out to redevelop the FLI-P to support parental use and reliability of use by clinicians.

AIMS:

Provide a parent friendly tool to:

- Improve knowledge of listening development
- Increase awareness of listening skills in everyday life
- Provide ideas to maximise listening and learning opportunities in everyday life
- Increase reliability by removing ambiguity of items

EXAMPLE:
'To identify a familiar concrete object from several related descriptors (open set)' (1.1)
VS
'Guesses what I'm describing from clues when I describe an object or an animal they know' (2.0)
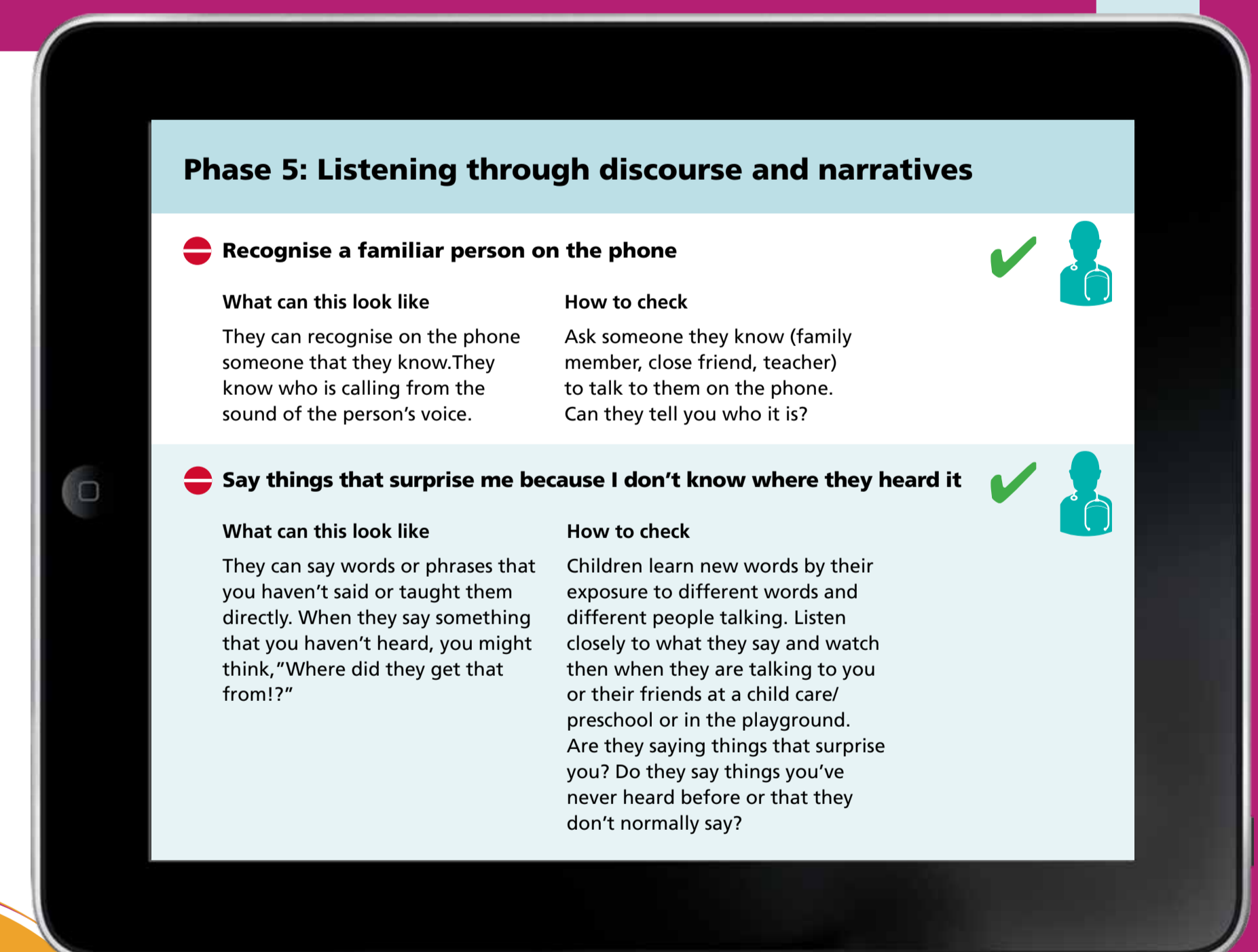
METHODOLOGY

Feedback on v1.1 was received from over 30 clinicians using the tool regularly as part of clinical sessions and candidacy.

- items were reviewed, reordered and reworded
- redundant items deleted
- additional items added in identified gap areas
  - i) Listening in noise
  - ii) Listening to digital signals
  - iii) Advanced listening skills

Data were collected comparing differences in a group of 107 children, of which 83 had at least 1 Cochlear Implant (CI). Children and families were from a range of geographic, socio-economic, cultural and linguistic backgrounds.

- Analysis was undertaken to explore the reliability of
  - a) v1.1 to v.20 when completed by the same clinician for each child, and
  - b) v2.0 when completed by a familiar clinician to when completed by a parent/carer.
- Qualitative information was gathered from parents and clinicians regarding use and impact on changes in knowledge, behaviour, decisions and clinical practice.

FLI-P (graph, x-axis 0–84, y-axis 0–60; Child 1, Child 2, Child 3, Child 4)

Phase 5: Listening through discourse and narratives

🔴 **Recognise a familiar person on the phone** ✓

What can this look like
They can recognise on the phone someone that they know. They know who is calling from the sound of the person's voice.

How to check
Ask someone they know (family member, close friend, teacher) to talk to them on the phone. Can they tell you who it is?

🔴 **Say things that surprise me because I don't know where they heard it** ✓

What can this look like
They can say words or phrases that you haven't said or taught them directly. When they say something that you haven't heard, you might think, "Where did they get that from!?"

How to check
Children learn new words by their exposure to different words and different people talking. Listen closely to what they say and watch then when they are talking to you or their friends at a child care/ preschool or in the playground. Are they saying things that surprise you? Do they say things you've never heard before or that they don't normally say?

RESULTS AND CONCLUSIONS

1.1 vs 2.0

- %age of total items acquired were calculated and compared.
- Statistical analysis indicated high levels of correlation using R-squared values.
- A number of clinicians scored very similarly across the 1.1 and 2.0.
- Results did vary for newer/less experienced clinicians. Discussing individual results identified that 2.0 seemed to be easier for newer/less experienced clinicians to accurately represent current listening skills.
- Given the aim of simplifying the FLI-P to increase understanding and reliability in scoring, this shows results in line with project aims.

FLI-P 1.1 vs 2.0 (scatter plot, x-axis FLI-P 1.1, y-axis FLI 2.0)

n = 38
y = 1.0493 x × 0.1306
R² = 0.907
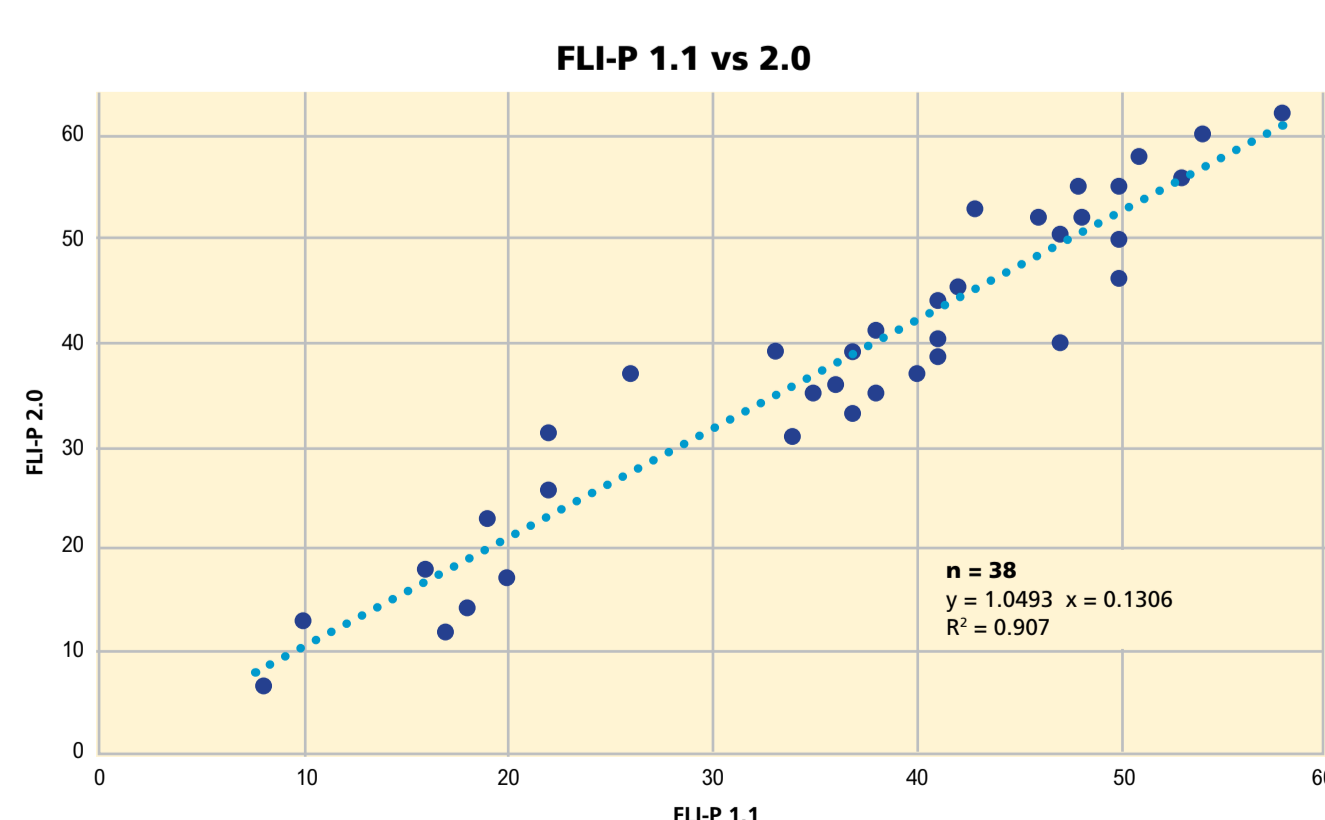
2.0 Clinician vs 2.0 Parent/carer

- n=20; (10 clinicians, 10 parents (1 x parent unable to complete due to IT error)
- Interrater agreement showed variance of parent score between 6 below and 10 above
- Equal numbers indicated more listening skills (n=4), and less listening skills acquired (n=4)

	FLI 2.0 Score Clinician	FLI 2.0 Score Parent	Variance of parent score
Child 1	50	60	10
Child 2	50	57	7
Child 3	12	15	3
Child 4	14	15	1
Child 5	55	55	0
Child 6	17	15	-2
Child 7	39	36	-3
Child 8	23	18	-5
Child 9	55	49	-6

'It's a really useful tool to see where my child is at with listening and to know if they're doing well' *(Parent)*

'This is what listening looks like. Why it's important, & the relationship it has to a child's everyday learning' *(Clinician)*

'It was really encouraging to tick things off as you know the hard work you are putting in is paying off' *(Parent)*

NEXT STEPS

Despite preliminary stage, and small (n), initial results indicate:

1. Strong correlations between 1.1 and 2.0 scores by clinicians on the FLI-P;
2. A range of scores by parents using the tool (some higher, some lower);
3. In line with research in similar fields, the use of the FLI-P by both parents and clinicians could provide
   a) valuable information in accurately determining a child's current level of auditory acquisition, contributing knowledge from different observations and context,
   b) serve to educate parents/carers, and newer/less experienced clinicians in developing a child's listening skills.

References & Acknowledgements

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