



Dosage factors influencing change in oral language following receipt of Launch to School

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Background

- Intervention dosage is an active ingredient that requires investigation
- Dose in interventions treating communication disorders is measured within and across sessions
- Some early research shows within session dose factors are more influential to outcomes.

What is Launch to School (L2S)?

- Multidisciplinary, group-based, manualised emergent literacy treatment for preschool children with communication disorders.
- 8 x 2-hour sessions delivered daily or weekly
- Written and developed at Liverpool Hospital
- Controlled trial within clinical practice

What is the impact of four dose elements on the oral language gains over three assessment times (pre, post and follow-up) made by children with communication disorders receiving L2S?

Method

Dose Frequency: number of teaching moments in a shared book read (within session dose)

| Teaching moments/ book read | n | Mean (SD) | Range | % of sample |
|--|-----|------------|---------|-------------|
| Least less than 150 teaching moments | 28 | 133 (8.95) | 114-146 | 26% |
| Mid Range between 150 -200 teaching moments | 34 | 170 (12.4) | 152-192 | 32% |
| Most greater than 200 teaching moments | 45 | 247 (36.4) | 207-325 | 42% |
| Overall Mean | 107 | 193 (54.5) | 114-325 | |

Dose Length: Length of the book reading session (minutes) (within session dose)

| Length of book read | n | Mean minutes (SD) | Range | % of sample |
|-------------------------------------|-----|----------------------|---------------------|-------------|
| Shorter less than 15 minutes | 68 | 12.7 minutes (2.44) | 8.09-14.44 minutes | 64% |
| Longer more than 15 minutes | 39 | 20.0 minutes (2.13) | 15.29-22.56 minutes | 36% |
| Overall Mean | 107 | 14.48 minutes (3.39) | 8.09-22.56 | |

Dose distribution: daily vs weekly (across session dose)

| Intervention distribution | n | % of sample |
|---------------------------|----|-------------|
| Weekly | 75 | 70% |
| Daily | 32 | 30% |

Dose Intervention Length: hours of session attendance (across session dose)

| Dose intervention length | Hours of intervention range | No. of children | % of cohort |
|--------------------------|-----------------------------|-----------------|-------------|
| Incomplete | 8 to 14 hours | 48 | 45% |
| Complete | 16 hours | 59 | 55% |
| TOTAL | | 107 | |

Other factors placed in the multilevel model

Control Variables



Age

2 age bands: over and under 5 years



Bilingual Language Status

Multilingual or English monolingual homes

Diagnosis



Language Disordered (LD)

85 or less on either CLS, RLI and or ELI. Many are comorbid SSD



Non-Language Disordered (Non-LD)

SSD and fine motor concerns

Oral Language Outcome:

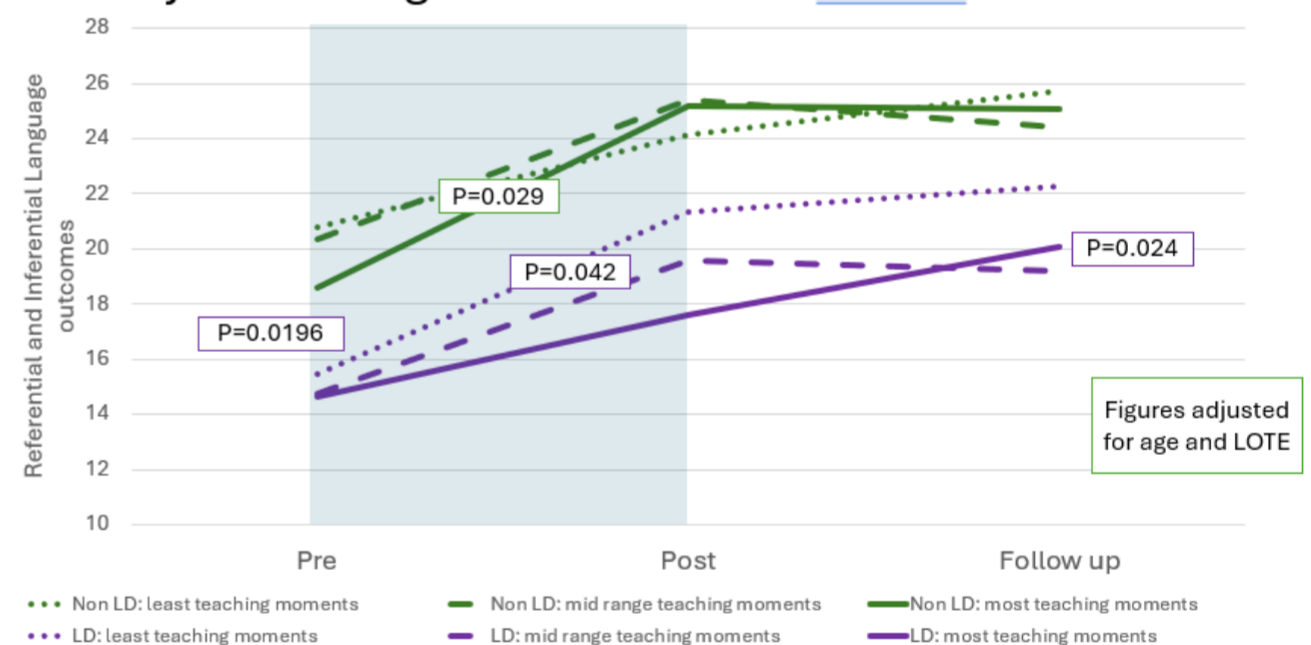
Quick Test of Language

Total raw score / 30.

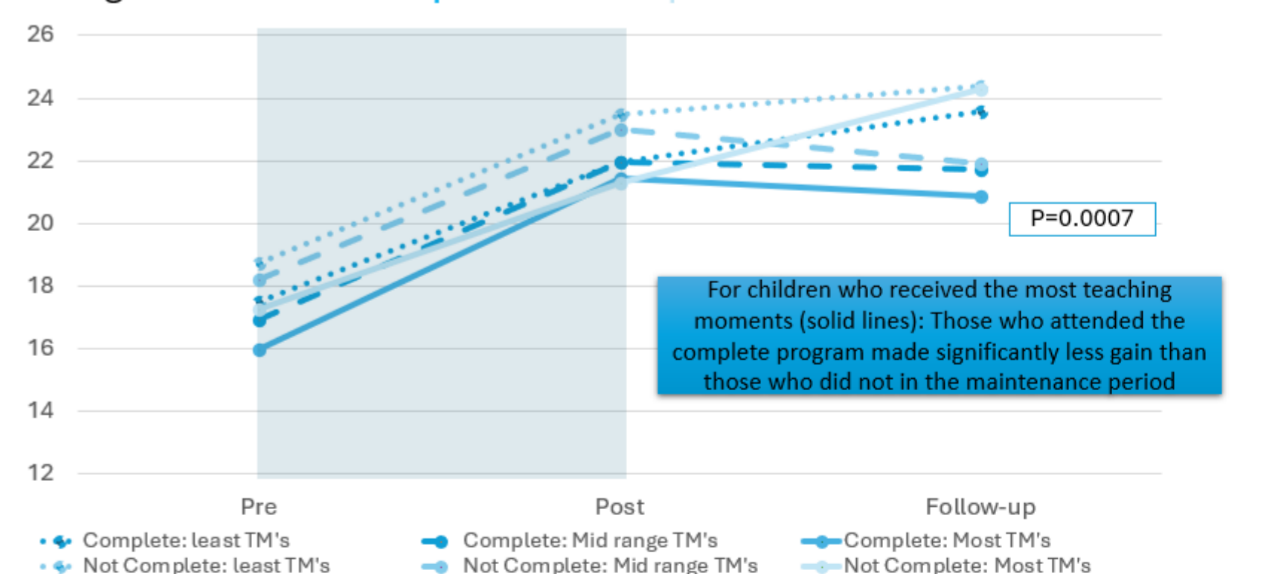
3 time points

Results

Dose and Diagnosis: intensity of teaching moments and LD/non LD



Dose Frequency and Intervention Length: teaching moments and complete/ not complete hours of intervention



Discussion and implications

- LD and non-LD children responded differently to the number of teaching moments received
- For LD children diminishing returns maybe the lower end ~1 teaching moment every 8 seconds – indicating an increased processing load reducing outcomes
- Dose frequency (teaching moments) - an *active ingredient*
- Generally high dosage of clinician talk
- Within session dose elements most influential to outcomes

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