DART project

If you are reading this summary of our project as the parent of a child who took part in one of the work packages, then we would like to say a big thank you. We appreciate your help and your contribution to this important research. If you are reading this summary as an interested educational practitioner, parent or member of the general public then we would like to thank you for your interest.

Executive Summary

Context

A quarter of children leave primary school without having achieved the expected standard in reading (Department for Education, 2022). It is crucial that we identify children at risk of reading difficulties early in their school experience, so that appropriate support can be put in place. Current screening practices involve assessing reading ability itself or related skills such as letter knowledge or vocabulary. However, these measures are static, assessing a child's existing knowledge, which is a product of their ability to learn and their experiences.

Opportunities to learn vary greatly between children; children from disadvantaged backgrounds or those for whom English is an additional language may have had less opportunity to learn the foundation skills of reading in English. Dynamic assessment (Grigorenko & Sternberg, 1998) offers a potentially fairer screening method, measuring a child's capacity to learn while completing a task. In systematic reviews of the existing literature we found that dynamic assessments of reading-related skills explained differences in children's reading growth even after accounting for variance associated with static measures (Dixon et al., 2022b) and achieved good identification accuracy for later reading difficulties, when used alone or in combination with static measures (Dixon et al., 2022a). However, there was a lack of evidence from the UK context, for skills relating to reading comprehension and for children from diverse backgrounds.

Aim

Our systematic reviews of the literature identified the potential for using dynamic assessment in the screening process for reading difficulties. The overarching aim of the DART project was to create computerised dynamic assessments of learning, which if shown to be effective screeners, could be developed in future work as low-cost screeners for use in schools. The research was conducted in three work packages.

1. Dynamic assessment of decoding with children in reception, focusing on early reading ability.

2. Dynamic assessment of sight word learning with children in year three, focusing on the development of more skilled reading.

3. Dynamic assessment of vocabulary learning with children in year four, focusing on reading comprehension.

Research Questions

1. Do dynamic assessments correlate less strongly with socio-economic status and English language proficiency than static measures?

2. Does learning in each of the dynamic assessments predict growth in reading ability over time?

3. Can dynamic assessments accurately screen for later reading difficulties?

    a. How do they compare to static measures?

    b. Do they improve screening when added to static measures?

Method

Each work package used the same longitudinal design, with two assessment time points. Children were first assessed using a battery of static tests (to measure reading ability and traditional predictors of reading) and one dynamic assessment. At the second time only the reading ability tests needed for diagnostic classification were completed.

Key findings

Performance on the dynamic assessments was only weakly to moderately correlated with socio-economic status and English language proficiency. The static measures were also only weakly to moderately correlated with socio-economic status but more strongly related to English language proficiency. This suggests that our dynamic assessments offer a less biased approach to screening for the increasing number of children with English as an Additional Language (EAL) entering primary school.

All of our dynamic assessments predicted unique growth in reading ability after controlling for demographic factors and static tests:

1. The dynamic assessment of decoding predicted growth in early word reading.

2. The dynamic assessment of sight word learning predicted growth in reading accuracy and fluency.

3. The dynamic assessment of vocabulary learning predicted growth in reading comprehension.

All of our dynamic assessments achieved excellent or outstanding levels of accuracy as screeners for later reading difficulties and two showed potential to add value to a battery of static tests for children with EAL (decoding and vocabulary learning). Data from a sub-sample of non-readers suggest that administering the decoding task earlier in the school year, as originally planned, could improve screening accuracy for all reception children.

Future direction

The DART project has provided evidence of 'proof of concept'.

We now need to work in partnership with educators to establish how dynamic assessments of decoding and vocabulary learning may fit within existing practices in schools and determine for what age group and when in the school year our dynamic assessments should be administered to maximise their value.

An additional cycle of participatory co-design work with children and educators is needed to refine the presentation and delivery of the dynamic assessments on an accessible, stable and low-cost platform, that would be suitable for use in schools.