

A Deep Dive into the NELI

West et al. (2021). Early language screening and intervention can be delivered successfully at scale: evidence from a cluster randomized controlled trial. *Journal of Child Psychology & Psychiatry*, <https://doi.org/10.1111/jcpp.13415>

Most of you will know that the Government has committed an astonishing £17million to a national roll-out of the Nuffield Early Language Intervention (NELI) as part of its 'catch-up' programme in response to the Covid-19 pandemic. The focus on language development is extremely welcome, and the NELI has probably the most robust evidence base of any language intervention to date. It was developed by Maggie Snowling, Charles Hulme and colleagues over a 20-year period and has been subject to numerous, exceptionally rigorous trials, the latest of which was published earlier this year.

The basic structure of NELI is to deliver small group (3 per week) and individual teaching sessions (2 per week) over a 20-30 week period. Some trials have introduced NELI in pre-school, others have focused more on reception aged children. NELI is typically delivered by teaching assistants who receive training, and in the published trials, varying levels of supervision and support. This makes NELI a potentially cost effective tool for language improvement. NELI has consistently delivered small, but educationally meaningful, improvements on measures of oral language (particularly vocabulary) for children taking part relative to those who receive typical teaching and school support. These benefits appear to be maintained at least six months post-intervention.

NELI is not, however, a panacea nor is there evidence that it reduces the numbers of children with clinically significant language disorders that may require specialist interventions. Below I highlight some of the key points from the most recent West et al. trial – this is the largest trial of its kind and I think demonstrates some of the issues that we need to consider going forward.

- Thousands of children were screened by school staff on a new language app (LanguageScreen) and children scoring in the bottom 20% were randomly allocated to either receive NELI or teaching as usual
- The sensitivity, specificity, and positive predictive value of LanguageScreen is not reported here, so we don't know how accurate this tool is at picking up language disorder per se
- This is a huge study – there were ~570 children in each group – but it is not clear how many of those children had clinical diagnoses of language disorder, or how many had additional developmental issues
- The primary outcome measure was **expressive language only** (receptive language was not measured)
- The NELI is time and labour intensive and 'fidelity' to the programme is variable. In this study, data on delivery were missing for 20% of participants. For those who provided this data, 83% of group sessions were delivered, but only 65% of individual sessions were delivered.
- Expressive language outcomes were greater in the NELI group, with an effect size of .26. The impact of treatment was similar for children learning English as an Additional Language, and children with more severe language deficits made equivalent progress to those with less severe deficits. This is great news!

- But what does this mean in real terms? It means ~90% of scores in both groups overlap, but about 60% of children in the NELI group will have a score above the mean of the control group. (you can play around with effect sizes on this excellent website: <https://rpsychologist.com/cohend/>)
- In terms of raw scores, it is important to note that children in both groups show improvement over time – this should not be surprising as the children are older at time 2, and all children are exposed to good quality teaching. There is a slight advantage for children in NELI – raw score differences on the expressive language tests are about 2 points higher at time 2.
- As all tests are reported as raw scores, it is difficult to know what the overall level of impairment is, or how many children have moved from below a clinical cut-off to the typical range.
- However, given that the effects are the same across the distribution, this means that those children with the most severe language deficits to begin with will still have quite severe language deficits at the end of the intervention, despite making some progress.
- There were no differences between the groups in early reading outcomes.
- In this study there was no longer term follow-up.
- And out of researcher interest, such a large and inclusive trial was possible due to generous collaboration with schools and OPT-OUT consent, in which the Headteachers gave consent for child participation and signed forms from parents were not required.

Running intervention trials is notoriously difficult and I take my hat off to the research team for delivering such a large and meticulous study and reporting honestly treatment outcomes. I think it is difficult to figure out how children with DLD fare with the NELI, but my guess is that it will not 'ameliorate' the need for further intervention.

I also think the NELI is a powerful reminder of just how hard it is to shift child language outcomes. There just is no quick fix and we need to be planning for on-going maintenance and additional supports to maximise the benefits of this initial language boost. I hope that future studies will look carefully at other factors that help us to understand response to treatment. Such studies do require schools to get involved with research, but hopefully we can all benefit from such collaboration.

In summary, I think NELI is best viewed as a Tier 2, or targeted, intervention that can be delivered by schools and does not require speech-language therapy support. It can provide a small, but potentially educationally meaningful boost to child language. However, it won't solve the challenges of DLD on its own. Speech-language therapists and schools must work together to figure out what added value specialist services can provide to maximise the investment in NELI, to benefit those children with more severe and persistent language needs.