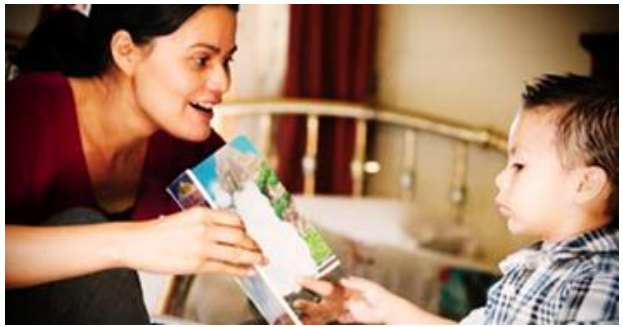
Validation of the Responsivity Training Scale (ReTS): A clinical tool to measure child directed speech in parent-child interaction



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How well does intervention for child directed speech (CDS) really work?

- Studies show coaching can change adult behaviours at a group level
- If these changes are substantial and long lasting … and the child can make gains … the child's language will progress at an accelerated rate.
- HOWEVER – Suskind et al (2016) showed a return to baseline levels of CDS four months post intervention.
  - ➢ We can't assume coaching will result in a lasting change in CDS behaviours.

We should care about measurement of child directed speech (CDS)

- Accountability of our profession
- Does this parent / adult need coaching in CDS?
- Adults need to know if they are changing their behaviours in everyday life and maintaining these changes over time
- Children develop naturally – was the change due to our intervention?
- If we can't prove it … our profession is in a vulnerable position

How often do clinicians report measuring CDS?

- Newbury and Sutherland (2020)
- Survey of 116 NZ and Australian SLTs
- 56/84 reported training CDS half the time or more
- Only a third reported often / always measuring CDS
- Range of measures used – usually informal observations and checklists
- Very few psychometrically validated measures used in the field
- Clinician concern over availability and suitability of measures

Why should we care about psychometric validation?

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- If it's worth measuring, it's worth measuring accurately
- Validity – are we measuring what we think we are measuring?
- Reliability – is the measure consistent?

- A literature search (Newbury and Sutherland, 2020) showed a dearth of psychometrically validated tools for CDS suited for clinical purposes
- Note the Hanen rating scales are not psychometrically validated

Aims of the current study

- Can we create a CDS rating tool that is:
  - suitable for clinic? (free, quick, easy)
  - for the clinical purposes of identifying a need for intervention, settings goals and measuring change?
  - for at risk / late to talk toddlers (not those with autism)?
  - with strong psychometric properties?

First attempt: Child Directed Speech Rating Scale (Newbury and Sutherland, 2019)

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1. Amount of talk
2. Proportion of talk (adult:child)
3. Adult pitches talk to level of child's understanding
4. Adult expansions and recasts
5. Adult using repetition to reinforce a new word
6. The effectiveness of the adult's questions to extend conversation
7. The effectiveness of the adult's comments to extend conversation
8. Adult rate of speech matched to child's ability to process and respond
9. Verbal responsivity of the adult
10. Adult is physically down at the child's level
11. Adult following the child's interest / attention
12. Adult praising the child

Responsivity Training Rating Scale (ReTS)

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Level 1: Adult is actively following the child's lead in play		
Never / rarely 0	Sometimes / often 1	Nearly all the time 2
Level II		
a. Adult talks about what the child is attending to		
Never / rarely 0	Sometimes / often 1	Nearly all the time 2
b. Rate the quality of the adult's talk (variety of language modelled)		
	Variety could improve 0	Excellent variety 1
Level III		
a. Adult expands the child's talk using a variety of sentence structures*		
Never / rarely 0	Sometimes / often 1	Nearly all the time 2
b. Rate the quality of the expansions (variety of language modelled)**		
	Variety could improve 0	Excellent variety 1

Do they need coaching ?

Learning to talk study (revisited) (Klee et al., 2015)

Method:

- 105 children from the “Learning to Talk study (Klee et al., 2015)
- Time 1 measures (2-2.5 years)
  - Parent child interaction sample during play (10 mins)
  - PLS-4 expressive and receptive language
  - Demographic information
- Time 3 measures (3.5 – 4 years)
  - PLS-4 expressive and receptive language

Language scores from Times 1 and 3 (n = 105)

	N	Mean (SD)	Range	N 1 SD ≤X
Time 1				
Age (months)	105	26.61(1.78)	24-31	
PLS expressive communication SS	105	110.14(22.29)	65-150	13
PLS auditory comprehension SS	105	108.89 (16.88)	67-150	11
Time 3				
Age (months)	105	45.42 (1.98)	42-50	
PLS expressive communication SS	103	119.68 (15.28)	70-148	5
PLS auditory comprehension SS	104	116.11 (12.33)	81-142	1

25 late talkers

ReTs scores for the sample (n = 105)

ReTS items	N	Mean (SD)	Range (possible range)
Level I Follows the child's lead	105	1.7 (.48)	0-2 (0-2)
Level IIa Talks about what child is attending to	105	1.75 (.48)	0-2 (0-2)
Level IIb Uses variety of language	105	.75 (.43)	0-1 (0-1)
Level IIIa Expansions	93	.84 (.37)	0-1 (0-2)
Level IIIb Variety of expansions	90	.53 (.50)	0-1 (0-1)
ReTS total percentage score	105	70.36 (21.01)	0-100 (0-100)

Psychometric properties of the ReTS (Terwee et al., 2007)

Psychometric property	Result	Comments
Criterion validity	r = .32-.52	Moderate to strong given the ReTS uses 2-3 point scales
Construct validity	The ReTS total score predicted 5.4% variance in expressive language outcomes at time 3 even when controlling for known predictors	Positive start – further hypotheses could be tested
Internal consistency – Cronbach's alpha	.75 (n = 91)	Strong, but the scale/sample was slightly smaller than ideal
Factor analysis	Loadings = .65-.79	Loads on a single factor of responsivity as designed
Interrater reliability	72-92% point to point agreement	Moderate to strong

General conclusions

- The ReTs has moderate to strong psychometric properties.
- It relies on some subjective interpretation
- Parent-child interaction is a dynamic
- Note we reduced the scales down from 5 points to 2-3 to improve interrater reliability (Martin & Bateson, 2007)
  - This is fine for the purpose of *setting goals*
  - Likely negative impact on its *ability to detect change*

Future research

- Next steps - trial it for clinical use with the target population
- How much verbal responsivity is enough for individual children?

Take home messages:

1. If you are working on CDS, think about how to measure it pre and post intervention as best you can
2. Don’t forget to consider the “big picture” of a child’s week

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Thank you

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