The Overcoming Disadvantage in Early Childhood Study

Evaluation of the Australian Literacy and Numeracy Foundation's Early Language and Literacy Program

Summary Report

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Executive summary

The Overcoming Disadvantage in Early Childhood (ODEC) study is a longitudinal evaluation of the Australian Literacy and Numeracy Foundation's (ALNF) Early Language and Literacy (EL&L) program. The study was designed to answer the research question: What is the effect of the EL&L program on the development of language and literacy skills in preschool aged children?

An integral component of this study was to develop a new measure of oral language and literacy – the Early Language and Literacy Developmental Index (ELLDI). The ELLDI was developed in recognition of the need for a best-practice measure of oral language and literacy that was fit for purpose. The measure needed to:

1. be used by educators to monitor children's progress over many years (from before preschool to the end of the lower grades of primary school) and be accurate enough to be used to provide feedback and design interventions on learning.

2. be suitable for use in a research study asking about the average learning trajectories of groups of children and the net effect of an intervention on learning.

3. be usable into the future by ALNF as a core part of their program, including being used as an adaptive formative assessment, linked to a described scale, and also allow for future development including the addition of new assessment material.

The ELLDI, therefore, is internationally unique as it describes a progression of oral language and early literacy for 2–5-year-olds.

Early Language & Literacy (EL&L) program

The EL&L program is a language and literacy intervention created by ALNF. It operates on a program logic whereby the teaching capacity of educators[1] is developed through a nationally accredited Certificate IV course including training and on-site mentoring, aimed at improving language and literacy knowledge, planning, integrated programming and curriculum implementation, and everyday pedagogical practices in education settings. Educators' increased capacity is applied in everyday practice and pedagogy to improve the learning outcomes of children.

The EL&L course is drawn from speech and language pathology and education, particularly research in the science of reading and effective practice of educator professional development (PD). The science of reading synthesises extensive empirical research to identify the language and literacy skills that underpin reading development. This research stresses the importance of the explicit teaching of six components of reading: oral language, phonological awareness, phonics, vocabulary, fluency, and comprehension. Added to this, mentoring provides educators with opportunities to review their implementation of EL&L and reflect on how this is impacting children's learning.

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[1] When discussing the EL&L program the term educator includes teachers, paraprofessionals, and non-qualified staff across learning contexts.

Overall study design

This summary report documents the sum of work completed across the duration of the study from 2018-2022[2]. The design of the study was based on the principles of a longitudinal outcome evaluation and had three components:

1. Design of the outcome measure: the ELLDI

2. Interim results and recommendations

3. Final results, recommendations and reporting.

Design of the ELLDI

The ELLDI was designed to meet the needs of good quality research *and* formative practice. To do this, it is necessary to bring together: (1) cutting-edge psychometric and assessment development methods seen in large-scale assessment and national assessment programs with (2) authentic interactions between adults and children in early childhood settings.

The ELLDI is not a static test or a checklist, but rather is an interaction between an adult and a child: reading a picture book; telling stories; and responding by speaking and pointing (and later, when children are more advanced and typically in school, reading and writing). Children's responses are captured, encoded by an expert administrator (including by educators when used formatively) and scaled using item response theory to yield a linear (interval) measure. By tailoring the set of items that are used, the assessment can be used for

research, population measurement, or as a formative assessment in the classroom.

Information about the relative challenge of each item and task on the measure can be used to provide insights into the sequence of learning that children typically move through and to describe how learning changes as children grow. This also allows the assessment to be targeted to provide the right amount of challenge to individual children. Because children don't have to do the same activities or items, the assessment can be tailored to children's needs. This has the added benefit of improving measurement efficiency whereby better targeting minimises the uncertainty in estimates of children's abilities without requiring a longer assessment.

ACER test developers undertook a review of existing assessment frameworks and adapted the Longitudinal Literacy and Numeracy Study (LLANS) framework (Meiers et al., 2006), as the basis of the initial description of key skills and abilities within the domains. The LLANS study provided the blueprint for national *on-entry* assessments including The Early Start program in Queensland (Queensland Department of Education, 2023) and the Best Start school-entry assessment in New South Wales (NSW Department of Education, 2023). It also led to the LLANS: Transitions from Preschool to School (LLANS: TPS) study, that developed measures of children's literacy development at the end of preschool.

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[2] For a copy of the full report visit
https://research.acer.edu.au/early_childhood_misc/32/

In this study, the conceptual framework aligns with the 'Big 6' (Konza, 2014) and is described down, to more foundational learning levels. A new set of assessment items and materials were developed to target earlier in children's learning and development. This is then connected to the other materials developed to ensure that the beginning point is highly relevant and connected to children's learning in preschool and the early grades of primary school.

This assessment design is a significant innovation for the early years sector – both for researchers and for educators. The construction of such an assessment can challenge the sector to advance towards using learning progressions to understand how language and literacy develops over time, with a common language of learning. This translates into educators being able to pinpoint what knowledge and skills children have in order to target their teaching at what comes next, and carefully monitoring and mapping progress over time.

Evaluation design

The 571 children who participated in the study were recruited from 12 centres implementing the EL&L program (intervention centres) and 10 that did not implement the EL&L program (control centres). The sample consisted of a mix of preschools and long day care centres located on the Mid North Coast of New South Wales. Intervention centres were selected based on staff members having completed the EL&L training, and the EL&L program being implemented in their classrooms.

During the study, the impact of the intervention on children's language and literacy development was measured at four timepoints using the ELLDI. That is, children's longitudinal progress was observed. Along with this, a set of centre and family questionnaires were

used to collect contextual and background information, and the quality of the teaching practice in settings was also observed.

The study is observational: because the EL&L program is already well established, having been in operation in the region for more than 7 years at the start of the study, the children who attend the intervention centres do so because of the availability of these programs to their families. To address the risk of selection bias – where some external, extraneous factor causes a difference between intervention and control groups – two strategies were implemented. The first is the recruitment of a matched control group. The second is the collection of a rich set of covariates to control for other factors that also affect learning and development – relating to the child, family, home environment, local community, and centre. The control group is matched on a set of observed characteristics, including community SES, the National Quality Standard Rating of centres, the centre type and size.

Key findings

Design of the ELLDI

In each year of the study, ACER test developers created new assessment materials. This included new items/tasks, as well as resources including picture books, story prompts, and rubrics. After data was collected in the field, psychometric analysis was undertaken to validate the new materials and equate only the best content to the ELLDI Scale.

The measure developed is reliable and valid, capturing skills across the language and literacy strands of print conventions, phonological/phonemic awareness, phonics, vocabulary, reading comprehension, oral language and writing for children from age 2 to age 8 (Cloney et al., 2022; Cloney & Picker, 2021). The measure has interval properties and can be used to describe a progression in learning across major transition points. New assessment material can be developed and equated onto the measure and the tool can be used formatively in ECEC settings and in primary school classrooms as well as for research and population reporting.

The observed learning trajectories are curvilinear. That is, children grow fastest when they are youngest, and the rate of growth slows as they transition into school and across the first three years of school. This is a pattern typically seen in cognitive and academic development.

Interim results

Children in the intervention group are significantly more disadvantaged than those in the control group. This is because ALNF operates its EL&L program in a particularly disadvantaged sub-population of the mid North Coast. Despite efforts to select a similar group of centres as intervention groups, there was not a perfect match. The intervention sites tend to operate in the lowest socio-economic status (SES) neighbourhoods and are generally rated as lower quality on the ACECQA National Quality Standard, both more likely to be *working towards* the standards, and less likely to be *exceeding* the standard. Reflecting this, the children who are attending these services are also more disadvantaged.

The intervention group comes from households with lower incomes that are more likely to be single carer households. Their families are more likely to experience unemployment and to have less education attainment. Children in the intervention group also receive less educational stimulation at home (e.g., being read to).

This is compounded by the general findings that many children in the region do not receive the universal entitlement to 15 hours of preschool education in the year before school. The reason for this is unknown, however, in this study, more than 30% of children entitled to universal access to preschool did not receive 15 hours of formal ECEC programming per week.

Taken together, it was predictable that the intervention group entered the study with lower oral language and literacy skills than their peers in the control group.

After 1 year, the children in the intervention group, caught up to their peers. In 2019 there was no difference between the two groups after accounting for background factors. This represents a positive piece of evidence of the potential for the EL&L program to narrow and even close the gap.

Final results

The gains made in the first two waves of the study are not maintained when contextual factors – disadvantage – are not controlled for. By the end of the study, children from the intervention group are significantly behind their peers, though not as much as at entry to the study. That is, some of the gains are maintained. When we control for contextual factors, in a linear growth model, the children from the intervention group are not significantly behind their peers. That is, the achievement gap is explained by contextual factors – particularly disadvantage.

To explore why the benefits of the program are outweighed by contextual factors, analysis of the treatment effect is undertaken. This analysis shows that very few children in the study were exposed to the intervention for an extended period: 47 (out of 558) children were exposed to low-intensity[3] (or greater) for all four cycles, 15 (out of 558) children were exposed to continuous medium or high levels of intervention intensity beyond the first two years of the study. No children were exposed to continuous high levels of

intervention intensity beyond the first two years of the study.

As children moved out of preschool settings and into school, they tended to move into sites that either did not offer the EL&L program, or who had previously been engaged but had since either disengaged completely (e.g., due to staff turnover) or reverted to low levels of intensity[4].

In essence, due to the complexity and size of the school system around transition/entry to school, the intervention is in effect a 12-month intervention on preschool-age learning. There are very few children who receive intensive literacy intervention across preschool and the formative years of early primary school. Without continuous intervention, the observed effect is as expected: the intervention cohort, disadvantaged compared to the control group, do not maintain the early gains observed as they receive much less specialised programmatic support once they transition to school.

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[3] That is, the implementation intensity of the program was at least "low" for all years of the study.

[4] They had a trained EL&L educator at the service but did not implement the program consistently or frequently.

Recommendations

Interim recommendations

1. Implement the use of the ELLDI assessment with the EL&L program as a formative assessment.

   a. Construct a described scale to simplify the interpretation of the results of the ELLDI.

   b. Construct supporting materials to support the interrogation of ELLDI results for individual children – particularly to quantify growth, and to highlight strengths and limitations.

The authors note that all interim recommendations have been implemented and documented by ALNF to support improved professional discussions, explicit planning and learning outcomes (Groom et al., 2022).

Final recommendations

1. **Increase children's exposure to the intervention in the preschool year** (and earlier) through intensifying the program expectations (hours per day and days per weeks). Such intensity is essential for consolidation and mastery of language and literacy skills when it is likely that most children will not get long-term exposure and support in the primary school years under the current scope of the program.

2. **Build further quality control into the EL&L program** to ensure fidelity of implementation and maximise engagement with the program. For example, ALNF mentors could use measures of pedagogical quality as a lens to focus and improve practice (Cloney & Hollingsworth, 2018). If one or more ALNF staff were trained to use the Classroom Assessment Scoring System (CLASS) (Pianta et al., 2009), they could continue to support the implementation of the EL&L program while also supporting educators to improve the quality of their interactions with children within and beyond EL&L experiences. In this context, interactions refer specifically to the pedagogical strategies used by educators to model language, to give feedback and to introduce and connect concepts (Levickis et al., 2023).

3. In addition to this, ALNF may elect to **use more general measures of ECEC program quality**, including the MELQO MELE (UNESCO, 2017) to monitor or track quality in its settings. This could be done referring to external benchmarks to ensure the quality in EL&L sites is high. An observation schedule was developed as part of the ODEC study, and this could be deployed or adapted as required.

4. **Continue to embed use of the ELLDI into the EL&L program**. The ELLDI becomes a part of the all-important plan, teach, assess and reflect cycle for effective teaching. This should be embedded in the EL&L program.

5. **Use the ELLDI Scale to describe a learning progression and develop tools to orient educators to the learning being observed**, what comes next, and which EL&L materials and strategies are well-targeted to these needs. Such a learning progression has the potential to empower educators with a deep understanding of the reciprocal relationship between language and literacy, and how they develop. It could help educators rely less on repeatedly assessing children or teaching to the test and build their confidence in making judgements about how children's language and literacy skills are progressing.

6. **Use the ELLDI to link to the learning outcomes of children on NAPLAN**. For example, with children who are in the lowest performance group (those in NAPLAN bands 1 (below the national standard) and 2 (at the national standard)), the ELLDI can be used to describe the specific skills and abilities these children demonstrate. Importantly, the significant overlap in the ELLDI and NAPLAN Reading means that children's developmental trajectories on the ELLDI can be used to identify children requiring additional support to meet national minimum standards on NAPLAN well before they arrive at school. This may involve empirical work, including formal equating where possible.

7. **Expand the scope of the program to cover more school sites** or to implement intervention models that follow the child, no matter their location.

8. **Broaden the use of the ELLDI to support referral into high quality preschool programs**, including those offering the EL&L program. If, for example, maternal and child health nurses could identify children with, for example, persistent ear infections, they could administer the ELLDI and refer children into preschool programs where they may otherwise miss out.

9. **Translate and adapt the ELLDI into other languages, including Indigenous languages**, to support children who do not speak English at home. Such approaches can allow children to demonstrate that they are acquiring the language skills that will later help them to successfully transition to the language of instruction in school.

10. **Develop a numeracy measure that assesses mathematical literacy** – to analyse, reason, and communicate mathematical ideas and to solve problems in a wide range of contexts. Like literacy, numeracy is a general skill that is applied in many curriculum contexts and is essential for lifelong success.

Conclusions

There is a crisis of learning in the regions where ALNF is operating the EL&L program. Children's learning on the Mid North Coast of NSW, an area typified by significant disadvantage, is lower than we would expect to result in strong outcomes in school. This is true for all children in the study – intervention and control. This study estimates that only approximately half of students enter school ready to engage and achieve minimum expectations in the Foundation Curriculum.

The EL&L was shown to have significant promise, including the potential to narrow gaps between children from disadvantaged backgrounds and their relatively more advantaged peers. This is contingent on access to the program. Despite efforts to provide programs to children, the EL&L program operates in a small fraction of the schools and services in the region. When children move services or schools most fall-out of the program. While it may be assumed that children get the EL&L program for five (or more years) - from the year before preschool to grade 3 - most children get no more than 12 months of support (this is because they transition out of preschool into a school that is not providing EL&L or some EL&L sites have disengaged from the program, for example due to staff turnover).

The EL&L program demonstrates a capacity to close achievement gaps for children who access the program. This is notable given the highly disadvantaged population in the intervention group. These children are disadvantaged even relative to the local community that is almost entirely in the lowest 25 per cent of SES in Australia. The sample of children who entered the EL&L program in 2018 began the study behind their peers. After 12 months of exposure, the

learning gap closed for children in the EL&L program. Over time, these gains were lost as children left intervention programs and entered business-as-usual schooling.

This is coupled with an underinvestment in intervention in general. This should be a stark insight to those wishing to successfully intervene in children's early learning through the school system. The quantum of investment needed to reach children in a sustained way must ensure the support can either:

1. follow the child (no matter which school they attend or move to) or,

2. ensure there is sufficient coverage of schools so that children do not fall through the cracks.

This requires an expansion of coverage beyond the scope of the current EL&L program.

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Introduction

This report provides a summary of the evaluation of the Australian Literacy and Numeracy Foundation's Early Language and Literacy program (Cloney, Picker, Jeffries and Anderson, 2023). The report begins by providing the study context, outlining the aims, research question and detailing the data collection methods.

Study rationale

The Overcoming Disadvantage in Early Childhood (ODEC) study addresses the importance of identifying targeted intervention programs that mitigate the adverse impacts of poverty during early childhood, to provide more equitable opportunities for children. The identification of such programs is necessary to encourage investment in early childhood and care programs, so substantial advantages are gained by the public (e.g., greater employment, fewer arrests, and crimes). The aim of the ODEC study is to understand the impact the Early Language and Literacy (EL&L) program has on children's early language and literacy development, by answering the research question: What is the effect of the Early Language and Literacy (EL&L) program on the development of language and literacy skills in preschool aged children? This question will be answered by analysing children's short-term and medium-term language and literacy growth from Preschool to Grade 3.

EL&L intervention program

The EL&L intervention program is a Certificate IV course that combines best practice in speech pathology, along with education theory and practice to improve educators' ability to target early language and literacy learning (0-8-years-old), using quality, evidenced based learning experiences. The program draws on scientific reading research and the crucial components of the reading process to help children become proficient readers. To meet children's specific learning needs and enhance engagement, experiences are multisensory and multimodal, with a focus on the teaching of oral language, phonological/phonemic awareness, print awareness, vocabulary, early writing and listening comprehension skills. In the preschool year the EL&L program is integrated into daily practice, with the recommendation that children receive approximately 2-hours of language and literacy experiences across the day. In primary school it is recommended that children receive the EL&L program for a minimum of 2-hours a day. Educators who complete the six-unit course are provided with developmentally appropriate resources that support explicit and systematic language and literacy teaching activities, along with site visits from an EL&L trained coach for in-class mentoring.

Method

Sampling

The study focused on children participating in formal ECEC programs in the year before school. The **target population** was therefore all children, participating in preschool programs where ALNF was operating its EL&L program on the Mid North Coast of New South Wales.

A sampling frame was established by using the NSW Department of Education Early Childhood Education Directorate's list of registered Early Childhood Education and Care (ECEC) services (2017)[5]. ALNF identified an **achieved population** of 14 services that were participating in the EL&L program across the Mid North Coast region of NSW (in the Nambucca, Kempsey and the former Greater Taree local government areas (LGAs)).

The **target sample** was 20 preschools[6]: 10 EL&L services, and 10 control services drawn at random. The control sites were stratified to closely resemble the population of EL&L sites (matched-controls) and replacement sites were identified for each sampled control service so that any refusals to participate could be replaced with a like-service. The sample was drawn from Kempsey, Nambucca, Port Macquarie-Hastings, and Greater Taree LGA's. Selecting control sites from these LGA's produced a good balance in terms of size and SES and there were sufficient sites to have replacements for most control sites.

All sampled sites were invited to participate by simultaneous email and hard-copy mail-out of a letter of invitation, plain language statement, and consent form. Of the 25 sites sampled, 22 were recruited to form the **achieved sample**, resulting in 12 EL&L (intervention) sites and 10 control sites. Some of those selected were replacement sites, due to numerous different reasons, including refusal, unable to contact, perceived disruption to planning, bereavement and participation in another study. Overall, the sampling process yielded an acceptable sample of services operating in the Mid North Coast of New South Wales. The characteristics of the services were in line with expectations and met the specification of the design.

Table 1 summarises the final numbers of participants in the study. It is important to note that this is the achieved sample, not the count of data records. For example, not all families would complete a questionnaire, or not all children would be present on the day/s when fieldworkers visited the centres[7] to conduct assessments. The final numbers of completed assessments, and other data records is given in the results section.

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[5] See file "1List of ECE services in NSW for ACER 20171108.xlsx"

[6] Preschool is the name in New South Wales for pre-primary education, available nominally to all children in the year before starting school (approximately age 4). Preschool can operate in long day care, stand-alone preschool, and school co-located settings.

[7] The term 'centre' refers to ECEC educational settings, including preschools, as well as school settings.

Table 1. Summary of the achieved sample in the ODEC study

Sample group	n centres	n directors	n rooms	n educators	n children	n caregivers
EL&L	12	12	14	14	263	263
Control	10	10	13	13	308	307
Total	22	22	27	27	571	570

Instrumentation

The study included the use of a range of instruments to understand children's language and literacy development, which encompass information about their home life, health and education.

Child literacy and language assessment

A new, bespoke assessment tool, the Early Language and Literacy Developmental Index (ELLDI) was developed, during the study, based on the assessment framework of the ACER Longitudinal Literacy and Numeracy Study (Khoo & Meirs, 2006). The ELLDI was designed using cutting edge psychometric methods, embedded in developmentally appropriate and authentic early childhood practices involving word play, picture books, storytelling and other language and literacy experiences. The ELLDI assesses many of the key components of the big six (oral language, phonemic awareness, phonics, comprehension, vocabulary and fluency) during an approximately 20-40 minute, one-to-one interview between an adult and child, to capture their development.

Over of the course of the study six new ELLDI assessment booklets were developed, including new items, stories, picture prompts and other supporting resources to capture children's language and literacy development. Booklets were created in pairs with each new booklet containing a new set of items and marking guides, some of which were unique to a particular booklet and others were used across both booklets. Added to this were a set of items and marking guides taken from the most recently administered assessment booklets, which linked and progressed the language and literacy constructs being assessed to capture and map children's growth. The assessment booklets accurately measure child growth, capturing a breadth of language and literacy skills spanning a long development period (preschool-grade 3).

Each ELLDI assessment booklet included items to assess children's oral language development. These items involved the use of visual stimulus, such as picture prompts, picture books or a sequence of images to prompt children to talk about what they could see, what they had experienced or to tell a story. The child's expressive language was audio recorded and analysed using a set of oral language coding rubrics, developed by ACER.

Early childhood and care quality

Two observational tools were used to provide details about the quality of education and care in the study centres.

Room record

The fieldwork team used a Room Record form to capture information about the visit, basic room details, along with observation information, such as key practices, activities and materials available for the children to use. The observational items were taken from the MELQO Measuring Early Learning Environment (MELE) Classroom Observation Tool, a well validated measure of ECEC general environment and interaction quality. Most observations using these items were scored on a 1-to-4 scale, which was completed twice, toward the start and end of the centre visit.

Classroom quality

The Classroom Assessment Scoring System (CLASS) is a widely used and well validated observational tool designed to identify the quality of interactions between educators and children in an EC room or classroom setting (Pianta, et al., 2008). It is based on developmental research and theory showing educator-child interactions are foundational to children's learning. The CLASS consists of three domains (Emotional support, Classroom observation and Instructional support) and 10 dimensions. CLASS observations are conducted in four-six cycles of 20-minutes. During each cycle the trained observer records detailed notes about the instructional interactions under the 10 dimensions, along with the start and finish time, the content focus, groupings and the number of educators and children being observed. At the completion of a cycle, the observer's notes are used to make a judgement about the quality of the interactions (1-2 low; 3-5 medium; 6-7 high) for each dimension.

Questionnaires

Questionnaires were completed by directors (centre directors and school principals), educators and parent/guardians. All questionnaires collected information about the demographics, level of education and work experience of the person completing it. The focus of the director questionnaire was collecting details about the centre/school, staff, child numbers and training and use of the EL&L program. The educator questionnaire gathered information about the children in their room/class, types and quantity of professional development attended and, training and use of the EL&L program. The parent/guardian questionnaire was broken into two parts, with part one focusing on the child, collecting details about child demographics and care arrangements. Part two collected general family information, parent/guardian wellbeing, as well as details about child health, temperament and behaviour and the home learning environment.

Fieldwork

The ODEC fieldwork was conducted in discrete stages across four regions on the Mid North Coast of New South Wales in the Taree, Port Macquarie, Kempsey and Nambucca Heads regions from 2018-2022[8]. In 2018 the assessment of children using the ELLDI took place in preschools and childcare centres, as did observations using the Room Record

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[8] There was no fieldwork in 2020 due to the COVID-19 pandemic.

form and the CLASS. In 2019 children were assessed in preschools, childcare centres and schools and by 2021-2022 all assessments took place in schools.

ELLDI fieldwork training and assessment

ACER and local mid north coast staff were recruited for their experience and qualification involving working with children (see Table 2 for a breakdown of the ODEC fieldwork team). Each year, the fieldwork cycle began with ELLDI training facilitated by a literacy and ELLDI expert. The training involved the fieldwork team taking an in-depth look into the latest ELLDI assessments, the research base, the concepts being assessed and practice administering and scoring each item, along with understanding the aims of the study, the fieldwork protocol, the use of the Room Record form and logistics. ELLDI training concluded with a visit to an early childhood centre or school to practice administering the assessment with children. Any training in the administration of the ELLDI incorporated discussions about the importance of the script and moderation of scoring children's responses. Moderation was extended to the fieldwork, whereby the fieldwork team regularly discussed child responses to build a common understanding about items and item answers, to ensure consistency of ELLDI item scoring.

Table 2. Yearly ODEC fieldwork staff breakdown

Fieldworkers	2018	2019	2021	2022
ACER staff	4	7	2	5
Local staff	2	1	4	1

Four assessment cycles were conducted across the duration of the study, which involved fieldwork staff visiting study children in their education centre. Visits were organised in advance, to check attendance of study children, to ensure a space for the assessment and to let the centre know the number of fieldworkers attending. All visits complied with centre rules and study procedures. In instances where children attended the centre on a different day or they were absent, the fieldwork team arranged to visit the centre on a second occasion in an attempt to interview as many children as possible. Assessment cycles generally took place during term one and/or term two of the school year and Table 3 outlines the number of children interviewed each year.

Table 3. Children interviewed during assessment cycles

	2018	2019	2021	2022	Total
Assessments completed	379	445	485	446	1755

CLASS observations

CLASS observations were conducted by three ACER CLASS qualified observers in December 2018, in 20 of the 22 study ECEC centres. The aim of the CLASS observation visits were to analyse interaction quality between children and educators, as well as between children, to understand the reach of the pedagogies taught during the EL&L training in regular classroom experiences. The observation visits took place across a two-week period and involved observations of the 'regular' program for that day. Observation visits were organised so two observations could be completed in one day. During an

observation visit, the CLASS trained observer took notes based on the 10 CLASS dimensions related to instructional exchanges between the educators and children. As stated previously observations were conducted in cycles, where a judgement was made about the quality of the interactions for each dimension, at the end of each cycle. The CLASS trained observers were not privy to the centre's study status and were randomly assigned to study centres.

Oral language analysis

The recordings of the children's expressive language responses to the visual stimulus, were analysed using an ACER developed oral language development rubric. The oral language rubric considered expressive language from a range of skills such as, structure and detail, relevance to the prompt and articulation. The post-fieldwork analysis was conducted by ACER researchers after they had completed a total of three hours of coder training. Training was conducted by an early years language and literacy specialist. The first two hours of the training focused on understanding the task, the oral language skills being assessed, the differences between scoring levels and the team collaborative coding a number of child responses. Discussions during the collaborative coding were used to moderate discrepancies in scoring, this was achieved by talking through the discrepancy to clarify understandings of the skill, the indicator on the rubric and how the two aligned. Before completing the first coding training session the team individually coded and moderated a number of child audio files and at the same time, they were given access to a set of practice audio recordings to code prior to the final moderation session. During the one-hour moderation session the team shared audio files to seek advice from the team about the scoring of skills that did not easily fit a coding level.

Data entry

ACER researchers followed a data entry process to manually enter paper records (e.g., an ELLDI assessment book or questionnaire) by locating the primary key in the data-entry pro forma and entering all data, in order, as set out in the paper document. Moderation was completed by the researchers double entering 5% of assessment booklets and oral language scoring to check the quality and accuracy of each process. The quality of data entry was considered high as all entries were below the criterion thresholds (e.g., the acceptable total rate of keystroke errors was 1% and the actual entry error rate was <0.5%). Data validation followed the double data entry process to check the correctness of variable value ranges, that unique identifiers were unique and that there were no missing values.

Analytic approach

The EL&L outcome measure was scaled using item response theory (IRT) in ACER ConQuest version 5 (Adams et al., 2020). A one parameter logistic (1PL) IRM – the many facets model (facet model) (Linacre, 1994) – an extension of the Partial Credit Model (PCM) (Masters, 1982) was fitted to the data. This model allowed the responses (at all time points) to all the items, to be decomposed into an item difficulty component (the location of the items on the oral language continuum) and some average deviation from that difficulty at each time point. That is, a concurrent calibration of all the items with multiple response vectors from each participating child (i.e. a 'long' format dataset).

At each stage of the study, **calibration models** were estimated, and the psychometric properties of the items were examined to determine which items should be retained and whether new items were required to reflect the longitudinal nature of the study. Several psychometric properties were examined to help with this process, including item facility, item fit, item-rest correlations, item characteristic curves (ICCs), and differential item functioning (DIF) (e.g., gender DIF and cycle DIF). The results of the calibration model estimated on completion of the entire study, based on adequately functioning items across all cycles of the study, are presented in this report.

The item parameters from the calibration stage were taken as fixed and used as anchors in subsequent models. A **scaling model** – in this case, a four-dimensional 1PL item response model (one dimension for each time point) - was estimated. That is, the time facet was removed from the specification and each time point was modelled as a separate dimension[9]. The removal of the time facet allows the average growth in ability to be expressed as a fixed effect in the latent abilities. As such this model captures growth over time, and the full variance-covariance matrix explaining the relationships amongst growth over time.

Given that there was a need to generate statistics for sub-groups of the population (e.g., intervention intensity, gender, age), these group structures need to be taken into account when producing ability estimates (Wu, 2005) by including conditioning variables in the scaling model. This is done by adding a latent regression to the item response model, which includes several key regressors including child, parent, educator/teacher and director/principal variables, resulting in a **population model**. Using this approach avoided model mis-specification and an under estimation of the true regression coefficients (Marsman et al., 2016; Monseur & Adams, 2009; Wu, 2005). All secondary analysis was then run using plausible values (PVs) drawn from the population model and pooled to yield parameter estimates with unbiased (for missingness) standard errors (Adams et al., 1997).

Data manipulation and integration with ACER ConQuest was undertaken in R (R Core Team, 2022) using the library conquestr (Cloney & Adams, 2021). Linear mixed models (LMMs) were fit to the data to estimate the growth trajectory of each child, and the influence of key demographic and contextual variables on both their initial ability and growth over time. These types of models were used to account for the complex residual variance-covariance structure in the estimation of data with repeated observations within children (O'Connell et al. 2017). Running these models for each plausible value separately and applying appropriate pooling techniques using the Multivariate Imputation by Chained Equations (MICE) package (van Buuren & Groothuis-Oudshoorn, 2022) results in unbiased population estimates of the means, variances and covariances at each of the different time points. Models were estimated using lmer, a function in the lme4 library (Bates et al., 2023).

Several models were fit, starting from simple through to more complex, including an empty model (to assess the suitability of random effects), random intercept fixed slope models (linear, cubic and quadratic growth), random intercept random slope model (cubic growth), and conditional latent growth models[10] (intervention model and multivariate

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[9] This approach results in unbiased population estimates of the means, variances and covariances at each of the different time points.

[10] Note: all conditional models are fit on the preferred growth model: random intercepts and fixed slopes.

model: Intervention plus Gender, Age, ATSI, SDQ - Externalising behaviour, Parent/Caregiver Education, Parent/Caregiver Employment). The growth models were coded in a way that the intercept of the regression model is the ability of children at the end of the study, making it highly interpretable. The regression coefficients reflected the average ending point for the two groups (Intervention and Control) and their average growth between cycles. As additional fixed parameters were added to the model, the conditional effect of these covariates were added.

Results

Descriptive analysis

The results provided in this section refer explicitly to information gained during the first year of the study, 2018. The classification of children, educators and directors to EL&L and control groups was based on the sampling frame[11].

Sample characteristics

Of the 571 children who were drawn to participate in the study, 559 completed at least one assessment during the life of the project.

Background information about the **children** was gained from parent questionnaires in 2018. Table 2 provides a breakdown of characteristics of the children, disaggregated by EL&L and Control groups. Overall, the samples were quite similar, with a slightly higher representation of children identified as Aboriginal and/or Torres Strait Islander in the EL&L group.

Table 4. Characteristics of the children in the study

Child characteristics	EL&L	Control
Total child participants	296	263
Returned parent/caregiver questionnaires (N)	172	192
Returned parent/caregiver questionnaires (%)	58	73
Gender (female %)	49	46
Age at 1 May 2018 (months)	53	53
Minimum age at 1 May 2018 (months)	31	26
Maximum age at 1 May 2018 (months)	65	64
Identified as Aboriginal or Torres Strait Islander (%)	24	15
Speaks a language other than English at home	9	14
Attendance at formal ECEC (mean hours per week)	21	19
Informal care (mean hours per week)	11	4
Ear infection in last 12 months (%)	12	13
Low birthweight (% <2500g)	7	7
Social and emotional difficulties (%)	18	16

In 2018, children were, on average, exposed to more than 15 hours of formal ECEC programs per week. However, this included any attendance at family day care. It is also important to note that the distribution was skewed, meaning a significant number of

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[11] In later multivariate analyses, the concept of fidelity of implementation/intensity of the EL&L intervention is considered based on qualitative judgements and ALNF records. This results in, for example, one intervention site being classified as having zero intensity, and two control sites being classified as also having zero intensity, but also as having been exposed to the program but never implementing it.

children did not receive the statutory entitlement of 15 hours of pre-primary program in the year before school. In this study 38% and 30% in the control and EL&L groups respectively received less than 15 hours. This pattern is summarised in Figure 1, where a dashed vertical line indicates the threshold exposure of 15 hours per week. This is in part because of the inclusion of children younger than 4 (e.g., children in 3 to 5-year-old long day care rooms) in this study; 12% of children were not old enough to attend preschool.[12] Subtracting those children not eligible for preschool indicates more than 30% of children eligible for preschool in NSW did not receive 15 hours of formal ECEC program per week.
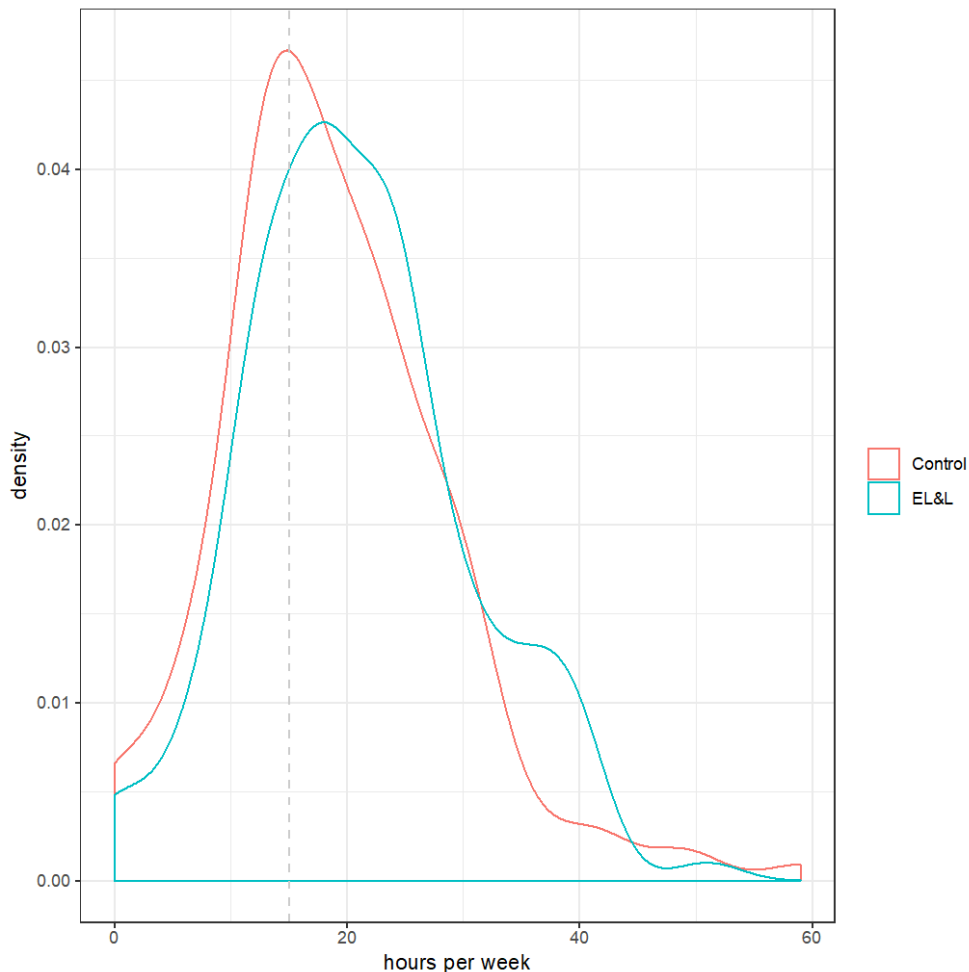

Figure 1. Distribution of children's exposure to formal ECEC programs (including home-based) by intervention group

As with the children in the study, the **families** that participated were mostly similar (Table 3). This was especially true for education, and household size. The Control sample did appear to have higher proportion of families with many children's books (more than 50) and more main caregivers in any employment. Conversely, the EL&L sample had a higher proportion of single parent households (22% v 12%).

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[12] "Children can enrol from the beginning of the school year if they turn four years of age on or before 31 July that year." https://education.nsw.gov.au/teaching-and-learning/curriculum/preschool/enrolment

Table 5. Characteristics of the main caregivers in the study and their households

Main caregiver and family characteristics	EL&L	Control
Total participants	296	263
Returned parent/caregiver questionnaires (N)	172	192
Returned parent/caregiver questionnaires (%)	58	73
Born in Australia (%)	85	88
Less than upper-secondary education (%)	20	18
Currently employed (%)	52	55
More than 50 children's books at home (%)	61	64
Single parent household (%)	22	12
People in household (mean)	4	5

All ECEC **directors** and **educators** responded to a questionnaire in 2018 relating to themselves and their centres and classrooms. Any proportions of results should be interpreted with caution, as there was only ten and twelve control and EL&L sites respectively, and so small differences appear as large per cent differences. Overall, there was good balance between EL&L and control sites. However, as expected, EL&L sites had more exposure to the EL&L intervention:

- 80% of EL&L sites had run the intervention for less than 2 years

- 80% of EL&L sites (compared to 10% in control sites) had a director working towards or completed their Certificate IV in EL&L

- 85% (compared to 8% in control sites) of educators were working toward or completed their Certificate IV qualification in EL&L

- Nearly 90% of educators had been visited by an EL&L mentor in the last two years

The above highlights the slight blurring between the intervention and control groups – some intervention sites had exposure to the intervention. As a result, additional information was collected at the end of the study to gain a better understanding of the intensity of the intervention for each of the sites involved in the study. ALNF assigned intervention intensity ratings to each EL&L site for each year of the study (None, Low, Medium and High). Further, continuity of this intensity was also explored to try and unpack the impact that having a more intense focus on EL&L in a site for longer continuous periods might have on children's growth.

In 2018, educators were asked about frequency with which they taught generic language activities with children. Results suggested that educators in the intervention group explicitly taught children language and literacy more often than educators in the control group. The difference however was small. Of note was the largest differences related to the use of writing, sounding out syllables, and phonics. It is clear that intervention educators were indicating that they undertook oral language and literacy instruction on most days.

When asked about specific EL&L resources, as expected the responses were different. Only a small number of control group educators (between zero and one) reported using

any ALNF resources. The majority of EL&L practitioners relied mostly on Book Kits, Tommy Turtle, Sound/Spelling Sticks, and Sound Cards.

Both intervention and control sites undertook similar rates of professional learning and development. This was not unexpected as PD is required for ECEC educators. The largest difference between the two groups is the higher rate of professional mentoring in the intervention group – this is a specified part of the EL&L program.

In terms of the amount of time spent on professional learning, educators were asked to estimate the total number of hours that they had spent on PD activities in the past twelve months (i.e., during 2017). Educators were spending relatively little time on professional learning activities – most educators indicated they had spent 16 to 35 hours in the past year.

The topics of focus in professional learning activities were mostly the same between groups, with the EL&L educators more likely to focus on oral language and literacy and less likely to focus on transitions to school. In addition, the intervention group were more likely to focus on health and hygiene issues as well as how to work with children from non-English speaking backgrounds. This might point to some relative disadvantage on the EL&L group relative to the control group.

Classroom characteristics and quality was measured by the CLASS, scaled according to the instrument manual (Pianta et al., 2008). Simple Ordinary Least Squares (OLS) regression models looking at the mean difference between EL&L sites and control sites were not significant: on average the quality of the sites were similar, without controlling for other factors. There were differences in the variation of the distribution of quality of intervention and control group, with EL&L sites generally showing greater variation. For example, the highest quality instructional support was seen in an EL&L site.

Key contextual covariates

Frequencies for key contextual **categorical** covariates from the 2018 cohort were examined. Notable and significant (p < 0.05) differences (using a chi-square test with Yates' continuity correction) between the intervention and control groups are:

- Aboriginal and Torres Strait Islander – Control group had 16.3% Aboriginal and Torres Strait Islander children, Intervention group had 27.9% Aboriginal and Torres Strait Islander children (x^2 = 6.8773, df = 1, *p* = 0.00873)

- Parents highest level of education – Parents of children in the control group had completed higher levels of education (on average) than parents of children in the intervention group (x^2 = 6.0468, df = 2, *p* = 0.04864)

- Parents relationship status – 16.8% of parents of control group children are not living with partner/no partner, compared with 32.9% of parents of intervention group children (x^2 = 10.308, df = 1, *p* = 0.001324)

- Parents household income – 24.1% of parents of control group children earn less than 50k, compared with 40.8% of parents of intervention group children (x^2 = 11.622, df = 2, *p* = 0.002995)

- Educators highest level of education - Educators of children in the control group had completed lower levels of education (on average) than educators of children in the intervention group (x^2 = 30.906, df = 2, *p* = 1.945e-07)

- Number of children in class – Children from the control groups were enrolled in larger classrooms (on average) than intervention group children (x^2 = 169.01, df = 2, *p* = 2.2e-16)

- Educators and ALNF – Educators of children in the control group were less likely (on average) to have heard of ALNF EL&L or be working towards or have completed EL&L training, compared with educators of children in the intervention group (x^2 = 99.551, df = 1, *p* = 2.2e-16)

- Directors' highest level of education - Directors of children in the control group had completed higher levels of education (on average) than directors of children in the intervention group (x^2 = 54.112, df = 2, *p* = 1.777e-12)

- Directors' level of experience - Directors of children in the control group had more experience (on average) than directors of children in the intervention group (x^2 = 41.758, df = 1, *p* = 1.033e-10)

- Directors and ALNF – Directors of children in the control group were less likely (on average) to have heard of ALNF EL&L, compared with directors of children in the intervention group (x^2 = 127.62, df = 1, *p* = 2.2e-16)

Descriptive statistics for key contextual **continuous** covariates from the 2018 cohort were also examined. Whilst there are some small differences in the means of these variables for intervention and control groups, none of them are statistically significant (0.05 level).

Item Response Theory (IRT)

At each stage of data collection, IRT models were fit to the data and item reviews were undertaken to ensure that items with inadequate psychometric properties were removed from the analyses and assessment forms for subsequent stages of data collection. To reflect the longitudinal nature of the study, additional items of increasing difficulty (including items from new sub-domains (sub-strands)) needed to be included in the assessments. Examples of psychometric analyses used to determine item functionality were item fit, item discrimination, differential item functioning (DIF) and test reliability. Following the last round of data collection, further item review activities were undertaken and a final set of adequately functioning items (N=234) from across all four rounds of the study were retained and included in the calibration. Several different item treatments were applied to the items included in the final calibration model, including splitting items to be cycle specific (where, for example, suspected curriculum or program effects are observed), recoding items (e.g., collapsing response categories), and item bundling (i.e., combining multiple items to form a single item). This is done to address misfit of the model to the observed data. In extreme cases items were removed from the calibration (that is removed from the assessment).

The final models (calibration model and population model) converged adequately, with diagnostic plots indicating that stable solutions for item difficulty, likelihood and variance had been reached (i.e., incremental change over successive iterations became

increasingly small). Test reliability values ranged from 0 to 1, with values approaching 1 indicating good reliability. For the **calibration model**, person separation reliability estimates were provided. The maximum likelihood estimate (MLE) for test reliability was 0.904. The Warm's mean weighted likelihood estimate (WLE: Warm, 1989) for test reliability was 0.902. For the **population model**, expected a-posteriori/plausible value (EAP/PV: Adams, 2005) reliability estimates of 0.89, 0.87, 0.88 and 0.85 were produced for cycle 1 (2018), cycle 2 (2019), cycle 3 (2021) and cycle 4 (2022), respectively. EAP/PV reliability is a measure of the degree to which the item responses increase the certainty in the estimate of the case abilities.

Item fit statistics were produced to indicate how well the model fits the data. Weighted (infit) mean square (MNSQ: Wu, 1997) estimates were used here with values approaching 1 indicative of well-fitting items, with values in the range 0.8 to 1.2 generally considered adequate. The MNSQ values for the final calibration model range from 0.72 to 1.33. The mean (SD) of these statistics was 1.00 (0.14).

Item-person maps provide a graphical representation of the targeting of an assessment (i.e., how well the range of difficulties of items aligns with the range of abilities of children). Figure 2 provides an indication of the targeting of the assessment items in 2018. Note that the plotted red points represent the average item difficulty ("delta dot"). When the locations of the thresholds are included for partial credit items, the distribution spans much longer. This would show that those students at the higher end of the scale would still be challenged by some thresholds located above their location on the scale. These results should be taken together with the high reliability results and the later picture of items thresholds (see Figure 4) that show there is good targeting of the test to the abilities of the sample of children in the study. The range of items included in the 2018 assessment adequately cover the range of student abilities from that cycle. The test targeting for later rounds of the study were adequate but slightly less items were targeted towards the highest ability children in 2021 and 2022.
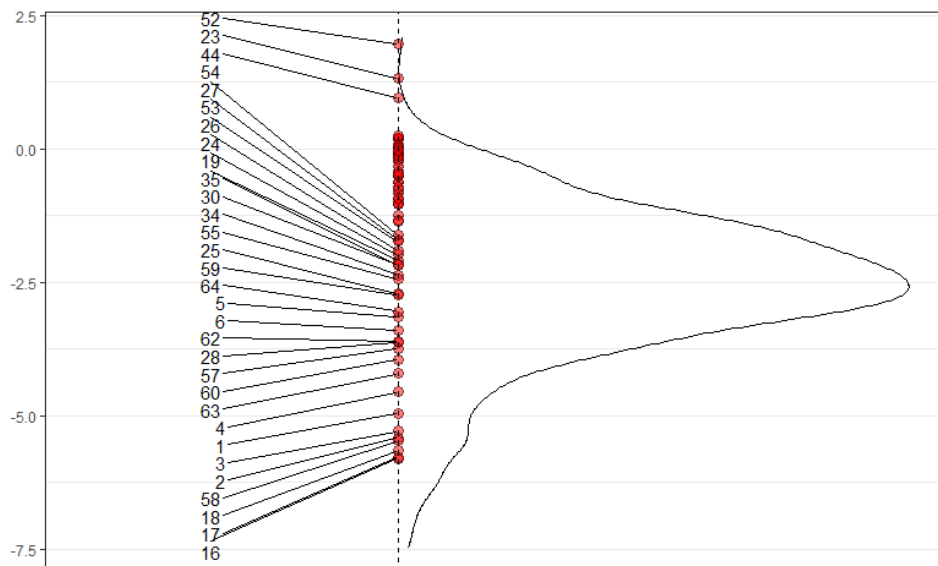

Figure 2. Item-person map for 2018

Unconditional correlations between cycles (lower left of the diagonal), covariances between cycles (upper right of diagonal) and variances of cycles (last row) can be seen in Table 6. Correlations between cycles are reasonable, with the estimates decreasing as the time between cycles increases with the largest correlation between 2021 and 2022 which was only one year apart, and lowest correlation between 2018 and 2022 which was four years apart.

Table 6. Unconditional correlation/covariance/variance matrix

Cycle	(1)	(2)	(3)	(4)
(1) 2018		1.24	0.95	0.89
(2) 2019	0.76		0.99	0.84
(3) 2021	0.68	0.86		0.80
(4) 2022	0.59	0.68	0.75	
Variance	1.98	1.34	0.99	1.15

Secondary analysis

Longitudinal analysis

The focus of secondary analysis is to build towards a growth model that adequately reflects the trajectories of children in the study and explores which key contextual covariates of interest impact the growth of sub-groups of the sample. Initially, an unconditional latent growth model is estimated which establishes the most appropriate model to build on for conditional latent growth modelling.

As a first step, it is useful to visualize the distribution of abilities of the sample at each cycle (see Figure 3). This shows that while the average abilities of the children included in the study increases over time, there is significant overlap in the distributions across the cycles. For example, the highest ability children in 2018 are at or above the lowest ability children in 2022.
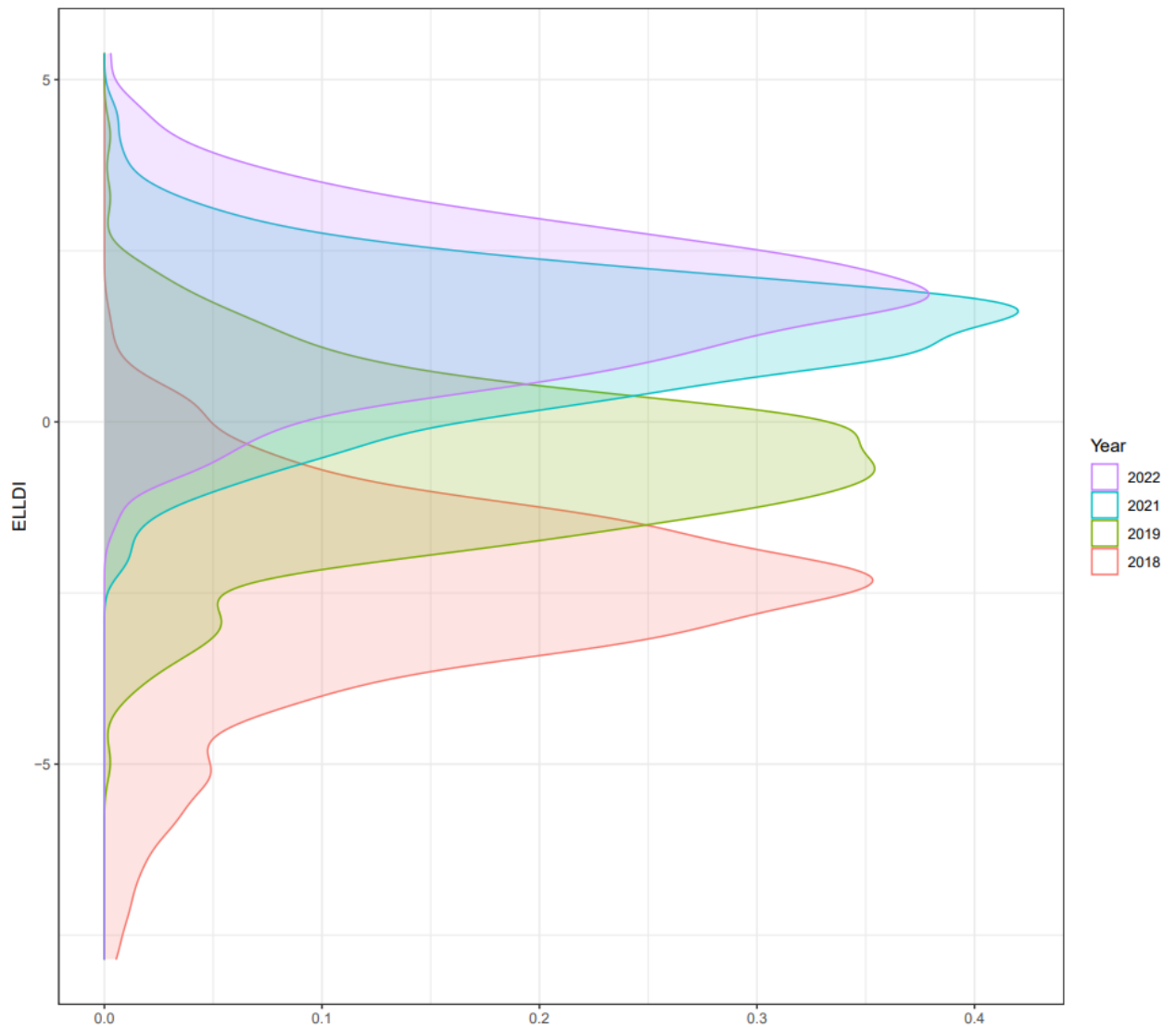
Figure 3. Density plot of abilities by cycle

In order to compare the average ability of children from the intervention and control groups across each cycle (in logits), ordinary least squares regression was used. Taking the set of plausible values drawn from the population model and using appropriate pooling techniques a model was fit to each timepoint with a categorical predictor of intervention or control group membership along with gender and age at assessment included as covariates in the model. The conditional means and variances can be used to test the difference between the groups at each time point (see Table 7).

As can be seen in Table 7, the intervention group started behind the control group and caught up in 2019 after a year of exposure to the program – approximately one month of growth (value-add). The difference between the groups re-emerges 2 years later with the control group demonstrating higher oral language and literacy skills. The gap between the groups remains smaller (yet still statistically significantly different) at the end of the study than it was at the beginning in the study.

Table 7. Mean abilities of children by intervention and control group and cycle

	2018	2019	2021	2022
Control	-2.323	-0.405	1.373	1.968
Intervention	-2.540	-0.517	1.211	1.78
Delta	-0.217	-0.112	-0.162	-0.188
SE	0.096	0.093	0.077	0.083
p	0.031	0.193	0.043	0.031

To further explore the growth trajectories of the children included in the study, latent growth modelling approaches were used. The first conditional model explored was one which included an effect for the intervention (i.e., Intervention vs Control). As can be seen in Table 8, there is a statistically significant (0.05 level) difference between the control (reference) group and intervention (contrast) group from 2018 (B=-0.217, SE=0.097, p<0.05), with the average ability of intervention children lower than the control group.

Table 8. Regression estimates for conditional latent growth model – Intervention effect

Term	Estimate	SE	t	p
Intercept	1.863	0.069	26.862	0.000
Cycle	0.710	0.092	7.735	0.000
$Cycle^2$	0.143	0.055	2.575	0.010
$Cycle^3$	0.060	0.009	6.498	0.000
Intervention	-0.217	0.097	-2.246	0.025
Cycle * Intervention	-0.096	0.138	-0.699	0.485
$Cycle^2$ * Intervention	0.002	0.082	0.028	0.978
$Cycle^3$ * Intervention	0.004	0.014	0.326	0.744

The second conditional model built upon the first by adding additional key covariates of interest. The statistically significant (at the 0.05 level) fixed effects are:

- Gender – Males demonstrated lower average ability than females

- Age at assessment – Older children demonstrated higher average ability

- Aboriginal and Torres Strait Islander – Aboriginal and Torres Strait Islander children demonstrated lower average ability than non-Aboriginal and Torres Strait Islander children

- SDQ (Externalising behaviour) – Children who demonstrated higher (concerning) levels of externalising behaviour demonstrated lower average ability than those who did not

- Parent/caregiver education – Children of parent/caregiver with university level education demonstrated higher average ability than children of parent/caregiver who had Year 12 education at most

- Parent/caregiver employment - Children of an unemployed parent/caregiver demonstrated lower average ability than children of an employed parent/caregiver

Of note is that in this model, once the strong disadvantage factors are added into the model, there is **no significant difference between children in the intervention and control groups**. That is, holding constant age, gender, Aboriginal and Torres Strait Islander status, child behaviour and temperament as well as parental education and employment, children in the EL&L group have caught up to their peers at the end of 2022. This is in stark comparison to earlier findings that show the EL&L group behind their peers. This is due to strong effects of disadvantage on learning as children from the most vulnerable groups miss out on important home and program inputs that lead to learning gaps.

Intervention Intensity

An alternate way of exploring the magnitude of the intervention is to consider the actual degree to which children were exposed to the intervention. That is, in the traditional intervention and control model, we assume that all intervention group children received the intervention. This is, of course, not true. There is an *intention* to treat the children in the intervention group, but what matters is the degree to which the intervention is faithfully implemented in all sites. The fidelity of the implementation needs to be evaluated in order to consider the actual treatment effect: that is the effect on the group of children who get high quality provision of the intervention for an extended period of time.

ALNF were tasked with evaluating the level of intensity of the EL&L activities in the intervention sites for each of the years in which data was collected, resulting in the population model variables ELLIntensity_2018, ELLIntensity_2019, ELLIntensity_2021 and ELLIntensity_2022. Each of these variables include the levels:

- 0 – Control
- 1 – None
- 2 – Low
- 3 – Medium
- 4 – High

The criteria for assigning a site to one of these levels is based on teachers, support staff and dosage (see Table 9).

Table 9. Criteria for rating intervention intensity

Intensity	Teacher	Support staff	Dose
High	≥1 Trained	Trained (sometimes)	Daily
Medium	New or partially trained	≥1 Trained	≤ Weekly
Low	Not trained	New or partially trained	Irregularly
None	None	None	None

Further to this, the concept of continuity of intervention intensity was explored. Several variables were created which reflected the extent to which children were exposed to different levels of intervention intensity from the beginning of the study and whether that intensity was sustained over time.

Descriptive statistics of ELLDI scores for each of these variables was explored, highlighting that:

- 47 (out of 558) children were exposed to some level of intervention intensity for all four cycles

- 15 (out of 558) children were exposed to continuous medium or high levels of intervention intensity beyond the first two years of the study

- No children were exposed to continuous high levels of intervention intensity beyond the first two years of the study

Contextualising findings

Statistical results from the ELLDI assessment can be used to describe the progressive sophistication of children's language and literacy growth from the measured knowledge, skills and abilities along a scale. The underlying item response model maintains a consistent level of difficulty order regardless of children's placement on the scale, enabling the development of a universal learning sequence (described scale), that is, on average, similar for all children. In education, described scales can be used by educators to pinpoint a child's development to get a sense of what they have learnt, what they currently know and what they need to learn next, along with understanding the general sequence of development for learning. Such a scale provides valuable information to inform targeted instruction with the aim of supporting scaffolding and consolidation of children's learning from their current level to the next. Added to this, a described scale also provides educators with a shared language to comprehend various oral language and literacy levels, promoting smoother educational transitions and informed discussions about children's capabilities and future challenges.

An ELLDI Scale

Table 10 presents the ODEC children's language and literacy development as a described scale, based on the results of the ELLDI from the four cycles of assessment. The levels of the measure are defined by the item locations (difficulty), transferred to Thurstonian thresholds, which are useful to interpret measures like the ELLDI as they represent cumulative probabilities. The ones used in this study are RP65s (response probability is set to 65%) - higher adjacent response categories on an item are also located higher on the measure: the RP65 of an item that is scored zero, one, two will have two thresholds: between zero and one, and between one and two and threshold two will always be above threshold one. In this example, the first threshold would be the location on the scale where the probability of being in the first response category is 35% and the probability of being in the second or third category is 65%. The second threshold is the location on the scale where the probability of being in the first response or second response categories is 35% and the probability of being in the third category is 65%. The RP65s therefore, represent consolidation of a skill: children located at the same level as

an RP65 can most likely demonstrate the underlying skill, as they are 65% likely to be able to demonstrate the skill. In this sense, the descriptions of the levels below, reflect something akin to mastery: children who are towards the top of these levels can most likely demonstrate the skills (consolidation) whilst the next level above reflects where they should be challenged to progress with scaffolded and integrated activities.

Table 10. ELLDI Scale.

Level	Location	Major literacy strands	Sub-strand	Skills
9	>689	Oral language	Expressive	Describes an image using complex sentences and a wide vocabulary. Provides coherence by linking ideas and describing relationships based on the image
8	619-689	Comprehension	Listening comprehension	Listens to a story and makes an inference drawing on subtle evidence from the text to justify their reasoning
			Reading comprehension	Reads a short information text and identifies the purpose of a common convention in a diagram (used to illustrate size) Reads a short story and makes a generalisation about several key events Reads a short information text and uses contextual clues to infer the meaning of a word used in an unfamiliar way
		Oral language	Expressive	Describes favourite picture using simple and compound sentences. Provides coherence using simple vocabulary and describing elements of the picture
		Phonics	Reading	Reads a sentence (12 words), including CVC and high frequency words accurately
		Vocabulary	Expressive	Generates names for up to 10 different things that can take us places
		Writing	Punctuation	Accurately punctuates a dictated sentence
			Spelling	Writes a dictated sentence (8 words), spelling all words correctly
7	564-619	Comprehension	Listening comprehension	Listens to a story and provides evidence to support a judgement about a character's behaviour when this is supported by clues in the text and makes familiar inferences Listens to a story and draws on personal knowledge and clues from the context to infer the meaning of uncommon vocabulary
			Reading comprehension	Reads a short, simple information text (88 words) and makes a simple inference combining prominent clues in an image and the text
				Reads a short, simple text (68 words) and infers a character's feeling when this is familiar, and clues are obvious

Level	Location	Major literacy strands	Sub-strand	Skills
		Phonemic awareness	Medial phoneme match	Consistently identifies whether multiple pairs of simple words have the same or different middle sounds
			Final blend: Phoneme deletion	Deletes the first sound in a blend at the end of a spoken word and says the new word
			Final phoneme match	Consistently identified whether multiple pairs of simple words have the same or different final sounds
			Final phoneme identification	Provides the last sound in a given simple word
		Phonological awareness	Rhyme	Produces two rhymes for a given spoken word
			Syllables	Counts the number of syllables in a one syllable word
		Writing	Formation	Forms letters using correct shape, size, and orientation
			Spelling	Writes a dictated simple sentence (3 words), spelling all words correctly
6	515-564	Comprehension	Reading comprehension	Reads a short simple text (2 sentences) and makes simple, familiar inferences based on everyday experiences (a character's action imply they are cleaning up)
				Reads a very short, simple text (2 sentences) and locates directly stated information
		Oral language	Clarity, volume, fluency	Speaks in a way that is clear and easy to understand. Uses volume and pace to emphasise meaning
		Phonemic awareness	Phoneme segmentation	Segments a short, simple 2-3 letter word articulating each sound separately
			Final phoneme deletion	Deletes the final sound of a given spoken word and says the new word
			Initial phoneme match	Consistently identified whether multiple pairs of simple words have the same or different first sounds
			Initial phoneme: word production	Produces a spoken word with the same first sound as the one provided
			Initial phoneme identification	Provides the first sound in a given simple word
		Phonics	Decoding	Matches a simple word with a suffix (a verb ending in 'ing') from a group of 4 to a picture, with multiple distractors
			Letter name	Names 20 alphabet letters (mix of upper and lower case)

Level	Location	Major literacy strands	Sub-strand	Skills
		Phonological awareness	Rhyme	Identifies words that rhyme from a set of given words or from a text
			Syllables	Counts the number of syllables in an open 3 syllable word (ba-na-na)
		Print conventions	Text awareness	Knows where to begin reading a story and where to go next when they get to the end of a line of text (return sweep)
		Vocabulary	Expressive	Names less common body parts (hip, spine) Names some less common objects (market, stall)
			Receptive	Follows temporal directions when the word 'after' is used in the middle of the direction
5	470-515	Comprehension	Listening comprehension	Listens to a story and draws an inference from simple clues in the text and illustrations (e.g., ideas, feelings) Listens to a story and identifies and connects several details stated in the text, about the same event
		Oral language	Clarity, volume, fluency	Speaks with a level of clarity but a few words maybe difficult to understand Uses some variation in volume and pace to emphasise meaning
		Phonemic awareness	Medial phoneme match	Identifies if a single pair of simple words have the same or different medial sounds when this is obvious
		Phonics	Decoding	Matches a simple word with a suffix (a verb ending in 'ing') from a group of 4 to a picture, with limited initial letter distractors
			Letter name	Names 13 alphabet letters (mix of upper and lower case)
			Letter sound	Provides phonemes for 7 letters
		Phonological awareness	Rhyme	Produces a single rhyme for a given spoken word
			Syllables	Counts the number of syllables in a closed 3 syllable word (af-ter-noon)
		Print conventions	Text awareness	Shows that reading goes from left to right
		Vocabulary	Receptive	Follows temporal directions when the word 'before' is used at the beginning of the direction
4	419-470	Comprehension	Listening comprehension	Listens to a story and makes simple inferences based on prominent clues in the illustrations

Level	Location	Major literacy strands	Sub-strand	Skills
				Provides evidence from the story about a character's actions (what they did, what happened)
				Listens to a story and draws on personal knowledge and clues from the text to infer the meaning of simple vocabulary
		Oral language	Clarity, volume, fluency	Makes self generally understood when speaking but there may be some hesitation
				Uses limited variation in volume and pace to emphasise meaning
			Expressive	Describes an image, using some simple, relevant words but may go off topic
		Phonemic awareness	Final phoneme match	Identifies if a single pair of simple words have the same or different last sounds when this is obvious
			Initial phoneme match	Identifies if a single pair of simple words have the same or different first sounds when one word includes a blend
		Phonics	Decoding	Matches a simple CVC word from a group of 4 to a picture, with limited initial letter distractors
			Letter name	Names 3 out of 3 upper case alphabet letters
			Letter sound	Provides phonemes for 4 out of 4 different letters (mix upper and lower case)
		Phonological awareness	Compound words	Identifies the first word in a spoken compound word
			Syllables	Counts the number of syllables in two syllable words, whether they are open or closed syllables, but not one-syllable words
		Print conventions	Text awareness	Finds pairs of matching letters when they are the same shape and font
		Vocabulary	Expressive	Generates names for up to 10 different animals or types of foods
			Receptive	Follows a 3-step sequence of verbal instructions (do this then this then this)
		Writing	Formation	Copies simple shapes and writes their name
3	363-419	Comprehension	Listening comprehension	Listens to a story and provides simple evidence using the text and the image
		Oral language	Clarity, volume, fluency	Speaks in a limited way that is sometimes difficult to understand
			Expressive	Speaks mainly in phrases of 2-3 words

Level	Location	Major literacy strands	Sub-strand	Skills
		Phonemic awareness	Initial phoneme match	Identifies if a single pair of simple words have the same or different first sound when this is obvious
		Phonological awareness	Compound word	Identifies the final word in a spoken compound word
		Print conventions	Text awareness	Indicates where a word is written on the cover of a book
			Book orientation	Turns pages right to left in order, looking through a book
		Vocabulary	Expressive	Names a variety of common things in an image
			Receptive	Follows a 2-step sequence of verbal instructions (do this then this)
2	293-363	Comprehension	Listening comprehension	Listens to a story and provides information using the image
		Oral language	Expressive	Describes an image mainly using single words often with pauses or fillers (um, ah)
1	<293	Oral language	Expressive	Provides one or two additional words to describe an image when prompted
		Vocabulary	Expressive	Names three common body parts

The proportion of children from the whole sample (intervention and control) who are working at each of the nine ELLDI reporting levels at each stage of the study can be seen in Table 11. This table shows the spread of children at each timepoint across the different ELDDI reporting levels, and hence spread across the scale. It also allows for an approximate examination of the change (growth) in students from year to year in reference to the reporting levels.

Table 11. Proportions of children in each level on the ELLDI, by year

Level	Year			
	2018	2019	2021	2022
1	6.7%	0.3%		
2	31.7%	4.8%		
3	42.0%	13.4%	0.7%	0.1%
4	16.0%	31.3%	3.8%	1.7%
5	3.3%	30.9%	13.3%	7.8%
6	0.4%	15.1%	31.3%	21.4%
7		4.1%	41.0%	40.1%
8		0.2%	9.7%	26.3%
9			0.2%	2.5%

The distribution of the 2018 sample relative to the ELLDI Scale can be seen in Figure 4. This includes all the RP65 thresholds used to produce the described scale across all four rounds of assessment administration.
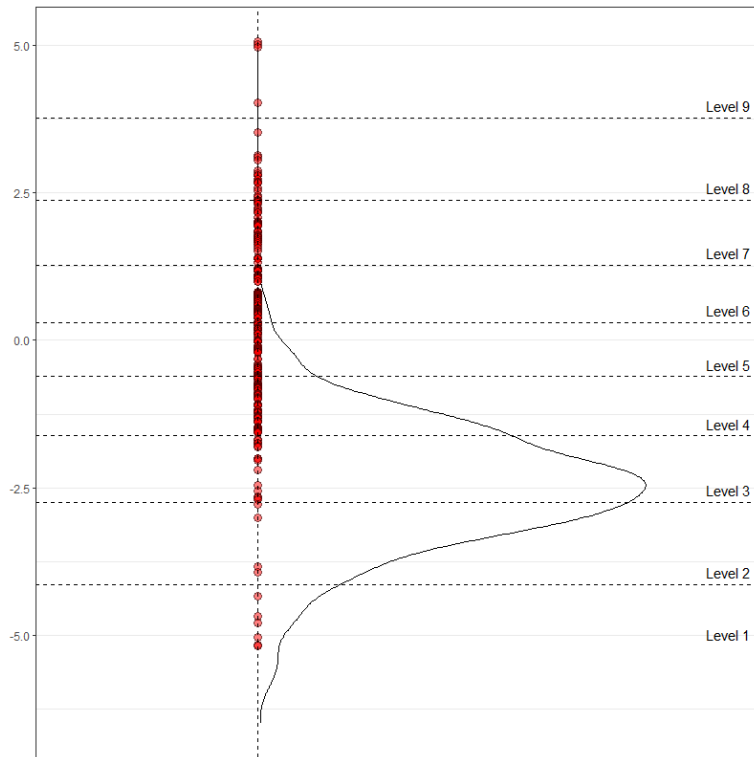
Figure 4. Item-person map for the ELLDI Scale, including RP65 thresholds from all cycles (2018 sample only)

Interpretation of the described scale

It can be seen in Table 10 that the ELLDI Scale covers a range of language and literacy skills, which can be classified into strands of constrained skills: print conventions, phonological awareness, phonemic awareness, phonics, and writing, and strands of unconstrained skills: oral language, vocabulary, comprehension and writing[13]. Constrained skills, such as phonemic awareness and phonics are those that can be mastered with practice. Whereas unconstrained skills, such as vocabulary and comprehension have no ceiling and continue to develop over a lifetime (Paris, 2005). Added to this, there is an interrelationship that exists between the unconstrained skills. When this is considered in terms of children's language and literacy learning it can be seen that oral language and vocabulary development impacts comprehension. Moreover, comprehension impacts oral language and vocabulary development and so on. (Carlson et al., 2013; Nation and Snowling, 2004; Tunmer & Chapman, 2012). The nature of this dependent relationship can be thought of in terms of the Matthew effect (Stanovich, 1986). Here children with strong oral language skills and large vocabularies are more likely to comprehend and access meaning from texts, which in turn contributes to their growing oral language and vocabulary skills. Whereas children with limited oral language skills and limited vocabularies may have trouble comprehending and accessing meaning from texts, which inhibits oral language and vocabulary growth.

When reviewing the ELLDI scale the unconstrained skills are dispersed across the levels but notably occupy the highest (oral language) and lowest levels (oral language and vocabulary). It is important to consider the teaching and learning of these skills and how this is captured on the scale, as the acquisition of unconstrained skills, differs from those of constrained skills. Here, research highlights the use of direct and indirect instruction, along with the teaching of a range of strategies to support the long-term development of these skills. As unconstrained skills such as vocabulary and comprehension are more likely to arise in daily life, the quality of the indirect instruction in these interactions impacts children's learning.

On the ELLDI Scale the constrained skills are situated between Level 3 to Level 8. As discussed previously, constrained skills are those that have a learning ceiling, as once they are mastered, they can be applied with a level of accuracy and do not need to be taught again. The strands containing constrained skills, for the most part follow a logical developmental sequence (e.g., phonemic awareness progresses from initial phonemes to final phonemes followed by medial phonemes). The phonics strand while conceptualising letter-sound relationships, is broken into four sub-strands: letter names, letter sounds, decoding and reading. The letter names and letter sounds sub-strands focus on the children mastering the alphabetic principle. Whereas the decoding and reading sub-strands combine phonemic awareness and phonics skills to attach sounds to strings of letters to read them as words. What distinguishes these two sub-strands is decoding focused on word level reading, and reading focuses on sentence level reading. The classification of items in these two phonics sub-strands is different to those in the reading comprehension strand, as the first focuses on decoding simple words and sentences, with no or little focus on meaning making (sometimes referred to as 'barking at print'), whereas all reading comprehension sub-strands focus on meaning making and responding to

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[13] Initially writing skills are largely constrained until children have sufficient handwriting, spelling and syntax proficiency to express meaning.

comprehension questions. Another point of interest in the phonics strand is the simultaneous mastering of the alphabet principles alongside decoding (see the Phonics strands at level 4, 5 and 6 in Table 10). Here, the children's ability to apply letter-sounds relationships to read short, simple words, provides support for the use of a synthetic phonics approach, where the teaching of letter-sounds relationships are carefully sequenced to support early decoding and encoding (e.g., teaching s, a, t, p, i, n, can be used to read and write at, it, pat, tin, etc.). Studies investigating the use of a synthetic phonics approach to teach reading have demonstrated that this method is more effective than other phonics approaches (Johnston & Watson, 2005; Wheldall et al., 2019).

When mapping children's language and literacy learning onto the ELLDI Scale, it is possible that their level of development may sit below or above the current scale range (1-9), resulting in the need for further assessment to understand the children's specific learning needs. Furthermore, in terms of teaching language and literacy, we are reminded that the ELLDI Scale is a tool to help educators understand and target children's language and literacy learning and development. It is neither a teaching sequence, nor a curriculum and using it in such a way will likely limit children's language and literacy learning. Finally, it is important to note that the ELLDI Scale is representative of the knowledge and skills assessed during the child interviews, and therefore is not exhaustive. However, this also means there is potential for the range of the scale to be extended, with new items from future assessments being added into existing levels and strands, or possibly increasing the range of the current scale.

Applications of the described scale

With descriptions of the scale and exemplar items available to illustrate these skills at many locations, it is possible to extend the use of the ELLDI to contextualise other external criteria such as, benchmarks, measures, and assessments. This allows observations of the ELLDI to reference external criteria and serve a dual purpose: to be used as a formative assessment and to provide this additional information without the need for the child and educator to complete many assessments. An example of an external criteria is provided below using the Australian Curriculum.

The idea that the ELLDI Scale can be used to contextualise other benchmarks can be extended to important Australian transition points to help reduce the uncertainty about the skills and abilities of children as they enter preschool and exit preschool (transition to school). For example, the descriptions in the **Australian Curriculum for the Foundation year** (first year of school) can be identified – we assume these to be the skills needed to successfully engage in school. The English strand of the Australian Curriculum comprises of three interrelated strands of language, literature and literacy, covering the development of speaking, listening, viewing, reading, writing and creating. Students' attainment of these skills are described as a sequence of achievement from Foundation to Year 10 and are classified as receptive learning (listening, reading and viewing) and productive learning (speaking, writing and creating). Examples of achievement standards and the types of learning that is expected by students at the end of the Foundation year (first year of school) are:

    a. Receptive learning

        i. Recall one or two events from texts with familiar topics.

  ii. Recognise the letters of the English alphabet, in upper and lower case and know and use the most common sounds represented by most letters.

  iii. Blend sounds orally to read consonant-vowel-consonant words

 b. Productive learning

  i. Listen for rhyme, letter patterns and sounds in words.

  ii. Retell events and experiences with peers and known adults.

  iii. Identify and use rhyme, and orally blend and segment sounds in words

Based on the English achievement standards for the Foundation year (first year of school) of the Australian Curriculum (ACARA, 2021), the skills required to be working at this level are approximately aligned with Level 6 on the ELLDI Scale. As an example, the Foundation Content Description - Recognise and generate rhyming words, alliteration patterns, syllables, and sounds (phonemes) in spoken words, aligns with the phonological awareness skills - Identifies words that rhyme from a set of given words or from a text and, counts the number of syllables in an open 3 syllable word (ba-na-na). In 2019 (start of Prep), 19.4% of the sample were working at Level 6 or above (the expected standard) and 4.3% were already working at Level 7 or above (exceeding the expected standard). However, the achievement standard for Foundation refers to the knowledge and skills that need to be achieved by the end of the Foundation year to meet the grade level expectations. Given that no data exists for the end of Prep (or start of Grade 1) it is more difficult to assess the achievement of the ODEC sample against Foundation. The average growth across the study was 53.1 ELLDI Scale points which equates to the sample moving up by approximately one ELLDI level for each year of the study. This would likely mean that approximately half of the sample would be in Level 6 or above (meeting the expected standard) and approximately 15-20% would be in Level 7 or above (exceeding the expected standard) by the start of Grade 1 (assumed to be similar to end of Foundation). In contrast, and concerningly so, that would mean that half of the sample would not meet the expected achievement standard of the Foundation level of the Australian Curriculum by the time they enter Grade 1.

Discussion and recommendations

The Overcoming Disadvantage in Early Childhood study answered the research question: What is the effect of the Early Language and Literacy (EL&L) program on the development of language and literacy skills in preschool aged children? The discussion that follows is a synthesis of the study results and offers recommendations to improve the implementation of the EL&L program to provide continued advancement of children's language and literacy learning.

Early Language & Literacy (EL&L) Program

EL&L impact

Preschool is designed to give children access to programs that positively impact language and literacy learning and help reduce the gap between those from advantaged and disadvantaged backgrounds. Findings from this study revealed that the intervention children receiving ALNF's EL&L program moved from being significantly behind the control group children at timepoint one (2018), to catching up at timepoint two (2019). What is important to note here is this finding was initially based on models controlling only for child gender and age, however, later modelling, controlling for disadvantage, revealed the main difference between the two study groups was the relative disadvantage of the intervention group. Here, disadvantage in the intervention group was extended beyond coming from a low SES household to higher rates of diagnosed disabilities and language delays. These confirming results, clearly highlight the capacity of the EL&L intervention program to improve the language and literacy skills of disadvantaged children.

While the EL&L program had a strong impact on the intervention children's language and literacy learning in the preschool year, particularly for those from disadvantaged backgrounds, the maintenance or acceleration of this growth was not found at subsequent timepoints. After transitioning to school, the learning gap between the intervention and control groups had re-emerged by the final timepoint (2022). This re-emergence of the gap could be due to a limited number of schools implementing the EL&L program, which was done with less rigor and consistency. In schools, implementation of the EL&L program could have been impacted by commitment to the program, an already overcrowded curriculum and the movement of EL&L trained staff to other schools. Finally, the number of natural disasters occurring in the region across the duration of the study (2019 fires; 2020 COVID pandemic; 2021-2022 floods), resulted increased stress and less exposure to the EL&L and other preschool programs, which may have contributed to reduced learning outcomes, particularly for those children from disadvantaged backgrounds.

Program commitment

Professional development research cites studies involving professional experimentation and 'enactment' of putting new learning and ideas into practice, along with leadership support, as more effective than those not including these elements (Clarke & Hollingsworth, 2002; Kennedy, 2016; Timperley et al., 2007). Analysis of the intervention

data indicated there was strong support for the implementation of the EL&L program by most intervention centres. This was reflected in directors and educators undertaking the EL&L training, as well as directors and educators completing EL&L training up to 8-years prior to the study. Analysis indicated continued use of the program, with some centres implementing the EL&L program for longer than 24 months. The EL&L training also incorporated other practices identified in research as contributing to lasting and effective use of learning from professional development. This involved ongoing mentoring from an EL&L trainer (Kraft et al., 2018) and situated practice - connecting professional development learning to ECEC programming and classroom practice (Borko et al., 2010). Timperley et al. (2007), identifies these long-term, sustained practices as 'maintaining momentum', noting they have the potential to improve children's learning outcomes.

Overcoming disadvantage

Research consistently indicates that disadvantage has a strong potential to impact children's long-term language and literacy growth. As previously discussed, many of the intervention children in this study presented with multiple disadvantages. In the home, disadvantage was reflected in parents' or caregivers' level of education and employment status. Furthermore, these children received limited educational stimulation, such as being read too. Boys were identified as having lower ability than girls and Aboriginal and Torres Strait Islander children were acknowledged as having lower average ability than the other children in the intervention group. Moreover, from timepoint two onwards when the children graduated to school, this difference in average ability was statistically significantly. Not only was the impact of disadvantage evident in the home, it was also evident in the centres implementing the EL&L program. These centres were identified as operating in low socio-economic status (SES) neighbourhoods and generally received a low-quality National Quality Standard rating (ACECQA, 2020). At the conclusion of the study in 2022, the impact of disadvantage on the lowest achieving children was evident in their limited growth, where it was acknowledged that they had not reached the language and literacy level of the highest achieving children from timepoint one in 2018.

Research indicates that children who come from disadvantaged backgrounds or those with literacy learning difficulties benefit from intervention programs incorporating explicit and systematic instruction to support and consolidate learning. With intervention children catching up at timepoint two, followed by a reopening of the learning gap, it was important to understand how the EL&L program was implemented at intervention sites. Therefore, these sites were classified into intensity groups based on recency of engagement with ALNF mentors and trainers, along with qualitative judgements about the fidelity of the implementation of the EL&L program. Analysis showed that in the first year of the study, 90% of intervention children experienced reasonable levels of EL&L program intensity. However, the number of children exposed to the intervention decreased as they transitioned from preschool to school. By the final two years of the study intensity of the program was reduced to combinations of medium and high or, low, medium, and high, of exposure, with less than 20% of the intervention children participating in the program. What is important to note here is from the beginning to the end of the study even though the intensity of the program varied across intervention sites and added to this no intervention children were exposed to continuous, high intensity levels of the EL&L program but it still closed the learning gap between the intervention and control children. This provides evidence confirming the strength of the EL&L program, which aligns with

research indicating that high quality ECEC interventions delivered with intensity have the potential to disentangle disadvantage (Duncan & Sojourner, 2013).

Integration of EL&L

With specialised language and literacy training, along with mentoring support and feedback to help educators apply the knowledge, skills and practices learned during the EL&L program training, it could be expected that the quality of classroom practice in the intervention classrooms would be higher than those of the control classrooms. Analysis from the CLASS observations, focusing on emotional, organisational, and instructional interactions between educators and children found there were no significant difference between the quality of the interactions in the control and intervention classrooms. However, results indicated that on average, intervention educators displayed higher quality emotional support than control educators, which according to research positively influences early learning and counters disadvantage and learning difficulties (Moen et al. 2019; Hamre & Pianta, 2001). According to Picker (2022), possible higher levels of specialised language and literacy knowledge learned during the EL&L training may have also contributed to higher quality emotional interactions.

Not only did the EL&L training provide educators with guidance on how to implement the program, it also included mentoring to increase the instructional enactment of the program in the educator's classroom. The combination of professional development and mentoring is supported by research conducted by Kraft et al. (2018) indicating such an amalgamation of training and practice increases implementation effectiveness. Nevertheless, analysis of the instructional domain from the CLASS revealed limited evidence of the implementation of pedagogies and strategies taught as a part of the EL&L program being used during day-to-day instructional interactions and experiences beyond the EL&L program. Low quality instructional support in ECEC settings, similar to what was observed in this study, is a common CLASS finding (Hamre & Pianta, 2005; Soliday et al., 2021). These findings highlight a need whereby the EL&L training extends the educators understanding of how to use the pedagogies and teaching strategies to scaffold children's language and literacy learning outside of the EL&L program, supported with mentoring in the classroom.

The Early Language and Literacy Developmental Index (ELLDI)

Chambers et al., (2016) emphasises that the inclusion of a measure providing educators with information about children's achievement further enhances comprehensive ECEC programs. It was acknowledged at the outset of this report the need for an early childhood assessment capturing children's language and literacy growth structured around best practice and incorporating principles of quality assessment. The ELLDI was developed in response to this need and as a result six separate assessment booklets, two each year from timepoint 2 onwards, were developed to accurately assess the study children's language and literacy development (see Appendix 1 for example items from the ELLDI booklets). This included the creation of supporting resources, such as story books and picture prompts, along with oral language coding rubrics. Each assessment booklet was comprised of a set of developmentally appropriate items base around best practice in

early learning, involving building relationships, enhanced engagement, and authentic experiences (Cloney et al., 2019).

Analysis from the ELLDI assessments were based on the interviews of 1700+ child across the duration of the study. ELLDI results found the tool validly measured language and literacy constructs. It is statistically reliable, and its accuracy allowed for the mapping of language and literacy components based on the science of reading, such as phonics, onto a scale of difficulty. With confirmation of statistical strength, combined with principles of best practice in early childhood, the ELLDI aligns with Cloney's et al., (2019) description of a quality early years assessment. The ELLDI was well targeted to assess the language and literacy skills of children across a range of abilities, particularly those from disadvantage backgrounds or those with learning difficulties, therefore extending the value of the EL&L program.

Other factors that contributed to the ELLDI being an innovative assessment that validly and reliably measures children language and literacy skills, include the use of scripts, prompts and connector scripts that allow the administrator to give their full and undivided attention to the child. The detailed scripts and specific prompts ensure the children receive the same assessment experience, no matter where they were being assessed or by whom. Additionally, the grouping and sequencing of items help children stay focused and optimise responses. Such administration procedures offer confidence for the use of the ELLDI results to compare children's growth within and across centres. The combination of the ELLDI used in conjunction with the ELLDI scale provides educators with two important tools to help them meet the language and literacy learning needs of the children in their class. The ELLDI presents educators with accurate information about what children know well, what they are consolidating and what they need to learn in relation to reading's big six. This assessment information mapped onto the ELLDI Scale positions the children's learning so educators can make decisions about whole class, small group and individual learning, to ensure they are meeting the language and literacy needs of all children, not just a select few. This is particularly true for children positioned at either end of the scale, who are in need of very different types of support.

Results of the ELLDI in context

Based on the strands assessed in this study using the ELLDI, the ELLDI Scale was produced to provide a detailed description of how the skills represented in those strands develop over time. The scale includes nine discrete levels ranging from unconstrained skills of vocabulary and oral language at the lowest level, to a mix of constrained and unconstrained skills across the middle levels, through to unconstrained oral language skills at the highest level. It provides policy makers, researchers and educators with specific information to assist with their understanding about children's language and literacy development and what they need to learn next. When using the scale as a beginning point for targeted teaching consideration needs to be given to the types of pedagogies used to facilitate learning (e.g., constrained skills – explicit instruction, practice, mastery; unconstrained skills – blend of explicit and open or integrative learning experiences). When referring to the ELLDI Scale, it is important to remember that it is not an exhaustive scale as it is only representative of the skills assessed and there is potential to expand the scale to include new levels, sub-strands or skills within a level.

Mapping the study children onto the ELLDI Scale shows that on average they grew approximately one ELLDI level each year – from Level 3 in 2018 to Level 7 in 2022. As

discussed previously there is an approximate alignment between the ELLDI Scale and the Australian Curriculum (end of Foundation – Level 6). Alignment with the ELLDI Scale allows for an estimation about how the study children are achieving in comparison to children in broader contexts nationally. The impact of disadvantage was highlighted when examining the children's results at a national level against the Australian Curriculum where it was estimated that more than half the study children would not meet the minimum achievement standard for the Foundation level, as they transitioned into Grade 1.

Future development of the ELLDI

There is great potential for the future use of the ELLDI, and prospective alignment to other more commonly used measures, to yield rich descriptions of children's learning that translate into earlier and more targeted interventions. There is the possibility of equating other measures such as 'on entry' assessments (e.g., Best Start, PAT assessment) and the NAPLAN, to the ELLDI. For example, with strong alignment to the NAPLAN, the ELLDI could describe language and literacy learning trajectories that predict success, such as providing details of the trajectory to successfully. reach NAPLAN Band 2 (minimum proficiency in Reading) at Grade 3. Details would outline information about what skills and abilities need to be acquired, by when to achieve Band 2. With such information, interventions could be mapped backward to a suitable age, allowing enough time for the learning, consolidation, and mastery of such skills. Furthermore, where there is a need for clinical diagnosis or interpretation of psychological assessments to apply for funding for specific learning difficulties, the ELLI could align with such measures to act as a pre-screener by identifying children who are likely to be eligible for additional support. Lastly, there is the capacity to translate and adapt the ELLD into other languages, as well as apply the principles and practices built into the ELLDI to develop a similar tool for early years numeracy.

Concluding remarks

Results from this study demonstrate that the EL&L program has the capacity to close achievement gaps for children who access the program. Across the life of the study, ALNF implemented changes based on interim findings to strengthen the EL&L program, which included the use of the ELLDI and the ELLDI Scale. These changes are not reflected here, as ALNF did not modify the program on the Mid North Coast to preserve the fidelity of this research. Therefore, it is likely that the current program is substantially stronger than the EL&L program evaluated in this research. As a result, it would be expected that this will result in greater achievement gains for children participating in the program.

Nevertheless, the findings from the ODEC study suggest there is a crisis of learning on the Mid North Coast in the regions where ALNF operate the EL&L program. The intervention children who entered the EL&L program in 2018 began the study behind the control peers but after 12 months of exposure the language and literacy learning gap was closed for the intervention children. However, as children transition to school, the learning gains were lost. In this area characterised by significant disadvantage (relative to local community that is almost entirely in the lowest 25% of SES in Australia), children's learning is lower than would be expected to have strong outcomes in school. This is the

case for all children in the study – intervention children and control children. Despite efforts to provide effective intervention programs, the reach of the EL&L program is limited to a small number of early childhood services and even a smaller number of schools. However, without the consistent use of the EL&L program in school settings, gains children make in effective preschool programs are rapidly lost.

References

Adams, R. J. (2005). Reliability as a measurement design effect. *Studies in Educational Evaluation*, *31*(2–3), 162–172. https://doi.org/10.1016/j.stueduc.2005.05.008

Adams, R. J., Cloney, D., Wu, M. L., Osses, A., & Vista, A. (2020). ACER ConQuest: Generalised Item Response Modelling Software (Version 5) [Computer software]. Australian Council for Educational Research.

Adams, R. J., Wilson, M., & Wang, W. (1997). The Multidimensional Random Coefficients Multinomial Logit Model. *Applied Psychological Measurement, 21*(1), 1–23. https://doi.org/10.1177/0146621697211001

Australian Children's Education and Care Quality Authority (ACECQA). (2020). National Quality Standard. https://www.acecqa.gov.au/nqf/national-quality-standard

Australian Curriculum, Assessment and Reporting Authority. (2021). Primary Curriculum Review: All learning areas – Foundation year. Australian Curriculum Review. https://www.australiancurriculum.edu.au/media/7162/primary-scope-and-sequence_-foundation.pdf

Bates, D., Maechler, M., Bolker, B., Walker, S., Christensen, R. H. B., Singmann, H., Dai, B., Scheipl, F., Grothendieck, G., Green, P., Fox, J., Bauer, A., & Krivitsky, P. N. (2023). lme4: Linear mixed-effects models using "Eigen" and S4 (1.1-34) [R]. https://cran.r-project.org/web/packages/lme4/index.html

Borko, H., Jacobs, J., & Koellner, K. (2010). Contemporary approaches to teacher professional development. *International Encyclopedia of Education, 7*, 548–556.

Carlson, E., Jenkins, F., Li, T., & Brownell, M. (2013). The Interactions of vocabulary, phonemic awareness, decoding, and reading comprehension. *The Journal of Educational Research, 106*(2), 120–131. https://doi.org/10.1080/00220671.2012.687791

Chambers, B., Cheung, A. C., & Slavin, R. E. (2016). Literacy and language outcomes of comprehensive and developmental-constructivist approaches to early childhood education: A systematic review. *Educational Research Review, 18*, 88-111. https://doi.org/10.1016/j.edurev.2016.03.003

Clarke, D., & Hollingsworth, H. (2002). Elaborating a model of teacher professional growth. *Teaching and Teacher Education, 18*(8), 947–967. https://doi.org/10.1016/S0742-051X(02)00053-7

Cloney, D., & Adams, R. J. (2021). Conquestr version 0.9.95. https://cran.r-project.org/package=conquestr

Cloney, D., & Hollingsworth, H. (2018). Using measures of pedagogical quality to provide feedback and improve practice. In J. Lodge, J. Cooney Horvath, & L. Corrin (Eds.), *Learning Analytics in the Classroom Translating Learning Analytics Research for Teachers* (pp. 221-244). Routledge. https://doi.org/10.4324/9781351113038-14

Cloney, D., & Picker, K. (2021). Developing an assessment of oral language and literacy: Measuring growth in the early years. *Excellent Progress for Every Student: Proceedings and Program. ACER Research Conference 2021*. https://doi.org/10.37517/978-1-74286-638-3_2

Cloney, D., Picker, K., Jeffries, D., & Anderson, P. (2023). *The Overcoming Disadvantage in Early Childhood Study: Evaluation of the Australian Literacy and Numeracy*

Foundation's Early Language and Literacy Program. Final Report. Australian Council for Educational Research. https://doi.org/10.37517/978-1-74286-710-6

Cloney, D., Jackson, J., & Mitchell, P. (2019). Assessment of Children as Confident and Involved Learners in Early Childhood Education and Care. Victorian Curriculum and Assessment Authority. https://www.vcaa.vic.edu.au/Documents/earlyyears/EYLitReviewLearning.pdf

Cloney, D., Picker, K., Jefferies, D., Groom, S., Mendel, M-R., Brace, E., Geddes, M., & Palethorpe, L. (2022, August 22-25). Assessment in the early years: A symposium about measurement, applications and going to scale. *ACER Research Conference 2022: Reimagining assessment*. https://research.acer.edu.au/rc21-30/rc2022/13

Duncan, G. J., & Sojourner, A. J. (2013). Can intensive early childhood intervention programs eliminate income-based cognitive and achievement gaps? *Journal of Human Resources, 48*(4), 945–968. https://doi.org/10.3368/jhr.48.4.945

Groom, S., Mendel, M. R., Brace, E., & Pryor, P. (2022). Evidence-informed early language and literacy practice: Implementation of a new formative assessment for early language and literacy development. *ACER Research Conference 2022: Reimagining assessment*. https://doi.org/10.37517/978-1-74286-685-7-11

Hamre, B. K., & Pianta, R. C. (2001). Early teacher–child relationships and the trajectory of children's school outcomes through eighth grade. *Child development, 72*(2), 625-638. https://doi.org/10.1111/1467-8624.00301

Hamre, B. K., & Pianta, R. C. (2005). Can instructional and emotional support in the first-grade classroom make a difference for children at risk of school failure? *Child Development, 76*(5), 949-967. https://doi.org/10.1111/j.1467-8624.2005.00889.x

Johnston, R. S., & Watson, J. E. (2005). A seven year study of the effects of synthetic phonics teaching on reading and spelling attainment. *Insight, 17*, 1-9. https://webarchive.nrscotland.gov.uk/3000/https://www.gov.scot/Resource/Doc/933/0044071.pdf

Kennedy, M. M. (2016). How does professional development improve teaching? *Review of Educational Research, 86*(4), 945–980. https://doi.org/10.3102/0034654315626800

Khoo, S. T., & Meiers, M. (2006). Literacy in the first three years of school: A longitudinal investigation. *The Australian Journal of Language and Literacy, 29*(3), 252-267.

Konza, D. (2014). Teaching reading: Why the "Fab Five" should be the "Big Six". *Australian Journal of Teacher Education, 39*(12). https://doi.org/10.14221/ajte.2014v39n12.10

Kraft, M. A., Blazar, D., & Hogan, D. (2018). The effect of teacher coaching on instruction and achievement: A meta-analysis of the causal evidence. *Review of Educational Research, 88*(4), 547–588. https://doi.org/10.3102/0034654318759268

Levickis, P., Cloney, D., Roy-Vallières, M., & Eadie, P. (2023). Associations of specific indicators of adult–child interaction quality and child language outcomes: What teaching practices influence language? *Early Education and Development*, 1-20. https://10.1080/10409289.2023.2193857

Linacre, J. (1994). *Many-faceted Rasch measurement*. MESA Press.

Marsman, M., Maris, G., Bechger, T., & Glas, C. (2016). What can we learn from Plausible Values? *Psychometrika, 81*(2), 274–289. https://doi.org/10.1007/s11336-016-9497-x

Masters, G. N. (1982). A Rasch model for partial credit scoring. *Psychometrika, 47*(2), 149–174. https://doi.org/10.1007/BF02296272

Meiers, M., Khoo, S. T., Rowe, K., Stephanou, A., Anderson, P., & Nolan, K. (2006). Growth in literacy and numeracy in the first three years of school (ACER research monograph 61). Australian Council for Educational Research. https://research.acer.edu.au/acer_monographs/1

Moen, A. L., Sheridan, S. M., Schumacher, R. E., & Cheng, K. C. (2019). Early childhood student–teacher relationships: What is the role of classroom climate for children who are disadvantaged? *Early Childhood Education Journal, 47*, 331-341. https://doi.org/10.1007/s10643-019-00931-x

Monseur, C., & Adams, R. J. (2009). Plausible values: How to deal with their limitations. *Journal of Applied Measurement, 10*(3), 320–334.

Nation, K., & Snowling, M. J. (2004). Beyond phonological skills: Broader language skills contribute to the development of reading. *Journal of Research in Reading, 27*(4), 342–356. https://doi.org/10.1111/j.1467-9817.2004.00238.x

National Institute of Child Health and Human Development (NICHD). (2000). Teaching children to read: An evidence-based assessment of the scientific literature on reading and its implications for reading instruction. US Department of Health and Human Services. https://www.nichd.nih.gov/publications/pubs/nrp/smallbook

NSW Department of Education, (2023). *Best start kindergarten assessment.* https://education.nsw.gov.au/teaching-and-learning/curriculum/literacy-and-numeracy/assessment-resources/best-start-kindergarten

O Connell, N. S., Dai, L., Jiang, Y., Speiser, J. L., Ward, R., Wei, W., Carroll, R., & Gebregziabher, M. (2017). Methods for Analysis of pre-post data in clinical research: A comparison of five common methods. *Journal of Biometrics & Biostatistics, 8*(1). https://doi.org/10.4172/2155-6180.1000334

Paris, S. G. (2005). Reinterpreting the development of reading skills. *Reading Research Quarterly, 40*(2), 184-202. https://doi.org/10.1598/RRQ.40.2.3

Pianta, R. C., La Paro, K. M., & Hamre, B. (2008). Classroom assessment scoring system manual: Preschool (pre-k) version. Brookes.

Picker, K. (2022). Examining the relationship between teacher reading content knowledge, pedagogy, and children's learning experiences [Doctoral dissertation, University of Melbourne]. Minerva. https://minerva-access.unimelb.edu.au/bitstreams/ac544b0c-50ce-40b4-92b8-a2898966d3e6/download

Queensland Department of Education, (2023). *Early Start.* https://education.qld.gov.au/schools-educators/school-types/early-years/early-start

R Core Team. (2022). R: A Language and Environment for Statistical Computing. R Foundation for Statistical Computing. https://www.R-project.org

Soliday Hong, S., Zadrozny, S., Walker, J., Love, E. N. G., Osborne, J. D., Owen, J. L., Jenkins, G., & Peisner-Feinberg, E. (2021). Longitudinal Study of Georgia's Pre-K Program: Third Grade Report. The University of North Carolina, FPG Child

Development Institute. https://fpg.unc.edu/sites/fpg.unc.edu/files/resource-files/GAs%20PreK%20Third%20Grade%20Report_2021Jan06.pdf

Stanovich, K. E. (1986). Matthew effects in reading: Some consequences of individual differences in the acquisition of literacy. *Reading Research Quarterly, 21*(4), 360– 407. https://doi.org/10.1598/RRQ.21.4.1

Timperley, H., Wilson, A., Barrar, H., & Fung, I. (2007). Teacher professional learning and development: Best evidence synthesis iteration (BES). https://www.educationcounts.govt.nz/publications/series/2515/15341

Tunmer, W. E., & Chapman, J. W. (2012). The simple view of reading redux: Vocabulary knowledge and the independent components hypothesis. *Journal of Learning Disabilities, 45*(5), 453– 466. https://doi.org/10.1177/0022219411432685

UNESCO. (2017). *Overview MELQO: Measuring early learning quality and outcomes.* https://unesdoc.unesco.org/ark:/48223/pf0000248053

UNICEF. (2021). Early Childhood Development Index 2030. https://data.unicef.org/resources/early-childhood-development-index-2030-ecdi2030

van Buuren, S., & Groothuis-Oudshoorn, K. (2011). Mice: Multivariate Imputation by Chained Equations in R. *Journal of Statistical Software, 45*(3), 67. https://doi.org/10.18637/jss.v045.i03

Warm, T. A. (1989). Weighted likelihood estimation of ability in item response theory. *Psychometrikac, 54*, 427–450. https://doi.org/10.1007/BF02294627

Wheldall, K., Bell, N., Wheldall, R., Madelaine, A., & Reynolds, M. (2019). Performance of Australian children on the English Phonics Screening Check following systematic synthetic phonics instruction in the first two years of schooling. *Australian Journal of Learning Difficulties, 24*(2), 131-145. https://doi.org/10.1080/19404158.2019.1635500

Wu, M. L. (1997). The development and application of a fit test for use with marginal maximum likelihood estimation and generalised item response models [M. Ed, The University of Melbourne]. http://hdl.handle.net/11343/57769

Wu, M. L. (2005). The role of plausible values in large-scale surveys. *Studies in Educational Evaluation, 31*(2–3), 114–128. https://doi.org/10.1016/j.stueduc.2005.05.005

Appendix

Appendix 1 - ELLDI example items

ODEC: Child Literacy and Language Response Book: **ELLDI example items**

EXPRESSIVE LANGUAGE
Materials: None *STOP RULES: None*

I will point to some parts of my body. Tell me the name of this body part, for instance (pointing to nose)**, this is my nose.**
Point to the following body parts (on enumerator's body) one by one and ask child to name the different body parts.

	Correct answer	Correct 1	Incorrect 0	Child says I do not know or no response 99
Tell me the name of this body part. *(point to eye)*	Eye/eye lash /eyeball/eyelid	◯▪	◯▪	◯▪
Tell me the name of this body part. *(point to ear)*	Ear	◯▪	◯▪	◯▪
Tell me the name of this body part. *(point to elbow)* *Prompt: If child says arm, prompt once.*	Elbow	◯▪	◯▪	◯▪

	EXPRESSIVE VOCABULARY – NOUNS, VERBS, TELL A STORY

Materials: Water Hole Scene Picture and Recorder
STOP RULES: none

Turn on the recorder and face it towards the child. Pass the child the picture.
Now please hold this picture and look at it carefully. Then I will ask you some questions about it. *Give the child 30 seconds to look at the picture.*
Tell me the names of different things you can see in the picture.
Do not count repeated responses eg, naming more than one man.
Prompt: if child stops at less than 10 things, prompt:
What else can you see in the picture?
Stop at 10 things or if the child does not respond to the prompt

Record child's response on digital recorder.

Correctly names 6-10 things	Correctly names 1-5 things	Child says I do not know or no response
1	0	99
○	○	○

Skill	88	99	0	1	2	3	4	5
Structure & detail	Missing- child not given the task	Missing- child given the task but did not/refused to respond	Minimal (1-3 words) or incomprehensible response.	Child mainly uses single words that reflect a very limited vocabulary of familiar words e.g. 'man', 'dog', 'water'.	Child mainly uses very short phrases of generally 2-3 words, e.g. 'girl bike', 'man read book', 'they play', 'plane fly' that reflect a range of familiar vocabulary.	Child mainly uses simple, extended responses (4 words or more) that convey meaning AND reflect a range of familiar vocabulary AND often contain some grammatical errors, e.g. 'splashing, the boy is doing that', 'dog eating cake is naughty', 'boy is sad swing is broke'.	Child mainly uses simple, extended responses (4 words or more) that convey meaning AND reflect a range of familiar vocabulary with NO grammatical errors e.g. 'This boy is splashing that one.' 'That naughty dog is eating the cake.' 'The boy is sad because the swing is broken.' Sentences may be joined with simple conjunctions e.g. 'and', 'then', 'but'.	Child mainly uses many complex sentences that explain relationships between ideas AND reflect a wide vocabulary with NO grammatical errors e.g. 'the girl is wondering how she is going to get home, because the tyre on her bike is flat', 'the man is so busy reading his book that he has not noticed the dog is eating the cake', 'the man is watching the boys to make sure they do not drown'.
Prompts required for nouns	Missing- child not given the task	Missing- child given the task but did not/refuse	3 or more prompts required	1-2 prompts required	No prompts required			

NAME WRITING
Materials: Pencil for child, hard surface for writing (for example, table, book), back of the letter identification sheet.
STOP RULES: If the child does not write for one minute after your instructions or if the child takes longer than 2 minutes to write, stop and say: **We're going to move on to our next activity now.**

Instructions
Place the letter identification sheet in front of the child (face down so the child sees a blank piece of paper). Place the pencil next to the paper.

	Correct	Incorrect	Child says I do not know or no response
	1	**0**	**99**
Say: **Now we are going to write. Write your name at the top of this piece of paper.** *Point to the blank space at the top of the paper. Be encouraging but do not help the child.*	◯	◯	◯

<u>1: Correct answer: Child writes name correctly including:</u>
-all letters of name (correct orientation)
-in correct order

	Has letters in name, but name is not correct- letters are out of order; other mistakes are made	Non-name letters	Symbol- like marks	Scribbles, no discernible symbols
	4	**3**	**2**	**1**
If incorrect, describe what the child wrote. Check one circle.	◯	◯	◯	◯
Check if stop rule was used at one minute.	◯			
Check if stop rule was used at two minutes.	◯			

Words, Letters, and Sounds
Materials:
STOP RULES: None

Now we're going to find small words in big words. I'll show you what I mean. Listen to the word 'popcorn. First I say 'pop' *(make a fist as you say this and keep this position)***, then I say 'corn,** *(make a fist with the other hand as you say this and*

move fists so that they are side-by-side. Move the two fists together to touch and say) **popcorn!**
If I take away the 'pop' *(move first fist behind your back or drop to your lap)***, then the word left is 'corn.**
Note, if you are sitting across from the child use your right fist to represent the first word (form their perspective it will look like the leftmost representation of the word) This is a practice item.

Instructions and Questions
Now you try one. *(present both fists lined up together and as you say the whole word with a natural pace)*
Here's the big word *(pause)* **rainbow.**
If I take away 'bow' *(move fist away so only one fist remains)* **what word is left?**

	correct	incorrect	I don't know or no response
Correct answer: Rain	**1**	**0**	**99**
	◯	◯	◯

Instructions and Questions
Now we're going to break a word into parts. I'll show you what I mean.
'Robot' is a word. I can break it into parts: 'ro' *(clap),* **'bot'** *(clap)***, 'ro'** *(clap)* **'bot'** *(clap).*
You try. *Child attempts to clap and say the syllables in robot.*
This is a practice item.

Now you try one.
Say 'baby'. *Child says 'baby'.*
Now break 'baby' into parts.

	Correct	Incorrect	No attempt
Correct answer: 'ba'…'by' with a break in between – with or without clapping	**1**	**0**	**99**
	◯	◯	◯

Instructions and Questions
Listen carefully and tell me, do these words have the same first sound?
(pause after each pair of words for response and scoring)

	correct	incorrect	No attempt
Pot … pen	**1**	**0**	**99**
	◯	◯	◯
1: Correct answer: yes			
Pot … fan	**1**	**0**	**99**
	◯	◯	◯
1: Correct answer: *no*			
Pot … top	**1**	**0**	**99**
	◯	◯	◯
1: Correct answer: *no*			

Instructions and Questions

Now we're going to take the *first* sound out of a word, to make a new smaller word.

I'll show you what I mean. The word is bend. You say the word 'bend'. *Child says bend.*

If we take out /b/ we make a new word - end.

Now say it again but don't say /b/. *Child says 'end.'*

This is a practice item.

	Correct **1**	Incorrect **0**	No attempt **99**
Now you try taking the *first* sound out of hand. **Say 'hand'.** *Child says hand.* **Now take out /h/.** **What is the new word?** *The new word is 'and'.*	◯	◯	◯

	Correct **1**	Incorrect **0**	No attempt **99**
Now you try taking the *first* sound out of fall. **Say 'fall'.** *Child says fall.* **Now take out /f/.** **What is the new word?** *The new word is 'all'.*	◯	◯	◯

CONCEPTS ABOUT PRINT, LISTENING TO THE STORY, COMPREHENSION
Materials: Picture Story Book – Wombat Trouble   *STOP RULES: None*

Instructions and Questions

	Indicates left to right (does not matter which line of text child indicates) **1**	Other **0**	No attempt **99**
Show me which way to go when I'm reading.	◯	◯	◯

"Zip up the tent, we'll go for a walk" said Aunty.
"Wait for me!" called Banjo.

2

Open the book to pages 1 & 2.
Let's talk more about the story.

	Going for a walk; Banjo running to catch up to Aunty	Other	No attempt
	1	**0**	**99**
Banjo and Aunty have put up the tent. What are they doing now?	○	○	○

Materials: Koala Reading Sentence
STOP RULES: none

"A little koala is on top of the big koala" said Tarni.

Instructions and Questions
Here is a picture and sentence about koalas.
Place the sheet in front of the child.

	Reads all words correctly **3**	Reads most words correctly **2**	Reads at least 4 words correctly **1**	Other **0**	No attempt **99**
Read the sentence for me? *Run your finger under the sentence from beginning to end.*	○	○	○	○	○

If the child is unable to read the sentence ask, **Can you read any words in the sentence?**

CONNECTOR SCRIPT
Well done!

INDEPENDENT READING TASKS
Materials: Independent reading administration sheet *STOP RULES: none*

Read the sentence and then answer the questions by shading the bubble next to the correct answer.

Banjo stirs the soup with a wooden spoon.
What is Banjo doing?

    ○   washing   ○   cleaning

    ○   cooking   ○   shopping

Helen needs to put the autumn leaves in the bin.
What can she use to clean up the leaves?

    ○   a rake   ○   a bush

    ○   a sock   ○   a pencil

CONNECTOR SCRIPT
You did such a great job. Thank you so much for all those great answers. *Give sticker.* *Assist the child to reintegrate into the normal activities in the classroom.*