

Supplemental Material S5. Explicit intervention to improve past tense marking for early school-aged children with DLD template for intervention and description and replication (TIDieR; Hoffman et al., 2014) checklist.

| TIDieR Item | Description |
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| 1. Brief name: Provide the name or a phrase that describes the intervention | Theoretically motivated past tense (ED) intervention (TheMEDI) |
| 2. Why: Describe any rationale, theory, or goal of the elements essential to the intervention | <p>TheMEDI was developed based on recommendations from the PDH which suggests children with DLD have impaired implicit memory and spared explicit memory. Strategies include:</p> <ul style="list-style-type: none"> - Explicit rule instruction - Repeated practice - Visual support <p>TheMEDI used the SHAPE CODING™ system (Ebbels, 2007) in combination with a systematic cueing hierarchy (Smith-Lock et al., 2015).</p> |
| 3. What: Materials: Describe any physical or informational materials used in the intervention, including those provided to participants or used in the intervention delivery or in training of intervention providers | <p>Shapes and arrows from the SHAPE CODING™ system were used as physical materials to teach past tense production (available here: https://www.moorhouseschool.co.uk/shape-coding). The arrows were modified to distinguish between different allomorphs for past tense (i.e., [d], [t], [əd] linked to orthography ‘d,’ ‘t,’ ‘ed,’ respectively).</p> <p>Intervention materials for activities from each session are reported in Table 2.</p> |
| 4. What: Procedures: Describe each of the procedures, activities, and/or processes used in the intervention, including any enabling or support activities | <p>Detailed reporting of the 10 essential steps to each session is available in Table 3.</p> <p>Procedures involved explicit rule instruction with visual support, repeated practice of past tense production for 50 trials with systematic cueing, and consolidation exercises.</p> <p>Individual session plans are available from https://www.languageandliteracyinyoungpeople.com/apps-resources</p> |
| 5. Who provided: For each category of the intervention provider, describe their expertise, background and any specific training given | Intervention was provided by an SLP (author) with five years’ experience working with early school-aged children with DLD. The SLP also completed the SHAPE CODING™ Part 2 advanced training with supervisor (SE). The fidelity checklist (Table 3) and session plans would facilitate implementation by other SLPs. |

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| 6. How: Describe the modes of delivery of the intervention and whether it was provided individually or in a group | Intervention was provided face-to-face in 1:1 sessions. |
| 7. Where: Describe the type(s) of location(s) where the intervention occurred, including any necessary infrastructure or relevant features | Intervention was provided at the participants’ school in a quiet space (e.g., onsite therapy room). The intervention could easily be provided in a clinic room. |
| 8. When and How Much: Describe the number of times the intervention was delivered and over what period of time including the number of sessions, their schedule, and their duration, intensity or dose | <p>Dose: 50 trials, in 45 minute (Calder et al., 2018) or 20-30 minute sessions (Calder et al., 2020, 2021)</p> <p>Dose frequency: 2x per week (Calder et al., 2018, 2020) or 1x per week (Calder et al., 2021)</p> <p>Duration: 5 weeks (Calder et al., 2018) or 10 weeks (Calder et al., 2020, 2021)</p> <p>Cumulative intervention intensity: ~490 trials over 7.5 hours (Calder et al., 2018), 1000 trials over 7-10 hours (Calder et al., 2020), or 500 trials over 3.5-5 hours (Calder et al., 2021)</p> |
| 9. Tailoring: If the intervention was planned and personalised, titrated or adapted, then describe what, why, when and how | One instance of tailoring (P6 in Calder et al. 2020), where trials were reduced to 30 per session, and the cueing hierarchy was simplified. This was to aid attention and engagement for this participant. |
| 10. Modifications: If the intervention was modified during the course of the study, describe the changes | <p>Dose was variable (Calder et al., 2018) to held constant at 50 trials (Calder et al., 2020, 2021) to evaluate optimal dose (Calder et al., under review).</p> <p>Intervention duration was increased from 5 weeks (Calder et al., 2018) to 10 weeks (Calder et al., 2020, 2021) to evaluate whether an increase would amplify intervention effects.</p> <p>Dose frequency was halved from 2x per week (Calder et al., 2020) to 1x per week (Calder et al., 2021) to evaluate efficacy with a clinically relevant frequency.</p> |
| 11. How Well: Planned: If intervention adherence or fidelity was assessed, describe how and by whom, and if any strategies were used to maintain or improve fidelity, describe them | Planned fidelity procedures included using session plans and intervention fidelity checklist throughout the program of research. All sessions were video recorded so blinded raters could score percentage accuracy of inclusion of elements from a random 20% sample. Inter-observer agreement of percentage accuracy was calculated using ICC (.976). |
| 12. How Well: Actual: If intervention adherence or fidelity was assessed, describe the | 97.95% accuracy suggests all procedures were implemented during most intervention sessions. |
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extent to which the intervention was
delivered as planned

Notes. DLD = developmental language disorder; ICC = intraclass correlation coefficients; PDH = Procedural Deficit Hypothesis; SLP = speech-language pathologist.

References

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