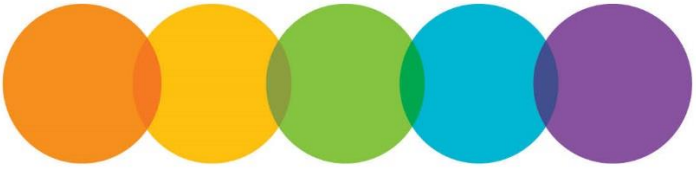
Approaches for enhancing early language and literacy skills among vulnerable groups



Evidence Review

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Suggested Citation

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Contents

Background

This paper outlines the analysis of peer-reviewed literature on the effectiveness of a range of different approaches and interventions undertaken among children aged 0 to 5 years and/or their families, to improve their early language and literacy skills; specifically those targeting the following groups:

- At-risk families: disadvantaged communities and families identified through socio-economic status
- Culturally and Linguistically Diverse (CALD) families: families and children that are from a different culture or language background than that which is predominant in the country in which they reside
- Indigenous and First Nations families and communities

It also summarises the range of early literacy and language programs currently being undertaken in Australia not just among these cohorts, but also children with language delays and impairments, and/or children with hearing impairments, children in the child protection system and children with autism spectrum disorder (ASD). This includes brief information on the nature and results of any internal or external evaluations undertaken.

This paper builds upon analysis of universal approaches to enhancing children's early language and literacy skills prior to commencing compulsory schooling (see Universal Approaches – Evidence Review report). Table 1 provides a summary of the evidence grades for universal approaches for a range of relevant outcomes, and compares that with the analysis on the approaches targeting the vulnerable groups listed above. The Universal Approaches report also provides an overview of the methodology employed in systematically reviewing the literature and collating information on Australian-based programs. See Tables – Vulnerable Groups Studies for the further detail on the peer-reviewed studies included in the analysis.

In summary, the analysis showed:

- Explicit reading instruction and intervention approaches, when delivered by trained facilitators, can be effective on the specific skills they are targeting (e.g. letter identification, print concept, decoding skills), but on their own do not always impact on broad ranging language and literacy skills. Their effectiveness is maximized when activities are delivered within games, real or imagined scenarios, stories and narratives, or with meaningful context as opposed to passive exposure. They appear to have a greater effect on composite early language and literacy skills and primary school reading skills among at-risk children rather than when universally applied.
- Exposure to Early education services has broad-ranging benefits on some language and literacy skills, but appears to have greater effects among at-risk children and families. Teaching strategies that incorporate elements of explicit instruction and structured learning appear most effective in improving language and literacy outcomes.

- Family and early literacy programs and campaigns seem to have a greater effect on at-risk families rather than when universally applied.
- There was relatively strong support for parenting programs among at-risk families in the first five years of their children's lives impacting on their receptive and expressive language skills, composite early language and literacy skills, and primary school reading skills. These included programs that worked with parents to promote their parenting skills and address specific elements of disadvantage – a broader focus than supporting language and literacy development, although some programs did incorporate these topics.
- Effects of interventions and approaches applied in the first five years of a child's life can be difficult to maintain throughout primary school and secondary school years without continued support for families and young people.
- There is a lack of peer-reviewed research on effective approaches for enhancing early language and literacy skills among Indigenous and First Nations families and communities

Summary and comparison with universally applied approaches

Table 1

Outcome area	Study outcome	Approach-type	Grade-universally applied	Grade for at-risk families	Grade for CALD families	Grade for First Nations families
Emergent literacy	Alphabet knowledge	Reading instruction and intervention	Supported	Supported	Unknown <3 studies	Unknown
		Early education services	Emerging	Supported	Promising	Unknown
		Family and early literacy programs and campaigns	Unknown	Unknown	Unknown	Unknown
	Letter-word identification	Reading instruction and intervention	Unknown	Promising	Unknown <3 studies	Unknown
		Early education services	Promising	Supported	Promising	Unknown
		Parenting programs	Unknown	Emerging	Unknown	Unknown
	Print concept	Reading instruction and intervention	Promising	Unknown	Unknown <3 studies	Unknown
		Early education services	Unknown	Unknown	Emerging	Unknown
		Play-based literacy activities	Promising	Unknown <3 studies available	Unknown <3 studies	Unknown

		Family and early literacy programs and campaigns	Unknown	Unknown	Promising	Unknown
	Spelling and writing	Reading instruction and intervention	Unknown	Emerging	Unknown <3 studies	Unknown
		Early education services	Promising	Emerging	Promising	Unknown
		Parenting programs	Unknown	Unknown	Unknown	Unknown
Composite early language and literacy skills		Early education services	Unknown	Supported	Promising	Unknown
		Reading instruction and intervention	Failed to demonstrate effect	Well supported	Unknown<3 studies	Unknown
		Family and early literacy campaigns and programs	Promising	Well supported	Unknown	Unknown
		Play-based literacy activities	Promising	Unknown <3 studies	Unknown <3 studies	Unknown
		Parenting programs	Unknown	Supported	Unknown	Unknown
Primary-school reading skills		Early education services	Unknown	Supported	Promising	Unknown
		Reading instruction and intervention	Unknown	Well supported	Unknown <3 studies	Unknown
		Parenting programs	Unknown	Supported	Unknown	Unknown
Early language	Expressive Language	Reading instruction and intervention	Unknown	Promising	Unknown <3 studies	Unknown

		Early education services	Promising	Supported	Unknown	Unknown
		Contingent talk parent program	Unknown	Unknown	Unknown	Unknown
		Family and early literacy campaigns and programs	Unknown	Emerging	Unknown	Unknown
		Play-based literacy activities	Promising	Unknown <3 studies	Unknown <3 studies	Unknown
		Parenting program	Unknown	Supported	Unknown	Emerging
	Receptive language	Reading instruction and intervention	Supported	Supported	Unknown <3 studies	Unknown
		Early education services	Supported	Supported	Promising	Unknown
		Family and early literacy campaigns and programs	Unknown	Emerging	Unknown	Unknown
		Parenting programs	Unknown	Supported	Unknown	Unknown
Cognitive development	Approaches to learning	Early education services	Unknown	Unknown	Unknown	Unknown
		Parenting program	Unknown	Promising	Unknown	Unknown
	Executive function skills	Reading instruction and intervention	Emerging	Unknown	Unknown <3 studies	Unknown
		Early education services	Promising	Promising	Emerging	Unknown

		Cognitive development program	Emerging	Unknown <3 studies	Unknown	Unknown
		Parenting program	Unknown	Promising	Unknown	Unknown
	Non-verbal cognitive skills	Early education services	Emerging	Unknown	Unknown	Unknown
		Parenting programs	Unknown	Promising	Unknown	Unknown
	Composite cognitive and developmental skills	Early education services	Unknown	Supported	Promising	Unknown
		Family and early literacy campaigns and programs	Unknown	Unknown	Unknown	Unknown
		Early health visits	Emerging	Unknown	Unknown	Unknown
		Parenting programs	Unknown	Failed to demonstrate effect	Unknown	Unknown
		Fertility treatment	Emerging	Unknown	Unknown	Unknown
		Day sleeps	Unknown	Unknown	Unknown	Unknown
Home literacy environment	Child engagement in reading activities	Family and early literacy campaign and programs	Unknown	Unknown	Unknown	Unknown
	Number of books in the home	Family and early literacy campaign and programs	Unknown	Unknown	Unknown	Unknown
	Parents values and attitudes towards reading	Family and early literacy campaign and programs	Promising	Unknown	Unknown	Unknown

	Parent reading practices	Reading instruction and intervention	Unknown	Unknown	Unknown <3 studies	Unknown
		Family and early literacy campaign and programs	Unknown	Well supported	Unknown	Unknown
		Early education services	Unknown	Promising	Emerging	Unknown
		Parenting programs	Unknown	Promising	Unknown	Emerging

Notes: For at-risk and CALD groups, where there were less than three studies identified for the one approach, they were not analysed due to low numbers. These approaches are graded as Unknown <3 studies within the table. All other unknown grades relate to the grading system as outlined in the Universal Approaches – Evidence review report, or there were no studies identified that measured the corresponding outcome. Grading of evidence for cognitive development outcomes should be interpreted with caution as they were not targeted through search terms conducted as part of this review. Studies reporting on this outcome predominantly also report on other outcome domains therefore they may not reflect the literature on approaches/interventions that specifically aim to impact exclusively on children's cognitive development.

At-risk families

Early education services

Early language skills

Alphabet knowledge

Grade	*Strength of evidence base*	*Direction of Evidence*	*Consistency*	*Generalisability*	*Applicability*
Supported	Moderate	Positive	Moderate	High	Moderate

Expressive language

Grade	*Strength of evidence base*	*Direction of Evidence*	*Consistency*	*Generalisability*	*Applicability*
Supported	Moderate	Positive	Moderate	High	Moderate

Receptive language

Grade	*Strength of evidence base*	*Direction of Evidence*	*Consistency*	*Generalisability*	*Applicability*
Supported	Moderate	Positive	Moderate	High	Moderate

Emergent literacy skills

Letter-word identification

Grade	*Strength of evidence base*	*Direction of Evidence*	*Consistency*	*Generalisability*	*Applicability*
Supported	Moderate	Positive	Moderate	High	Moderate

Print concept

Grade	*Strength of evidence base*	*Direction of Evidence*	*Consistency*	*Generalisability*	*Applicability*
Unknown	Moderate	No effect	Very low	High	Moderate

Spelling and writing

Grade	*Strength of evidence base*	*Direction of Evidence*	*Consistency*	*Generalisability*	*Applicability*
Emerging	Low	Unclear	Low	High	Moderate

Primary school reading skills

Grade	*Strength of evidence base*	*Direction of Evidence*	*Consistency*	*Generalisability*	*Applicability*
Supported	Moderate	Positive	High	High	Moderate

Composite early language and literacy skills

Grade	*Strength of evidence base*	*Direction of Evidence*	*Consistency*	*Generalisability*	*Applicability*
Supported	Moderate	Positive	Moderate	High	Moderate

Cognitive development

Approaches to learning

Grade	*Strength of evidence base*	*Direction of Evidence*	*Consistency*	*Generalisability*	*Applicability*
Unknown	Low	Unclear	Very low	High	Moderate

Composite cognitive and development skills

Grade	*Strength of evidence base*	*Direction of Evidence*	*Consistency*	*Generalisability*	*Applicability*
Supported	Moderate	Positive	Moderate	High	Moderate

Executive functioning

Grade	*Strength of evidence base*	*Direction of Evidence*	*Consistency*	*Generalisability*	*Applicability*
Promising	Low	Positive	High	High	Moderate

Home literacy environment

Parent reading and preliteracy practices

Grade	*Strength of evidence base*	*Direction of Evidence*	*Consistency*	*Generalisability*	*Applicability*
Promising	Low	Positive	Low	High	Moderate

Reading instruction and intervention

Early language

Expressive language

Grade	*Strength of evidence base*	*Direction of Evidence*	*Consistency*	*Generalisability*	*Applicability*
Promising	Moderate	Unclear	Moderate	High	High

Receptive language

Grade	*Strength of evidence base*	*Direction of Evidence*	*Consistency*	*Generalisability*	*Applicability*
Supported	Moderate	Positive	Moderate	High	Moderate

Emergent literacy

Alphabet knowledge

Grade	*Strength of evidence base*	*Direction of Evidence*	*Consistency*	*Generalisability*	*Applicability*
Supported	Moderate	Positive	Moderate	High	Moderate

Letter-word identification

Grade	*Strength of evidence base*	*Direction of Evidence*	*Consistency*	*Generalisability*	*Applicability*
Promising	Low	Positive	Low	High	Moderate

Print concepts

Grade	*Strength of evidence base*	*Direction of Evidence*	*Consistency*	*Generalisability*	*Applicability*
Unknown	Low	No effect	Very low	High	Moderate

Spelling and writing

Grade	*Strength of evidence base*	*Direction of Evidence*	*Consistency*	*Generalisability*	*Applicability*
Emerging	Low	Positive	Very low	High	Moderate

Composite early language and literacy skills

Grade	*Strength of evidence base*	*Direction of Evidence*	*Consistency*	*Generalisability*	*Applicability*
Well supported	High	Positive	High	High	Moderate

Primary school reading skills

Grade	*Strength of evidence base*	*Direction of Evidence*	*Consistency*	*Generalisability*	*Applicability*
Well supported	High	Positive	High	High	Moderate

Home literacy environment

Parent reading and preliteracy practice

Grade	*Strength of evidence base*	*Direction of Evidence*	*Consistency*	*Generalisability*	*Applicability*
Unknown	Moderate	No effect	Very low	High	High

Family and early literacy campaigns and programs

Early language skills

Expressive language

Grade	*Strength of evidence base*	*Direction of Evidence*	*Consistency*	*Generalisability*	*Applicability*
Emerging	Low	Positive	Very low	High	Moderate

Receptive language

Grade	*Strength of evidence base*	*Direction of Evidence*	*Consistency*	*Generalisability*	*Applicability*
Emerging	Low	Positive	Very low	High	Moderate

Composite early language and literacy skills

Grade	*Strength of evidence base*	*Direction of Evidence*	*Consistency*	*Generalisability*	*Applicability*
Well supported	High	Positive	High	High	Moderate

Home literacy environments

Parent reading and preliteracy practices

Grade	*Strength of evidence base*	*Direction of Evidence*	*Consistency*	*Generalisability*	*Applicability*
Well supported	High	Positive	High	High	Moderate

Parenting programs

Early language skills

Expressive language

Grade	*Strength of evidence base*	*Direction of Evidence*	*Consistency*	*Generalisability*	*Applicability*
Supported	Moderate	Positive	High	High	Moderate

Receptive language

Grade	*Strength of evidence base*	*Direction of Evidence*	*Consistency*	*Generalisability*	*Applicability*
Supported	Moderate	Positive	Moderate	High	Moderate

Emergent literacy skills

Letter-word identification

Grade	*Strength of evidence base*	*Direction of Evidence*	*Consistency*	*Generalisability*	*Applicability*
Emerging	Low	Positive	Very low	High	Moderate

Spelling and writing

Grade	*Strength of evidence base*	*Direction of Evidence*	*Consistency*	*Generalisability*	*Applicability*
Unknown	Very low	Positive	Very low	High	Moderate

Composite early language and literacy skills

Grade	*Strength of evidence base*	*Direction of Evidence*	*Consistency*	*Generalisability*	*Applicability*
Supported	High	Positive	Moderate	High	Moderate

Primary school reading skills

Grade	*Strength of evidence base*	*Direction of Evidence*	*Consistency*	*Generalisability*	*Applicability*
Supported	Moderate	Positive	Moderate	High	Moderate

Cognitive development

Approaches to learning

Grade	*Strength of evidence base*	*Direction of Evidence*	*Consistency*	*Generalisability*	*Applicability*

Promising	Low	Positive	High	High	Moderate

Executive functioning

Grade	*Strength of evidence base*	*Direction of Evidence*	*Consistency*	*Generalisability*	*Applicability*
Promising	Low	Positive	Moderate	High	Moderate

Non-verbal cognitive skills

Grade	*Strength of evidence base*	*Direction of Evidence*	*Consistency*	*Generalisability*	*Applicability*
Promising	Low	Positive	Moderate	High	Moderate

Composite cognitive and development skills

Grade	*Strength of evidence base*	*Direction of Evidence*	*Consistency*	*Generalisability*	*Applicability*
Failed to demonstrate effect	High	No effect	Moderate	High	Moderate

Home literacy environments

Parent reading and preliteracy practices

Grade	*Strength of evidence base*	*Direction of Evidence*	*Consistency*	*Generalisability*	*Applicability*
Promising	Low	Moderate	Moderate	High	High

Culturally and Linguistically Diverse (CALD) children and families

Early education services

Early language

Expressive language

Grade	*Strength of evidence base*	*Direction of Evidence*	*Consistency*	*Generalisability*	*Applicability*
Unknown	Low	Unclear	Low	High	Moderate

Receptive language

Grade	*Strength of evidence base*	*Direction of Evidence*	*Consistency*	*Generalisability*	*Applicability*
Promising	Low	Positive	High	High	Moderate

Emergent literacy

Alphabet knowledge

Grade	*Strength of evidence base*	*Direction of Evidence*	*Consistency*	*Generalisability*	*Applicability*
Promising	Low	Positive	Moderate	High	Moderate

Letter-word identification

Grade	*Strength of evidence base*	*Direction of Evidence*	*Consistency*	*Generalisability*	*Applicability*
Promising	Low	Positive	Moderate	High	Moderate

Print concepts

Grade	*Strength of evidence base*	*Direction of Evidence*	*Consistency*	*Generalisability*	*Applicability*
Emerging	Low	Positive	Very low	High	Moderate

Spelling and writing

Grade	*Strength of evidence base*	*Direction of Evidence*	*Consistency*	*Generalisability*	*Applicability*
Promising	Low	Positive	Moderate	High	Moderate

Composite early language and literacy

Grade	*Strength of evidence base*	*Direction of Evidence*	*Consistency*	*Generalisability*	*Applicability*
Promising	Low	Positive	Moderate	High	Moderate

Primary school reading skills

Grade	*Strength of evidence base*	*Direction of Evidence*	*Consistency*	*Generalisability*	*Applicability*
Promising	Low	Positive	High	High	Moderate

Cognitive development

Executive functioning

Grade	*Strength of evidence base*	*Direction of Evidence*	*Consistency*	*Generalisability*	*Applicability*
Emerging	Low	Positive	Very low	High	Moderate

Composite cognitive and development skills

Grade	*Strength of evidence base*	*Direction of Evidence*	*Consistency*	*Generalisability*	*Applicability*
Promising	Low	Positive	Low	High	Moderate

Home literacy environment

Parent reading and preliteracy practices

Grade	*Strength of evidence base*	*Direction of Evidence*	*Consistency*	*Generalisability*	*Applicability*
Emerging	Low	Positive	Very low	High	Moderate

Family and early literacy programs and campaigns

Emergent literacy skills

Alphabet knowledge

Grade	*Strength of evidence base*	*Direction of Evidence*	*Consistency*	*Generalisability*	*Applicability*
Unknown	Low	Unclear	Very low	High	Moderate

Print concepts

Grade	*Strength of evidence base*	*Direction of Evidence*	*Consistency*	*Generalisability*	*Applicability*
Promising	Low	Positive	Low	High	Moderate

Early language skills

Expressive language

Grade	*Strength of evidence base*	*Direction of Evidence*	*Consistency*	*Generalisability*	*Applicability*
Unknown	Low	Unclear	Very low	High	Moderatee

Composite early language and literacy skills

Grade	*Strength of evidence base*	*Direction of Evidence*	*Consistency*	*Generalisability*	*Applicability*
Unknown	Low	Negative	Moderate	High	Moderate

Indigenous and First nations children and families

Early learning

Receptive language

Grade	*Strength of evidence base*	*Direction of Evidence*	*Consistency*	*Generalisability*	*Applicability*
Unknown	Very low	Positive	Very low	High	Moderate

Parenting program

Expressive language

Grade	*Strength of evidence base*	*Direction of Evidence*	*Consistency*	*Generalisability*	*Applicability*
Emerging	Low	Positive	Very low	High	High

Parenting engagement in reading and preliteracy practices

Grade	*Strength of evidence base*	*Direction of Evidence*	*Consistency*	*Generalisability*	*Applicability*
Emerging	Low	Positive	Very low	High	Moderate

Program submissions

Name	Organisation	Sector	State or territory	Age range	Overview	Evaluated outcomes
Aboriginal and Torres Strait Islander families						
The Abecedarian Approach Australia	World Vision Australia	Community development	WA	0-4 years	World Vision Australia is supporting thirteen remote communities in the East Pilbara and West Kimberley implement the program in community controlled playgroups. World Vision provides training in the 3a approach and ongoing coaching and mentoring for local Aboriginal staff in partnership with Melbourne University. World Vision also provides other early childhood technical support to these communities as well as monitoring and evaluation. The Abecedarian Approach Australia –3a was developed after an international literature review of the findings of model early childhood programs and approaches, including the Abecedarian studies, and selected as the approach most relevant to supporting very young children living in disadvantaged circumstances, including poverty and social marginalisation. The program has four core components: 1) Language Priority 2) Learning Games 3) Conversational Reading 4) Enriched Caregiving	An external independent evaluator is to be appointed.
At-risk families						
Ardoch Early Language and Literacy Program	Ardoch	Community services	Vic	4 years	In 2016, Deakin University wrote an evidence-based program in partnership with Ardoch, aimed at improving early language and literacy outcomes for kinder 4 children.	Internal impact evaluation takes place at the end of each year. In term two of 2018, volunteers reported that: 50% had speech which was always intelligible, increasing to 57% by term 4 of the program 26% always used speech to communicate how they feel, increasing to 28% by the end of term 4 42% of

Name	Organisation	Sector	State or territory	Age range	Overview	Evaluated outcomes
					This program includes: - The evidence background - The program to be delivered by trained volunteers - Training manual for Ardoch staff trainers - a materials list, which becomes a box of new, high quality materials - Evaluation methodology Ardoch staff trainers trained all of the Ardoch volunteers, and new volunteers who had chosen to be placed in early years settings. These volunteers attend a full day training as well as an online module. They volunteer to run the program in kinders for children who have been identified by the director, each week for 2 hours per week, for a period of six months or longer.	children could always or usually tell a story in the correct sequence, increasing to 68% by the end of term 4
Building Blocks Young Parents Playgroup - 3a	Good Shepherd	Community services	Vic	0 to 5 years	Building Blocks Young Parents Playgroup targets young Parents and Pregnant Young Women up to 25 years of age and their preschool children (new babies up to 5 years of age).Building Blocks Young Parents Playgroup is a facilitated/supported playgroup and.is structured deliberately to encourage routine and to provide a safe and welcoming environment to families and as preparation for kindergarten and school. Family Support Case Manager facilitates the Playgroup and is qualified as a Certified 3a Practitioner and 3a Affiliate Trainer. 3a is an Evidence Based program promoting intentional and meaningful adult- child interactions focusing on Language Priority, Conversational Reading and Enriched Care giving with the use of Learning Games which encourages intentional added education content into daily routines. BB playgroup also encourages guest speakers and presenters including Maternal and Child Health Nurses who attend once per term -	No independent evaluation to date.

Name	Organisation	Sector	State or territory	Age range	Overview	Evaluated outcomes
					great way to encourage engagement for those families who do not regularly take their children for check- ups as well as great information about child ages and stages - referrals and appointments can be made. As facilitator is also Family Support Case Manager, she can provide limited support and often assists children to be enrolled into 3 and 4 year old Kindergarten - especially Early Start Kindergarten	
Communities for Children – Bendigo	Communities for Children – Bendigo	Community development	Vic	0 to 5 years	Communities for Children Bendigo works in a collaborative participatory way drawing on a collective impact approach. The seven funded projects although diverse in focus all commit to progressing four underlying drivers of childhood vulnerability - one being "Addressing Children's Literacy and Language Development ."These projects include: - Books for Babies: All babies born in Bendigo receive a free book and tips and info regarding literacy and language development. This project is now locally working in conjunction with the Baby Bundles initiative through Sate Vic. The Books for Babies pack is given to new mothers in hospital by a ward clerk who has been upskilled re early language development and resources/services in Bendigo. - Book Box Libraries: In conjunction with Kiwanis Club Bendigo more than 80 little book libraries have been placed in services and businesses across the municipality to provide free books to children. Located in waiting rooms, foyers etc these libraries work on the premise of providing books for free where children and families are naturally supporting access to appropriate children's books. Books are donated for the libraries and Kiwanis coordinate the construction of the little book houses.	Internal reviews only.

Name	Organisation	Sector	State or territory	Age range	Overview	Evaluated outcomes
					-Parent Literacy Champions: this project provided free workshops to parents and interested community members to increase their knowledge of early language and literacy development. Part of these workshops focussed on what attendees could do in their own communities to "champion" literacy, with the understanding that parents go to each other for advice. Currently under review this project has given C4C Bendigo insight into parents knowledge and needs in this area. - Sam the Story Tram: In conjunction with Bendigo Writers Festival, this now annual event brings Bendigo Historic Tramways to life during the week of the Bendigo Writers Festival. each day a special tram is given a special make over and a story teller sings songs and tells stories encouraging a love of books and language. C4C Bendigo also funds a Parent Child Mother Goose program running 3 sessions per week with trained facilitators through Baptcare and Noah's Ark.	
Early Language and Literacy Program	ALNF	Education	NSW, Qld, SA, NT, Torres Strait and Victoria	0 to 8 years	The EL&L program consists of an Australian Skills Quality Authority accredited Certificate IV course (10652NAT), skill-building workshops, resource provision and ongoing mentoring for participants and participating sites (e.g. community preschools, out of home care sites etc). Training focuses on mentoring and training community members and educators in the EL&L program; assisting with the implementation of the program across learning environments, curriculum requirements and other needs; delivering parent and community workshops to present pre-literacy strategies, games and activities. Assisting participants to conduct their own pre-literacy testing and analyse the results to	External evaluations have found that EL&L strategies are accessible to educators, assistant teachers, parents and members of the wider community (ACER, 2015; Perrett, 2017). These evaluations report how: • the program was judged to be practical, achievable and adaptable, to have clear aims and to offer adequate and appropriate training and support to schools and teaching staff; • school leaders and classroom practitioners have further felt that they could rely on ALNF's continuing presence, after a reliable and consistent deployment over more than three years, and that they see its continuation as an important part of their literacy programs; and • those involved with the program identified as one of its strengths its employment of consistent language and approaches across each school [settings], which meant that children could feel secure in knowing that they would encounter the same familiar classroom protocols and language even when teachers or assistant teachers change.

Name	Organisation	Sector	State or territory	Age range	Overview	Evaluated outcomes
					implement appropriate strategies with children; distributing resources as required.	Internal evaluations include the following: • 10652NAT Certificate IV in EL&L course standards and compliance are in accordance with ASQA and National Quality Framework; • Children's phonological awareness longitudinal progress using the SEAPART (School Entry Alphabetic and Phonological Awareness Readiness Test) • Course evaluations from participants; • Course reviews from employer groups; • Mentoring of sites/participants to utilize the SEAPART results; • Provision of Individual Literacy Plans and Group Literacy Plans for sites to guide educators' instructional levels and strategy selection; • Individual children's growth reflection forms are provided in the manual for pre-writing, pre-reading, pre-phonics, and Effective Reading Aloud strategies; and • Aligns with and mapped against the National Quality Standards (NQA), Early Years Learning Framework (EYLF), Australian Early Development Census Domains, National Literacy Learning Progressions and endorsed as Quality Professional Development at the Proficient Teacher level by the NSW Quality Teaching Council.
Education Benalla program – Early Years	Tomorrow Today	Education	Vic	0 to 5 years	Parents Early Education Partnership (PEEP) A program for young mums at a local school and a home visiting program for families experiencing geographical/social isolation or parent/child health issues. Any family with a child experiencing a developmental issue is referred on for assessment, with support and follow-through provided by our staff to ensure that assistance is achieved. Facilitated group sessions include songs, books and rhymes, stimulating pre-literacy and pre-numeracy activities for children and parent discussions about child health and development, and themed topics. Parenting information shared in 'talk time' is linked to the latest evidence-based parenting research from sources such as the Parenting Research Centre and ARACY. Discussions are tailored around local issues and child/parent needs e.g. importance of child/parent attachment; MCH age and stages	Internal reviews for the PEEP program 85% of parents agreed PEEP has given them tips on supporting their child's learning 92% of parents have used the information provided in PEEP talk time at home **81%** of parents stated that attending PEEP **has increased their confidence** as a parent. Kinder immersion evaluated internally, with children making **significant gains** when compared with a control group in **oral language skills**.

Name	Organisation	Sector	State or territory	Age range	Overview	Evaluated outcomes
					checks; and preschool attendance; and why social interaction and emotional resilience are as important as physical health and learning and communication skills. PEEP is a partnership, a peer-to-peer learning program. As participants grow in knowledge and confidence, they are invited to step-up to facilitate their own small group discussions, and support other parents who are anxious or socially isolated. Kinder Immersion The Kinder Immersion program was developed to measurably reduce the number and proportion of Benalla's children who are considered developmentally vulnerable on school entry. The program's play-based curriculum immerses children in pre-literacy, pre-numeracy and rich oral language activities. The curriculum focuses on themes such as the Benalla Festival and summertime. All program materials have been developed by Tomorrow Today staff. A member of Tomorrow Today's staff, who is an experienced Early Years primary school teacher, works with local preschool teachers to identify children who are not academically or socially 'ready' for school. A 'control' group of students is also selected. This group is made up of children considered to be not the most 'able' while not deemed at risk of being developmentally vulnerable. The children in the intervention group participate in two forty-five minute sessions per week for six weeks during Term 4 of the preschool year. Ideas for expanding children's pre-literacy, pre-numeracy and oral language skills are shared with the parents of the children receiving the Kinder Immersion intervention.	

Name	Organisation	Sector	State or territory	Age range	Overview	Evaluated outcomes
Language and Learning at Home - First 5 forever	Benevolent Society	Community services	Qld	0 to 5 years	Language and Learning is funded through First 5 Forever, via the Gold Coast City Libraries. The Language and Learning program provides education in the home to enhance parenting confidence to understand child development (of the whole child). All areas of a child's development are interwoven, so increasing parenting knowledge has had a direct impact on a child's language and communication skills. The program duration is 8 weeks (one session per week for up to 2 hours family contact per session in the family home) and is delivered by Early Childhood Educators. The program uses an early intervention framework to provide intensive parent education to help improve the outcomes for children particularly in regards to school readiness.	Parental feedback indicates that they have found the program beneficial, with many commenting on the new knowledge and skills they have gained to support their child's development, including language, age appropriate routines, age appropriate nutrition and diet and quality play. This has also had the added benefit of enhancing positive attachment and relationships between parent and child.
Learning through Talk	Coraki Public School	Education	NSW	Preschool and primary school children	The LTT program is a resource designed to be used in a school in regional Northern NSW. The school is represented in the top 5% of socially disadvantaged schools in the state and the resource is tailored accordingly. The resource has 6 sections. 1. Tips on how to facilitate expressive language development 2. Tips on how to facilitate receptive language development 3. Games and activities which can be used in each stage of schooling complete with cueing hierarchies and contingencies 4. Red flags for low expressive language 5. Red flags for low receptive language 6. A speech and language screener designed especially for the school The resource requires minimal training to use and demonstrations and education was provided to staff on how to use the resource.	Survey planned six months after implementation
Learning Together	Department of Education (SA)	Education	SA	0 to 4 years	Learning Together is a Government of South Australia, Department for Education, program for families with children aged birth to prior to preschool. It focusses on engaging families in	Both independent and internal impact evaluations have been undertaken on the Learning Together program. Key findings include:

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					their children's learning from birth, literacy and numeracy development, the growth of Learning Dispositions, attachment and wellbeing. The program has been operating in South Australia since 2003. A 4 level program model includes supported playgroups, and some of the following 2nd level activities, cooking with families, music and movement, bookmaking, nature playgroup or Nunga playgroup. Parent education groups focus on topics such as Dispositions for learning, Companionable Learning, brain development, Managing big feelings or Circle of Security Parenting. 3rd level activities engage parents in accredited learning such as SACE while 4th level sees parents continue with further education at TAFE or University or be employed within the Learning Together program	***Families have improved relationships and increased involvement with their child/children.** ***Families have increased knowledge of child development and behaviours to support learning.** ***Families have increased confidence in experiences that influence children's learning** ***Families access other children's services** ***Families change their educational aspirations and perceptions of schools**
Let's Chat	Noah's Ark and Steering Group	Education	Vic	0 to 6 years	*Teachers at local kindergartens and schools are trained Hanen Program ABC and Beyond All the prep teachers and some school based support staff were trained in Noah's Arks' newest program Let's Chat™. The teachers were trained to run a series of information/playgroups for local parents on building their child's early oral literacy. The Let's Chat program is aimed at parents of babies, toddlers and kindergarten children. *DET and Community Kinders Plus created a website to take the bookings for the program *All schools commenced the Let's Chat groups for parents at a variety of times and dates in term three. *The DET regional office managed the website and bookings and ensured that there was a range of times and dates for parents to choose from.	Data collection is ongoing and possible evaluation planned further along.

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No Limits	Mornington Peninsula Foundation	Education	Vic	4 to 6 years	The first stage was to test children in kinder and prep at each of the five locations (ie ten sites) with respect to expressive and receptive language, phonemic awareness and articulation. Testing was done in term 1 2019 by speech pathologists. The second stage was implementation. This involves the speech pathologist visiting each site one day per fortnight. Each child has an individualised plan to address the specific issues identified during testing. An educational support aide was provided for each prep class (the kinder has a higher staff/student ratio so does not have the extra aide). The aides, prep teacher and kinder staff are trained in the implementation of the program. They receive a box of resources that includes a large number of games, tools, prompts, etc that the education staff work through systematically. Children are taken through the program in very small groups according to their needs. The program is embedded into the daily curriculum. Data is collected regularly by the therapist with the support of the aides and staff. Each visit the therapist assesses how the children are going and adjusts the program as required. Term four will see all children tested again with these results compared to baseline and a comparison group.	Internal data analysis of the Pilot program showed very significant changes between baseline and endline testing over 2018 with Crib Point Prep children. An external evaluation is part of the No Limits three year current program. Most significant changes to date have been in behaviours. Children who were terminally frustrated due to not being understood are calmer and less aggressive and fully engaged in learning. Teachers are relieved to have a strategy to address a chronic issue. Children are kinder to each other and engage more appropriately in play. Parents are seeing less frustration, greater interest in books and reading, increased attendance rates.
Off to School Program – Sing and Grow	Sing and Grow	Community services	National	4 to 5 years	6-8 week group program for children who are attending school in the following year and their parents Facilitated by Registered Music Therapists Located within a school setting Themes relevant to school transition are incorporated each week Music is the primary tool through which outcomes are addressed and achieved. Participants encouraged to actively participate in singing and instrument playing Participants encouraged to engage in	Sing&Grow is undertaking a larger evaluation project in 2019 in partnership with QUT. Child development goals are part of this study, and references previous literature about the role music plays in developing the foundations for children's brain development. which assist with the formation of pre-literacy skills.

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					music making at home *Counting and rhyming songs are particularly encouraged Families are encouraged to read to their children to assist with school readiness	
Paint the Town Read and Paint the town REad, Black and Yellow Ltd	Paint the Town REad	Community services	National	0 to 5 years	Communities are targeted where the Australian Early Development Census (AEDC) indicates children are struggling with literacy. Focus is on children under school age and their families, with a growing emphasis on the first 1000 days. Under the guidance of Aboriginal Elders, we have developed an Aboriginal specific community engagement model - Paint the Town REaD, Black and Yellow. PTTR has two key aspects to its practice. 1) An Annual Reading Day engaging the whole community in the celebration of literacy through reading with children under school age and 2) Everyone to think smarter about how to include early literacy in all aspects of their life and work, for example from having a targeted reading and singing program in playgroups and early childhood centres, a reading tent at the local markets to 'Have you read with your child?' coasters in the local cafe and book swap boxes in the local Police Station and Pub. Each local community has its own distinctive mascot and logo, capturing through co-branding all the local early literacy initiates under one banner. Agencies engaged at a local level include child and family services, service and sporting clubs, community members, local businesses, media and Local, State and Federal Government workers and representatives.	The 2018 AEDC Data was reviewed in the thirteen PTTR communities, which had been fully operational for five years prior to 2018, along with 13 'control' communities, of similar type, sharing a common geographic border, which did not have a PTTR presence. In the one developmental vulnerability data, 62% (8) of the PTTR communities, showed a significant decrease in vulnerability, 31% (4) no change, and 7% (1) a significant increase in vulnerability. In the 'control' communities 7% (1) of the communities, showed a significant decrease in vulnerability, 54% (7) no change, and 39% (5) a significant increase in vulnerability. In the language domain - children's understanding of and speaking of words - an indicator of literacy development, 70% (9) of the PTTR communities, showed a significant decrease in vulnerability, 23% (3) no change, and 7% (1) a significant increase in vulnerability. In the 'control' communities 15% (2) of the communities, showed a significant decrease in vulnerability, 31% (4) no change, and 54% (7) a significant increase in vulnerability.

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Peep Learning Together Programme, The Peeple Centre, UK	Brotherhood of St Lawrence	Education and family services	NSW	0 to 7 years	PeepLTP is an adult learning curriculum that is play-based for parents/carers and their children aged birth to 6 years. It contains 74 topics relating to the five main developmental domains and across the developmental periods from birth to age 6 years. The topics comprise underpinning information from the latest research into child development and how it can be supported, with a methodology for practitioners to share that information with parents/carers by building on their existing strengths and practices. BSL has been running PeepLTP in several locations since March of 2017.	PeepLTP has been evaluated in five independent research studies by the Universities of Oxford and Warwick. These show that Peep: - successfully reaches isolated families and engages them in their children's learning - helps parents become more aware of their children's development and how to foster it - helps children develop good foundations for literacy and strong self-esteem enables practitioners from a wide range of professions develop new skills and fresh approaches to unlock parents' potential rather than focus on their problems.
Playlinks/Meet, move and make	Blue Bird Foundation	Community services	National	0 to 5 years	MEET, MOVE & MAKE (parents under 26yrs with children 0-5) 'Meet, Move & Make' is a weekly arts-based group session designed to support young parents to engage in joyful activities with their 0-5 year olds. Parents learn skills during group time to enrich their ongoing relationships with their children: one morning becomes a week full of learning opportunities. The program provides a learning environment that supports child development, family relationships and effective parenting skills.	None reported
Pre-literacy and oral language program	The Infants Home	Education and allied health	NSW	0 to 5 years	Program centred around repeated book reading and include other goals such as fine motor and cognitive competencies for a child to be regulated so they can engage and learn the content. Undertaken in small group settings by integrated team of allied health (Speech Pathologists and Occupational Therapists) and early childhood educators Many aspects are derived from the Read-It-Again Program evidence based program such as focusing on 4 core features (vocabulary, narrative, phonological awareness and print knowledge)	Collaborative data is collected during each session to show individual child progress. Observed impacts have included improved ability to pay attention, participate by answering questions and waiting during turn taking. We have also seen positive impact in children's ability to acquire new skills (cutting, pasting, drawing/writing, producing speech sounds and learning new words).

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Smalltalk	Parenting Research Centre	Community services	National	0 to 3 years	smalltalk is a set of evidence-based strategies that parents can use to enhance the home learning environment for their children from birth up to school age. It is intended to be delivered in the context of supported playgroups. The core components of smalltalk are: 1. Quality everyday interactions Quality interactions between parents and their children happen in every family. What matters is how often they occur, and in how many different ways. 'Quality interactions' refers to the little extra parents can do to make the most of everyday opportunities for children to extend their language and learning. 2. Stimulating environment A stimulating environment for a child is one designed to help them learn and develop. smalltalk encourages parents to establish and maintain routines; read and play with their children; engage with their community and local resources, and consider the amount and type of media their child accesses. 3. Parental self-care Parents who attend to their own health and well-being needs can more effectively meet their child's needs and stimulate their development. This component focusses on simple stress-mitigation skills and aims to increase parental coping skills. 4. Parenting confidence Increased parental confidence can help parents turn knowledge into action by supporting them to apply the knowledge gained from participation in a smalltalk group. 5. Community and services connectedness A person's well-being can be affected by the quality of their social environment and the extent to which they and their family feel	smalltalk groups were compared with 'standard' playgroups that did not have any smalltalk content but did have high quality parenting information. It showed that parents reported: a. they were more verbally responsive to their child b. they were engaged with more activities with their child in the home c. provided a richer home literacy environment d. engaged in a higher quality parent-child interaction Observations included: a. parents followed their child's lead more b. parents used more descriptive language c. parents maintained their child's interest in activities d. parents engaged in higher quality parent-child interactions

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					supported by and contribute to their community. This component of smalltalk focuses on helping parents increase their knowledge of and participation in local, community-based services, and to access more opportunities for community-based social and personal support.	
Stepping stones to School: A transition to school program	Beyond the Bell School Retention Network	Education	Vic	3 to 5 years	Stepping Stones To School aims to improve the transition of at risk children between kindergarten and school settings. The employment of a Program Coordinator builds capacity of and connection between providers and families, in order that children have a better transition experience from kinder to primary school. The two key elements of the program include: - To work directly with vulnerable families across systems in order to identify children at risk of developmental delays, strengthen connections and support for vulnerable parents, and ensure appropriate transition information is in place - To work with professionals within the kindergarten and school systems to identify issues and resolve where possible, barriers influencing the potential successful transition to school The Coordinator initiates and supports the development of Early Years Transition Networks (there are now 3 across the Glenelg Shire) and ensures key stakeholders sit on the steering committee. Through a Shire Protocol which is jointly developed by all stakeholders, the program increases reciprocal visits between kinders and school, organizes professional development sessions to educate stakeholders around successful transitions and collaborative partnerships, and sets annual dates for SS2S steering committee meetings and network	Program externally evaluation in 2019. Medium Term Outcomes showed improved kinder and school transition processes, improved relationships across the sectors, improved relationships between families and providers, and improved responses for vulnerable families. Short Term Outcomes showed the Glenelg Transition Protocol was successfully completed and implemented, showed improved capacity of the Early Childhood and Primary Education sectors, greater recognition of the needs of vulnerable families.

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					meetings. The Coordinator also works one-on-one with families where children need to build attentional and social skills, and language and early literacy skills.	
Story and Rhyme time	Mercy Care	Community services and family support	WA	0 to 5 years	Conducted with teenage parents and those connected with the child protection and family services. It includes finger rhymes, whole body rhymes, bouncing rhymes, interactive tools such as felt pieces , puppets or role plays. The parent and child sit together on the mat and are encouraged to all participate. The benefits of role modeling are explained. All the resources can be easily made from items around the home or purchased easily. The story and rhyming runs for about 20 mins or pending on the groups participation. Options for the children who decide they are finished sitting includes puzzles or a manipulative activity that is quiet. Once the final story or song is completed there is a craft activity to match the story	None reported
Strong Families, Strong Children - Loddon	North Central Local Learning and Employment Network	Various	Vic	0 to 8 years	Strong Families, Strong Children - Loddon is a philanthropically funded 3-4 year program. A Program Management Group oversees the strategic focus of the program and an Early Years Facilitator drives the operational side of the program. The major focus is on improving access to early years supports and services for under resourced families and children and/or families and children with complex needs. The program focuses on working individually with these families and learning how the system can be changed to enable better access to the supports and services they require. There is an enormous gap in level of services such as speech pathology. There is minimal to no childcare across the entire shire so most children only have access to early education and care when they begin 4 year old	At the time of submission the program was only 12-18 months in. Latrobe University has been engaged to help evaluate the program. Baseline data for the majority of outcomes has been collected, including AEDC data.

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					preschool. There are housing issues, transport issues and more which impact a family's ability to provide adequate care and attention to children. Current priorities are working to improve families, services and communities knowledge around the importance of the early years, in particular interactions with children in everyday activities to improve their speech, language and overall development; and working with government health services to try to increase speech pathology services within the shire.	
Transition to School at the Cubby House	Mission Australia and Department of Health	Community services	NSW	4 to 5 years	Delivered as part of the Communities for Children program in South Western Sydney. Speech Pathologists and Music therapists deliver the program. Runs for 16 weeks (cumulative intensity of 48 Hours) Program has active parental involvement for half of the treatment time. Program has a music therapy component, shared book reading time, book borrowing and language and literacy time. The program is a collaborative development intertwining all aims across the three sections. The program is based around 16 selected texts; specifically designed songs and music activities; specific vocabulary and letter/sound targets and inferential thinking. It also includes a parent and child interaction and book reading time with light touch coaching. Delivered at local schools.	The program has initial pilot data (n=21) and a formal evaluation stratagem is being formulated. Preliminary evaluation shows statistically significant results across the full range of language and pre-literacy targets as well as significantly positive parent experience.
Culturally and Linguistically Diverse Families						
Bilingual Storytime	ACT Libraries	Community services	ACT	3 to 5 years	Presenters (library staff and brokered) run Bilingual Story Times in the following languages: Arabic, Mandarin, Tamil, Indonesian, Vietnamese, Farsi, Hindi, Thai, Japanese, Cantonese.	None reported

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Read All About It	Private speech pathologist	Education	Qld	3 to 6 years	The program has been developed by Speech Pathologist Claire Monsour. The program is delivered at a community kindergarten, twice a week with each group averaging 16-20 children. A large portion of the class is ESL/CALD (culturally and linguistically diverse). The program is based on recent research on the benefits of book sharing for language and literacy development, and utilises strategies from several Hanen language and literacy programs, as well as drawing on other available programs for oral language and literacy (such as ORACY and POLLY). Activities are whole class and small group-based. The program centres around a different children's picture book each session, and includes shared book reading with Key Word Sign, small-group second reading with Blank's Questions for comprehension and critical thinking, a gross motor activity with focus on CSPAR (character, setting, problem, action, resolution), a phonological awareness activity, and a craft activity with focus on narrative comprehension/retell and extension of ideas (personalising, evaluating, problem solving, predicting and inferring). Social skills and regulation are secondary goals/targets. The families are offered a communication screen for their child in conjunction with participation in the program.	This is a pilot program, and formal evaluation measures are still being confirmed/decided. Early measures have been anecdotal/subjective, with focus being on student learning outcomes and educator satisfaction.
Children in Child Protection system						
Take Two Berry Street Communication Program	Berry Street	Child Protection and Safety	Vic	16 months to 6 years	This is year 1 of a 3-year pilot project where Take Two Berry Street seeks to document the speech & language abilities of children referred to Take Two for intensive therapy after experiencing substantiated trauma and/or neglect such that they are in out-of-	The Communication Project at Take Two Berry Street is subject to an external governance group with representation from LaTrobe University, Mindful, and an external academic speech pathology consultant. The project has also been informed by guidance from the Research and Evaluation Team of Take Two Berry Street. This Loddon piece has been the first year of a 3-year pilot project. An abstract has been submitted to the World Association of Infant Mental

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					home care or receiving Child Protection intervention. speech pathology consultant (myself) completed the speech & language assessments. The Rossetti Infant Toddler Language Scale was utilised with the infants aged up to 36 months, and the CELF-Preschool 2 was used with the preschoolers. Caregiver and Teacher/childcare questionnaires were also included in the assessment, as was review of the case histories of the children to identify other risk factors for learning disadvantage (including parental history of mental illness, developmental disabilities or learning difficulties, and prenatal exposure to illicit drugs and alcohol). A plain-English report with recommendations was written for each child, and shared with the child's Take Two therapist, their caregivers, and childcare worker. A feedback session with the caregivers was held, and telephone consultation with childcare workers offered where appropriate. Referrals to community or hospital speech pathologists, as well as other community programs (Mother-Goose program, Early Intervention) were made as indicated.	Health for the 2020 conference related to the work in the Loddon. Findings are not yet published, as the project is an ongoing one until 2021. For the children assessed relevant to this submission, 7 out of 9 children were found to have mild-moderate delay in their language development. An additional 1 child scored within normal limits on the CELF-Preschool 2 but failed to meet criterion on the Pre-Literacy Rating scale (in the year before commencing Prep). Thus overall findings suggest there is significant reason for concern for the language development of 8 out of 9 children assessed for this project.
Children with ASD						
More than Words	Hanen	Family support	National	0 to 5 years	The More Than Words parent program includes: 8 training sessions in small, personalized groups A Hanen Certified speech-language pathologist leading the program A pre-program consultation for parent/s and their child with the speech-language pathologist Three individual visits for parent/s and their child with the speech-language pathologist in which parent/s are videotaped while practicing with their child. Then parent/s and the speech-	International studies have supported the beneficial outcomes of the program http://www.hanen.org/Helpful-Info/Research/More-Than-Words-Parent-Research.aspx

Name	Organisation	Sector	State or territory	Age range	Overview	Evaluated outcomes
					language pathologist watch the videotaped interaction to "see" what's helping and what parent/s can modify to help even more	
Children with language delays and impairments						
It Takes Two to Talk	Hanen	Family support	National	0 to 5 years	* 6-8 training sessions for parents in small, personalized groups * A Hanen Certified speech-language pathologist leading the program * A pre-program consultation for parent/s and their child with the speech-language pathologist * Three individual visits for parent/s and their child with the speech-language pathologist in which they are videotaped while practicing strategies to help their child achieve specific communication goals. Parent/s and the speech-language pathologist then watch the videotaped interaction to "see" what's helping the child and what parent/s can modify to help even more.	International research has been undertaken on the benefits of the program http://www.hanen.org/Helpful-Info/Research/It-Takes-Two-to-Talk-Parent-Research.aspx
Launch to School	Department of Health (NSW)	Health	NSW	3 to 5 years	8 sessions (16 hours in total). Run in two different intensities. The program is manualised with session plans, goal sheets, resources, homework, and parent training and is undergoing a control trial evaluation. Rigorous pre- and post-testing schedules are incorporated to provide families and schools with outcomes relevant to supporting each individual child transition to school and literacy. The program is run by Speech Pathologists and Occupational Therapists-all of which have attended a short training course to support fidelity of implementation.	A control trial is being conducted with the publication of outcomes in 2020-2021. The pilot evaluation indicated positive program outcomes across the full range of language and pre-literacy outcomes. It is the aim of the program to be made widely available for services to implement and to evaluate the impact of dosage distribution on outcomes.

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Literacy Fun-da-men-tools	Private speech pathologist	Health	NSW	4 to 6 years	There are nine sessions in the Literacy Fun-da-men-tools program. Each session is themed and contains six to nine games with instructional videos demonstrating how to play the activities, as well as explaining which skill is being developed. These videos are accompanied by comprehensive, easy to follow activity plans, instruction sheets, worksheets and dozens of beautiful resources for parents/pre-school teachers/speech pathologists etc. to download and use.	An internal impact evaluation has taken place for Literacy Fun-da-men-tools. This is based on the small sample size of children who have undergone Literacy Fun-da-men-tools and have continued therapy at The Language Tree clinic, using the program that follows directly on from Literacy Fun-da-men-tools (Literacy Read & Write). This has enabled their progress to be tracked statistically. Gains have been analysed among individual children.
Oral Inferential Comprehension Intervention	Unclear	Education	WA	5 to 6 years	The intervention is designed to be delivered in small groups (3 to 4 children), in 30 minute sessions twice per week over 8 weeks. It is designed around book sharing and storytelling with easily available story books. Few resources are required for the intervention - the story books, paper/pens, and a printer. Speech pathologists, teachers and highly trained education assistants may deliver the intervention. The programme contains all scripted session plans.	A randomised controlled trial was undertaken (Dawes et al 2018). Participants were randomly allocated to the oral inferential comprehension (IC) intervention or a control phonological awareness (PA) intervention. Small-group sessions took place twice a week over 8 weeks. Participants were assessed on narrative comprehension and phonological awareness skills pre- and post-intervention, and after a maintenance period of 8 weeks. Compared to the control PA group, the participants in the IC group demonstrated a **significant increase in inferential comprehension scores from pre- to post-intervention,** which was maintained over time. In addition, the IC group **scored significantly higher than the PA group for inferential comprehension on a post-intervention generalization measure**. There was no significant difference between the two groups for literal comprehension scores at any assessment point. The results demonstrate that the small-group intervention was effective at improving inferential comprehension of narratives in 5- to 6-year-old children with developmental language disorder. Additionally, **generalized improvement was shown across the narrative context, and improvements were maintained two months following the intervention.**
Read with Me	Benevolent Society	Community services	Qld	3 to 5 years	The Benevolent Society Gold Coast delivers the Read with Me program in childcare centres. The program aims to improve the emergent literacy skills of children aged 3 – 5 years who are beginning school the following year. Children receive one-on-one sessions with one of our volunteers, where they will do reading and complete activities to help strengthen their literacy skills. Progress will be monitored and documented throughout the duration of the program via discussions with the volunteer	A study examined the effects of a volunteer-implemented dialogic reading intervention on 75 children aged from three to five years, focusing on measures of vocabulary, oral comprehension, print awareness, social–emotional behaviour, communication skills, and book reading tendencies. Results showed significant **improvements across all outcome variables**, supporting the viability of volunteer-implemented reading interventions in childcare settings for improving children's emergent literacy, communication and social–emotional behaviour (Fitzgerald, Robillard and O'Grady 2016) .

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					and centre staff. All our volunteers have had a police check and hold a current bluecard. They have had training in how to deliver the Read with Me program	
Sounds Write	Consultant - Alison Perry, Soundality	Education	National	4 to 6 years	The Sounds-Write program enables children to start learning phonic knowledge and skills in their first year of school (aged 4-6 years), and continues to explicitly teach reading and spelling throughout the primary years. The expectation is that students will be fluent readers having secured word recognition skills by the end of the first three years of schooling. The Sounds-Write program is also highly effective in teaching reading and spelling to students of any age, as well as individuals with conditions that impact on their learning, including (by not limited to) English as an additional language, language and learning disorders (including Dyslexia), Autism Spectrum Disorder and low cognitive ability.	International literature highlights the benefits of the program. https://www.sounds-write.co.uk/sites/soundswrite/uploads/files/56-dfe_report_on_sounds-write_Feb_2013.pdf https://www.sounds-write.co.uk/sites/soundswrite/uploads/files/42-sounds_write_research_report_2009.pdf.
Spot Rural	Spot Rural	Health	National	All ages	SPOT Rural delivers communication and literacy therapy across the country. This therapy is delivered by a group of qualified Speech Pathologists using telehealth for over 90% of consultations. A range of programmes is used to support children with language, literacy and/or learning difficulties. Includes, The Spalding Method, Sounds-Write, The Visualising and Verbalising Program, and Colourful Semantics.	Internal impact evaluations shows a steady increase in literacy and language skills for all students receiving a frequent service.
Talkable	Talkable	Health	WA	0 to 3 years	The Talkable programme is delivered by a Speech Pathologist and consists of: ten weekly tutorials provided via a mobile application; eight live online support sessions, and three group “face-to-face” workshops (at weeks 1, 5 and 10 of the programme).	A preliminary evaluation of the Talkable pilot programme has been completed in conjunction with academic staff from Curtin University. Results **indicate statistically significant improvements in caregiver self-reported levels of knowledge about early language development and ways to assist their child’s language learning**. A paper detailing this evaluation is currently in development for submission to a peer-reviewed journal.

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					The mobile application provides caregivers with a 10-week early language programme that follows a regular format including: one language stimulation strategy each week (detailed in table 2 below); weekly training provided via video tutorials (including demonstration of the implementation of each strategy with a young child); tips about embedding the language strategy in everyday interactions; four key word signs per week (a total of 40 signs over the course of 10 weeks), and `a focussed book-sharing activity.	
The Oral Narrative Intervention Programme	Unclear	Education	National	4 to 6 years	The ONIP is designed for speech pathologists, teachers and/or specialist education assistants to deliver in small groups of 3-6 students in a mainstream school or clinical setting. The intervention is designed to be delivered in 30-40-minute sessions, 3x/week over 6 weeks (18 sessions in total). It is split into two phases - Phase 1) Introduction to macrostructure, Phase 2) Application with stories. The ONIP manual includes a detailed background to the theory and rationale for the intervention, and detailed scripted session plans for each session. Some resources are also included in the manual, and recommended commercial resources for certain elements of the programme.	The ONIP was evaluated as part of a Master of Philosophy study at Curtin University. Efficacy was evaluated using a Phase 1 non-randomised single-subject across multiple-baselines design, with 11 participants. Results revealed that participation in the programme resulted in significant changes with moderate to large effect sizes for most participants in the number of macrostructure elements, and conjunctions and adverbs. Analysis of pre-post standardised narrative data revealed clinically significant improvements for 9 of the 11 participants. A summary of the research findings is also available in a peer-reviewed article Glisson, L., Leitão, S., & Claessen, M. (2019). Evaluating the efficacy of a small-group oral narrative intervention programme for pre-primary children with narrative difficulties in a mainstream school setting. Australian Journal of Learning Difficulties, 1-20. https://www.tandfonline.com/doi/abs/10.1080/19404158.2019.1596138.
Waiting for speech pathology website	Department of Health (NSW)	Health	NSW	3 to 6 years	The 'Waiting for Speech Pathology' website provides information and resources for families and others to support children's speech, language, and early literacy skills in everyday situations while they wait to see a speech pathologist. The website is not intended to replace seeing a speech pathologist, but contains helpful information about what to do while children and families are waiting. The website has been developed for families by Western NSW LHD speech	A randomised controlled trial was conducted comparing provision of the website or a face-to-face advice session (administered by a speech pathologist) to up to 12 sessions of face-to-face therapy with a speech pathologist for 110 children aged 3-6 years with diagnosed speech and/or language difficulties on speech pathology waiting lists. Therapy resulted in **significantly greater speech outcomes than the advice and website conditions, and significantly higher caregiver satisfaction than the website condition**. However, findings indicated that provision of the purpose-built website or an advice session "may be a viable alternative while children wait for therapy targeting intelligibility, language, and literacy and to empower caregivers" (McLeod et al., 2019, manuscript in submission).

Name	Organisation	Sector	State or territory	Age range	Overview	Evaluated outcomes
					pathologists (Emily Davis, Katrina Rohr, Katherine Miller, and Sally Thornton) and Charles Sturt University (Prof. Sharynne McLeod and Nicole McGill) as part of a NSW Health Translational Research Grant titled "Waiting for speech pathology: Device versus advice?". https://wnswlhd.health.nsw.gov.au/our-services/speech-pathology	
Deaf children/ children with hearing impairments						
Listening and Spoken Language Program	Hear and Say	Education and disability	Qld	0 to 6 years	The LSL Program is a telehealth and face-to-face service delivered by speech-language pathologists and/or teachers of the deaf. individualised LSL therapy is provided, where frequency of service is dependent upon each family and child's needs. Early childhood carers are also supported to use Listening and Spoken Language Strategies to maximise a child's language development. These strategies include narration, waiting/pausing, acoustic highlighting, managing technology, repetition, auditory closure, singing, reading and many more. Each child in our LSL Program has an Individualised Education Plan (St Gabriel's Curriculum now being developed as an App) that outlines developmental goals across the domains of audition, language, speech, social interaction, cognition, fine & gross motor development and early literacy. Children are assessed using standardised assessment on a 6 or 12 monthly basis.	Standardised assessments and protocols are undertaken to measure progress and change of clients.

Study description	Intervention delivery	Control group type	Sample description	Outcomes measured (and tools/ scales used)	Results	Covariates	Mediators and moderators	Bias
Reference: (Ansari & Gershoff, 2016) **Study method: Cohort study (Level 3)** **Country: United States of America (USA)** **Sample size: N=1020**	Head Start is a federally funded program that aims to provide families with holistic support in the early years of their child. Specific features were examined in this study to explore their promotion of parent involvement in their child's learning. This included the provision of practical support and services, and staff training in parent involvement.	Lower measures of practical support and staff training in parent involvement.	*Total sample* Age (baseline) M=40.8 months, 41.3% African American, 26.8% Hispanic, 21.9% white, 10% other; 51.1% female, father education less than high school diploma 37.6%, mother education less than high school diploma 31.7%, father employment status full-time 68.2%, part-time 14.4%, unemployed 17.4%; mother's employment full-time 33.9%, part-time 22%, unemployed 44.1%; not a two-parent household 50.4%.	**Parent cognitive stimulation**: Home Observation for Measurement of the Environment scale **Approaches to learning:** Preschool Learning Behaviours Scale. **Literacy skills**: PPVT (Spanish and English versions); letter-word identification sub-scale of the Woodcock-Johnsons Tests of Achievement; the spelling word subscale of the WJ Tests of Achievement; and the Story and Print concept task **NB:** Measured end of the school year and the start of the next year	*Parent cognitive stimulation* Indirect intervention effects, with parents who demonstrated greater parental involvement more likely to provide cognitive stimulation beta=0.24, p<0.001 and parent involvement positively associated with teacher and staff training in parent involvement (beta=0.1, p<0.05). Practical support was linked to less parental involvement (beta=-.0.08, p<0.05). *Approaches to learning:* Indirect effects through association with parental involvement (see intervention effects for parental involvement above), being negatively associated with controlling behaviour (beta=-0.07, p<0.05), controlling behaviour being positively associated with spanking behaviour beta=0.16, p<0.001, and spanking being negatively associated with approaches to learning beta=-0.11, p<0.01 *Literacy skills:* Literacy skills positively associated with level of cognitive stimulation	Child level: age, gender, ethnicity. Parent level: age, education, employment status. Family level: ratio of income to poverty, family structure, family size, home language, parent relation to child, parent depressive symptoms. Teacher characteristics: education level, year of experience, depressive symptoms, education level of centre director and education coordinators, structural quality of classroom, sensitivity/responsiveness of teachers, frequency of teacher math/literacy instruction.	See results. Effects of staff training mediated by parental involvement, level of cognitive involvement, parental controlling behaviours and spanking behaviours (varying by outcome).	Moderate. Intervention defined retrospectively

					provided by parents (beta=0.07, p<0.05).			
Reference: (Ansari & Winsler, 2014) Study method: Cohort analysis Country: USA Sample size: intervention group n=770, control group n=12,975	Attendance at public Montessori Pre-K program	Attendance at another type of pre-K program	Sample drawn from Miami School Readiness Project *Intervention group* Age (baseline) M=54.27 months SD=3.56, 50% female, 28% Latino, 72% African American,73% home language English, 26% home language Spanish, 0.5% home language other, 94% free or reduced fee lunch *Control group* Age (baseline) M=54.29 months SD=3.52, 50% female, 53% Latino, 47% African American,46% home language English, 45% home language Spanish, 7% home language other, 90% free or reduced fee lunch.	**Cognitive skills** **Language skills** **NB:** outcomes assess by Learning Accomplishment Profile – Diagnostic: cognitive and language subtests at the start and end of the school year	*Cognitive skills* Intervention effects coefficient=6.48, p<0.05. Effect moderated by ethnicity coefficient=-11.81, p<0.001 *Language skills* No intervention main effect but significant interaction between intervention and ethnicity on language outcome coefficient=-9.03, p<0.05	Baseline score, ethnicity, interaction between ethnicity and intervention	Ethnicity moderated the impact of both outcomes with African American children making greater gains in than Latino.	High. Limited set of covariates used. Intervention set retrospectively and lack of consistency in control group condition
Reference: (Auger, Farkas, Burchinal, Duncan, & Vandell, 2014)	Study incorporated various curriculums, including Bright Beginnings and Creative curriculum, Creative Curriculum, Creative Curriculum	Preschool Curriculum as usual	*Intervention group* Age M=54.66 months (at baseline); 48% male, 35% white, 42% black, 1% Asian, 16% Hispanic, 6% Other. 48%	Receptive vocabulary: Measured by PPVT Letter-word recognition: Measured by Woodcock-Johnson	*Receptive vocabulary* Indirect intervention effects through centre care quality. Interventions were significantly related to centre care quality measures, which was	Child level variables: gender, ethnicity, age. Maternal variables: marital status, education levels, employment	Centre-care quality mediated intervention effects for receptive vocabulary and letter-word	Moderate. No information received about whether individuals measuring outcomes were

Study method: Randomised controlled trial (RCT) (Level 2) Country: USA Sample size: Intervention group app N=1540 (rounded to the nearest 10) Control group app. N=1160 (rounded to the nearest 10)	with Ladders to Literacy, Curiosity Corner: Success for all, Doors to Discovery and Let's Begin with the Letter People, Early Literacy and Learning Model, Language-Focused Curriculum, Literacy Express and DLM Early Childhood Reading Express supplemented with Open Court Reading Pre-K, Pre-K Mathematics supplemented with DLM Early Childhood, Express Math Software, Project Approach, Project construct; Ready, Set Leap.		mother married, M=31.67 maternal age SD=7.68, 13% receiving welfare aid; Maternal education M=13.01 SD=1.9, 67% mother employed, income M=31 020 SD=24 470. *Control group* Age M=54.74 months (at baseline) 33% white, 44% black, 1% Asian, 15% Hispanic, 7% other; N=970, 46% mother married, maternal education M=12.77 years SD=1.9, 64% mother employed, N=960, Maternal age M=31.55 years, SD=7.72, 17% receiving welfare aid, income M=29310, SD=23110.	Tests of Achievement, letter-word identification subtest. **NB:** All measured applied at the start and the end of the school year	significantly related to this outcome (d=0.05, SD=0.02, p<0.01) *Letter-word recognition:* Indirect effects through centre care quality. Interventions were significantly related to centre care quality measures, which were significantly related to this outcome (d=0.1, SD=0.02, p<0.001)	status, income, welfare assistance status.	recognition (see results).	blind about treatment status. Due to the nature of the treatment, providers (classroom teachers) would not have been blind to the treatment condition. No information provided on measures of fidelity to treatment condition.
Reference: (Cannon, et al., 2018) Study method: Meta-analysis (Level 1) Country: USA	Early care and education, home visiting, parent education conducted during the prenatal period to age 5 years. 78% of the studies selectively involved either early care and education, home visiting or parent	Various	Under the age of 5 years. Dominant start ages were during infancy (0-11 months) or preschool ages (36 to 60 months). Most programs were not universally applied, with being a low-income family the most common	Cognitive achievement: Outcome domain describing measures of literacy and self-regulation. This includes language or literacy, math, other subjects, general IQ or	*Cognitive achievement:* This outcome was measured for 77 programs. 34% of outcomes in this domain show favourable impact of program, 65% show null impact, 1% showed unfavourable impact. Language and literacy was measured 412 times,	Various	Not provided	Moderate. Tools and scales used for measurements not detailed. Noted that measurements varied greatly within outcome domain.

Sample size: N=115 studies	education, with seven using a combination of parent education and home visiting, and six that combined ECE and home visiting, and three than combined all three approaches. Most programs interacted primarily with parents, children, or both.		criterion for identifying intervention participants.	mental indices, executive function or self-regulation, other cognitive measures. Overall encompassing 833 outcomes, found in 77 studies. Measured by various scales and tools.	with it being favourable 35%, null 64% and unfavourable 1%. Assessment for general IQ or mental indices were measured 144 times, with a favourable impact shown 43% times, null 57% and unfavourable 0%.			
Reference: (Cunningham, Etter, Platas, Wheeler, & Campbell, 2015) Study method: Pre-test post-test without control group (Level 4) Country: USA Sample size: N=101	Teacher Study Groups – In addition to content related to phonological awareness development and instruction, teachers also received information and opportunities to develop their knowledge and skills related to oral language and print knowledge development. During Years 2 and 3, teachers also received information on foundational teaching practices such as working with dual language learners, scaffolding children's learning, differentiating instruction, formative assessment practices, and classroom	NA	Mean age 4 years 5 months (SD=3.47 months), 11% Caucasian, 17% Filipino, 35% Latino, , 31% African American, 3% Asian American, 3% multi-racial	**Phonological awareness:** Subtest of the Test of Preschool Early Literacy, measured at pre and post-test.	*Phonological awareness* Significant intervention effects pre and post-intervention when compared with standardised TOPEL scores, effect size=0.27	None analysed	None analysed	Moderate. Non-blinding of intervention participation. Participants and children per classroom were randomly selected, somewhat accounting for possible confounding factors.

	management. TSG sessions were held twice a month for 2 h in a designated room at one of the shared school sites, for a period of 7–8 months. Each TSG session followed a four-step process based on principles of effective adult learning: (a) Review, (b) Content Presentation, (c) Practice, and (d) Preparation.							
Reference: (de Marco & Vernon-Feagans, 2013) Study method: Cohort study (Level 3) Country: USA Sample size: N=217	Attendance at childcare of high quality	Attendance at childcare of low quality	Sample from the Family Life Project. *Total sample:* 51% mothers married, maternal age M=27.1 years, number of children in household M=2.1, 48% child female, 53% Black, maternal education M=13.4 years, income-need ratio M=2.3,	Expressive language: Measured by Preschool Language Scale-4 expressive communication subtest Receptive vocabulary: Measured by receptive vocabulary subtest of the Weschler Preschool and Primary Scale of Intelligence **NB:** All outcomes measured when child 36 months old.	*Expressive language:* No mediation or direct effects of childcare quality on receptive language outcomes *Receptive vocabulary* Direct association of childcare quality this outcome (beta=1.682, $p<0.01$) and childcare quality mediated the effect of community safety on this outcome (beta=1.437, $p<0.05$)	Maternal age, state, family structure, child gender, maternal education, ethnicity.	Childcare quality mediated the effect of community safety on receptive vocabulary, with 15% of the effect of community safety on this outcome mediated by childcare quality.	High. Retrospective defining of intervention. Low range of covariates.

Reference: (Dickinson & Porche, 2011) Study method: Cohort study (Level 3) Country: USA Sample size: N=57 (fourth grade) N=74 (kindergarten)	Preschool attendance where teacher demonstrates high quality verbal interactions	Preschool attendance where teacher does not demonstrate high quality verbal interactions	Sample taken from Home-School Study of Language and Literacy Development. Demographics at kindergarten and 4th grade: 66% White, 22%, 20% Black, 7% Latino (for both waves), 7% mixed ethnicity (for both waves), 51%, 53% female, maternal education, 61%, 58% high school diploma, 43%,41% had household income less than $10,000 per year. **NB:** No significant differences found among children lost to attrition.	Receptive vocabulary: Measured using the PPVT Reading comprehension: Measured using Reading Comprehension measure from the California Achievement Test. Word recognition: Measured using the reading subtest of the Wide Range Achievement Test-R **NB:** All outcomes measured in Grade 4.	*Grade 4 reading comprehension* Positive association of teacher sophisticated vocabulary mediated by kindergarten emergent literacy (beta=0.3, p<0.05). Positively associated by attention-related utterances (and not mediated by kindergarten results; beta=0.23, p<0.05) *Grade 4 receptive vocabulary* Effect of correction-related utterances and analytic-related utterances during book reading mediated by kindergarten receptive vocabulary (beta=0.65, p<0.001) *Grade 4 word recognition* Effect of teacher vocabulary sophistication during free play mediated by kindergarten receptive vocabulary (beta=0.4, p<0.05).	Child mean length of utterances at age 3, home support for literacy, family welfare status, maternal education level, child gender, age at assessment, teacher education level, centre type (Head Start versus private voucher program)	See results. Effects of teacher verbal interaction in preschool mediated by kindergarten receptive vocabulary and emergent literacy skills.	Moderate. Retrospective defining of intervention.
Reference: (Dobbs-Oates, Kaderavek, Guo, & Justice, 2011)	Preschool attendance where the teacher has received one-day training to include print-referencing behaviors during in-class storybook reading.	Preschool attendance where the teacher received training on non-print related	Mean age=4 year 4 months (SD=4.5 months), 41% Caucasian, 39% African American, 6% Latino, 14% other ethnicities.	Print awareness: Measured by the Preschool Word and Print Awareness, the alphabet knowledge and name writing	*Print awareness:* Main effect of intervention coefficient =0.18, SE0.07, p<0.013 *Vocabulary:* No main interaction effect.	Baseline scores, age, race, children's task orientation, teacher's behaviour management style, interaction between teacher	None analysed for interaction effect.	Moderate. Unclear whether teachers or researchers were blind to intervention allocation. Unclear how

Study method: RCT (Level 2) Country: USA Sample size: N=398		topic (with some attending workshops on behaviour management strategies).		subtests of the Phonological Awareness and Literacy Screening-PreK Vocabulary: Measured by the PPVT - III **NB:** Units of measure were gains across the start and end of the school year.		behaviour management and children task orientation.		missing data was dealt with.
Reference: (Downer, et al., 2011) Study method: Cluster randomised controlled trial (Level 2) Country: USA Sample size: N=1338	Web-based professional development program for pre-kindergarten teachers. Two conditions were delivered low support and high support. Low support involved access to a website (My Teaching Partner) with descriptions and demonstrations of activities, and online teaching challenges. Teachers also received Preschool PATHS (Promoting Alternative Thinking Strategies Curriculum). High support had additional one-on-one access with a consultant who provided targeted feedback.	Access to the My Teaching Partner with no support.	*Classrooms where only English is spoken* 51% male, 99% English spoken at home, maternal education M=12.77 years, 65% family in poverty. *Classrooms where language other than English spoken* 47% male, 77% English spoken at home, 74% family in poverty.	Composite early language and pre-literacy skills: measured by the vocabulary, blending, elision and print subtests of the Preschool Comprehensive Test of Phonological and Print Processing **NB:** Outcomes measured at the start and the end of the school year	*Composite early language and pre-literacy skills* Intervention effect of high support condition compared with control (but not-significant for low support versus control). Only significant for children in classrooms where only English was spoken. Beta=0.11, p<0.05, R square=0.73	No demographic variables were included in the final model as they were analysed as non-significantly associated with baseline outcome measured. Baseline outcome was included as a covariate.	Language status of classrooms (see results).	Moderate: teachers were not blinded to the purpose of the study, and were the people measuring the outcomes.

Reference: (Fantuzzo, Gadsden, & McDermott, 2011) **Study method: Cluster randomised study (Level 2)** **Country: USA** **Sample size: N=1415**	Evidence-based program for an integrated curriculum (EPIC). Unified program intended to incorporate systematically the components of content, instruction, professional development, and repeated criterion-based assessments.	Teachers used the DLM curriculum (Developmental Learning Materials Early Childhood Express). Targets children's cognitive, social-emotional, aesthetic and physical development through 20 thematic units.	Conducted among Head Start students *Total sample* Age M=50.1 months, SD=6.8), 12.8% dual language learner, 60.6% African American, 14.5% Latino, 4.2% Caucasian, 6% other	*Alphabet knowledge* Alphabet knowledge subtest of the Learning Express (LE) *Vocabulary* Vocabulary subtest of the LE *Listening comprehension* Listening comprehension subtest of the LE	*Alphabet knowledge* No group effect *Vocabulary* No group effect *Listening comprehension* Intervention group M=223.89, Control group M=218.68 Co-efficient=5.29, F(1,67)=5.3, p=0.03	Age (baseline), year of implementation, special needs status, dual language learner status. **NB:** other variables such as ethnicity were not included as they were assessed as non-significantly contributing to outcomes.	None analysed for intervention effect.	Moderate. No true control group used.
Reference: (Fuligni, Howes, Huang, Hong, & Lara-Cinisomo, 2012) **Study method: Cohort study (Level 3)** **Country: USA**	Preschool attendance at 3 years of age with structured/balance teaching approach	Preschool attendance at 3 years of age with high free choice teaching approach	Age at assessment M=52.6 months, SD=5.7, home language not English=49%. **NB:** Sample selected from early learning programs serving predominantly low-income families.	*Receptive vocabulary:* Measured by PPVT **NB:** Measured at the start and end of the school year.	*Receptive vocabulary* Significant intervention effect. Beta=6.51, p<0.05	Home language, age at baseline, baseline PPVT outcome, public/private centres status, CLASS-Emotional score, CLASS-Instructional score, ECERS-Academic score	None analysed.	High. Limited covariates included in model to account for confounding factors. Intervention defined retrospectively.

Sample size: N=183								
Reference: (Gershoff, Ansari, Purtell, & Sexton, 2016) Study method: RCT (Level 2) Country: USA Sample: 2063	Participation in Head Start program	Non-participation in Head Start program	*Treatment group* Age M=214.48 months, SD=18.23, 51% female, 35% Black, 34% Hispanic, 31% White/other, 22% dual language learner, 13% special needs, , 13% teenage mother, 50% parents live together, 13% parent divorced, 45% parent married, 42% parent single, maternal education 33% less than high school, maternal employment 50% unemployed, 17% part-time, 34% full-time, 75% home language English, 16% immigrant mother *Control group* Mean age=214.6 months SD=15.95, 52% female, 34% Black, 33% Hispanic, 33% White/other, 24% dual language learner, 11% special needs, Mean caregiver age=28.56, SD=5.8, 16% teenage mother, 52% bio parents live together, 48% parent married, 13% parent divorced, 39% parent single, maternal education, 34% less than high school, 33% highschool/GED, 32% beyond high school, maternal employment status 47% unemployed, 19% part-time, 33% full-time, 71% home language English, 15% immigrant mother, number of children in family Mean=2.65, SD=1.1, 80% live in urban	Parents reading practices: measured by parent self-report Receptive vocabulary: Measured by PPVT Letter-word identification: Measured by Woodcock-Johnson Tests of Achievement letter subtest Spelling: Measured by Woodcock-Johnson subtest. **NB:** Outcomes measured at Wave 1: start of school year for 3 year olds, Wave 2: end of school year for 3 years olds and Wave 3: start of school year for four year olds (parent reading practices not measured at Wave 3)	*Parent reading practices* Significant group effect beta=0.18, p<0.01, R square=0.22 *Receptive vocabulary* Significant group effect for Wave 2 beta=0.17, p<0.001, R square=0.51 *Letter-word identification* Significant group effect beta=0.21, p<0.001, R square=0.33 *Spelling* No significant group main effect. Although there was an indirect effect of treatment through parent reading practices, beta=0.06, p<0.01.	Child variables: Age (baseline), gender, race/ethnicity, dual-language-learner status, disability status. Household covariates: mothers' age, education, employment status, immigrant status, marital status, teenage parent status, household structure variables, household language, formal childcare hours.	Parent spanking practices was not found to mediate treatment effects. Treatment effects on spelling were found to be mediated by parent reading practices.	High. Families were not blinded to intervention status. Variation in control group condition regarding childcare use.

			area, formal childcare hours mean=19.03 SD=15.35 **NB:** Significant difference between groups for caregiver age ($p<0.05$) and formal childcare hours ($p<0.001$)					
Reference: (Gettinger & Stoiber, 2012) **Study method: Cluster RCT (Level 2)** **Country: USA** **Sample size: Intervention group n=62, control group n=62**	Response to Intervention model applied within Head Start classrooms: provision of early learning encompassing four elements: screening, tiered levels of evidence-based, high quality instruction, ongoing progress monitoring and decision making about the delivery of instruction based on progress-monitoring data. Labelled EMERGE, the program involved teachers participating in monthly professional development sessions onsite coaching relating to the implementation and use of progress-monitoring for instructional planning – in addition to Head Start program professional development training.	Teachers provided with normal Head Start professional development	*Total group* 77% African American, 10% white, 8% Hispanic, 5% other. *Intervention group* 48% female, Mean age (baseline) 46.42 months SD=6.69 *Control group* 48% females, Mean age (baseline)=46.77 months, SD=6.56 **NB:** No significant differences found between groups on these variables or baseline screening measures.	Receptive vocabulary: Measured by the PPVT Early literacy skills: Measured by the Get Ready to Read tool Phonological awareness: Measured by Phonological Awareness Literacy Screening – Prekindergarten (PALS-PreK) rhyming subtest Alphabet knowledge: Measured by the PALS-PreK alphabet knowledge subtest Print concept: Measured by the unnamed measured in the Family and Child Experiences Survey **NB:** Measures collected at the	*Receptive vocabulary* Significant group effect $F(1,111)=23.47$, $p<0.001$ eta square=0.18 *Early literacy skills* Significant group effect $F(1,111)=11.67$, $p<0.01$ eta square=0.1 *Phonological awareness* Significant group effect $F(1,111)=5.94$, $p<0.05$, eta square=0.05 *Alphabet knowledge* Significant group effect $F(1,111)=27.54$, $p<0.001$, eta square=0.2 And moderator effect from baseline performance $F(2,111)=3.51$, $p<0.05$ eta square=0.06 *Print concept* Significant group effect $F(1,111)=11.59$, $p<0.01$, eta square=0.1	Baseline scores and age	Baseline scores moderated intervention effect for alphabet knowledge with high treatment effects among low and middle performing children.	Moderate. Unclear whether participants were blinded to allocation. No attrition reported.

				start and end of the school year.				
Reference: (Gonzalez, et al., 2011) Study method: Pre and post-test with control group (Level 3) Country: USA Sample size: Intervention group n=116, control group n=133	Early Reading First – a grant scheme aimed at transforming existing early education programs to provide language and literacy rich environments. Includes professional development for educators and the application of Response to Intervention model of teaching.	Curriculum as normal – non-recipients of Early Reading First program	*Control group* 48% female, 68% Hispanic, 20% Asian American, 12 Caucasian, 92% free/reduced lunch, 5% other disadvantage, 3% no assistance, 47% English language learner *Intervention group* 41% female, 79% Hispanic, 20% Asian American, 1% Caucasian, 98% free/reduced lunch, 1% other disadvantage, 1% no assistance, 56% English language learner **NB:** Higher representation of Hispanic students and lower representation of Caucasian students in intervention group compared with control group.	Receptive vocabulary: Measured by the PPVT Name writing skills: Measured by the PALS-PreK Name writing subtest Alphabet knowledge: Measured by the PALS-PreK upper case alphabet knowledge subtest **NB:** Outcomes measured at the start and the end of the school year (pre-kindergarten year, the year before formal schooling)	*Receptive vocabulary* Significant intervention effect. Coefficient=5.11, p<0.05, SE=2.25 *Name writing skills* Significant intervention effect Coefficient=0.84, p<0.05, SE=0.36 *Alphabet knowledge* Significant intervention effect. Coefficient=11.77, p<0.01, SE=1.96 Effect moderated by pretest scores Coefficient=-0.61, p<0.01, SE=0.14 and Teacher certifications coefficient=6.55, p<0.01, SE=2.05	Pretest scores, English proficiency, gender, ethnicity, class pretest mean, teacher year experience, teacher qualifications	Teacher qualifications and alphabet knowledge pretest scores moderated the effects of intervention on post-test alphabet knowledge scores.	High. Restricted inclusion of covariates to account for confounding factors. Outcomes measured by people not blind to the intervention status. High number of children not included in study due to lack of outcome data (although demographic variables were compared to check for sample representiveness)
Reference: (Gonzalez, et al., 2011) Study method:	Words of Oral Reading and Language Development (WORLD) shared book reading program. Approach	Shared book reading activities by	*Intervention group* 51% female 41% male, 42% African American, 22% Hispanic, 21%	Receptive vocabulary: Measured by the PPVT-III and study-specific tool	*Receptive vocabulary* Significant intervention effect Gamma=7.57, p<0.01 for PPVT measure and	Pre-test results, gender, age, English learner status, ethnicity,	English learner status moderated treatment effect for study-	Low

Clustered RCT (Level 2) Country: USA Sample size: Intervention group n=96, control group n=52	teaching preschool children target words through science and social science themed books with daily lessons developed around these books, themes and vocabulary. Implemented in small groups of 5-6 students, 5 days a week, 20 minutes per session for 18 weeks.	teachers selecting their own books and book reading strategies.	Caucasian, 7% other, 8.7% English learner, Mean age (baseline)=54.71 months SD=3.64 *Control group* 29% female, 27% male, 23% African American, 20% Hispanic, 11% Caucasian, 2% other, 2.6% English learner, Mean age (Baseline)=54.41 months, SD=3.54 **NB:** No significant difference between groups on the above variables or baseline outcomes measures.	Expressive vocabulary: Measured by Expressive One-Word Picture Vocabulary Test and study-specific tool **NB:** Outcomes measured pre and post-test	gamma=2.75, p<0.01 for study-specific tool. Interaction for study-specific tool outcomes with English Learner status, with English Learners scoring more poorly in the control group, but not intervention group. Gamma=0.25, p=0.047 *Expressive vocabulary* Non-significant main effect for EOWPVT measure but significant for study-specific tool gamma=4.01, p<0.01. Impact on EOWPVT scores moderated by intervention attendance, with it more effective for this measure when children attended the program more. Gamma=7.27, p<0.001	attendance during school year	specific measure of receptive vocabulary. Program attendance moderated treatment effect on EOWPVT outcome.	
Reference: (Guo, Tompkins, Justice, & Petscher, 2014) Study method: Cohort study (Level 3) Country: USA	Attendance at preschool classroom with large variance in age-range.	Attendance at preschool classroom with low variance in age-range.	*Total sample* Mean age=53.7 months SD=3.7, family income M=38,062, SD=29,555	Receptive vocabulary: Measured by the PPVT **NB:** Unit is residual gain scores from the beginning to the end of the school year	*Receptive vocabulary* No main effects of standard deviation of classroom age. Effects of age variation within classroom was moderated by child age Coefficient=-1.22, SE=0.35, p<0.01 And behaviour management scores	Pretest scores, child age, gender, family income, classroom standard deviation age, behaviour management score	Child age moderated the effect of classroom age variation, with older children having worse gains in receptive vocabulary in mixed age classrooms, and	High. Intervention retrospectively assigned. Low range of covariates used, variation in intervention and control conditions. Unclear about

Sample size: N=130					Coefficient=12.24 SE=2.16, p<0.01		younger children doing better. Behaviour management also moderated the effect, with classrooms with higher behaviour management having higher gains.	the extent of missing data.
Reference: (Hilbert & Eis, 2014) **Study method: Pre-test post-test with control group (Level 3)** **Country: USA** **Sample size: Intervention group n=23, control group n=131**	Read It Again Pre-K! - a free curricular supplement featuring 60 lessons, each approximately 20–30 min in duration. The program typically requires the early childhood educator to provide two lessons a week. Read it Again Pre-K! utilizes the repeated use of children's storybooks to facilitate the development of language and literacy skills in young children. Key concepts are repeated over multiple weeks, providing multiple opportunities for young children to acquire, practice and use literacy and	Children at the same preschool program that did not receive the interventio n.	*Intervention group* 56.5% female, 43.5% white, 13% African American, 43.5% Hispanic, Mean age=4.7 years, 60% primary language English, 40% primary language Spanish, 52.2% participated in Head Start the previous year *Control group* 49.6% female, 66.4% white, 22.1% African American, 9.2% Hispanic, 2.3% Native American, Mean age=4.8 years, 98% primary language English, 2% primary language Spanish, 65.6% participated in Head Start the previous year.	Picture naming Alliteration Rhyming **NB:** All outcomes measured by the Individual Growth and Development Indicators	*Picture naming* Significant group effect. Control group pretest M=17.34, post-test M=23.22 Intervention group pretest M=7.39, post-test M=27 P=<0.0001, partial eta square=0.165 *Alliteration* No significant group effects *Rhyming* No significant group effects	None included.	None analysed.	High. Children were selected into intervention if they scored low on specific development measures. No potential confounding factors were controlled for.

	language. Conducted in Head Start centres.							
Reference: (Hindman & Wasik, 2012) Study method: Cluster randomised study (Level 2) Country: USA Sample size: N=983	Exceptional Coaching for Early Language and Literacy (ExCELL) – expert coaches visit classrooms for 3 hours per week over 2 years, modelling best practice, observing teachers and providing individualised feedback. Undertaken in Head Start program centres.	No coaching provided – business as usual condition. Both control and experimental group used Creative Curriculum	*Total sample* 47% female, 11% had a disability, 45% in final year before school, 55% were in the second final year before school. **NB:** No significant differences between control and experimental groups (although slightly more males in the control condition for cohort 1)	Receptive vocabulary: Measured by the PPVT Alphabet knowledge: Measured by the Uppercase alphabet subtest of the PALS-PreK Phonological awareness: Measured by the Rhyme and Beginning Sound Awareness subtests of the PALS-PreK **NB:** Outcomes measured at the start and the end of the school year over two years.	*Receptive vocabulary* Significant intervention effect. Overall main effect beta=6.19 SE=1.29, p<0.001 Further gains in second year beta=3.36, SE=1.56, p=0.037 *Alphabet knowledge* Significant main effect Beta=6.00, SE=2.69, p=0.039. No further gains in second year. *Phonological awareness* Significant intervention effect. Beta=2.02, SE=0.91, p=0.041. No further gains in second year	Pre-test scores, disability status, year 2 scores	None analysed	Moderate. Unclear whether participants were blinded to allocation.
Reference: (Hindman & Wasik, 2015) Study method: Cohort study (Level 3) Country: USA Sample size: N=755 (weighted 655)	Head Start program with high quality vocabulary and language instruction, low adult: child ratio and use of Spanish and English.	Head Start program with variable vocabulary and language instruction, and/or high adult: child ratio and/or predomina	*Total sample* Mean child age (baseline) = 47.11 months SD=6.58, ratio of income to poverty M=2.49 SD=1.19, 50% female, 99% Latino, 5% disability, 74% half-day attendance, maternal education 64% no high school degree, 21% high	Receptive vocabulary: Measured by PPVT (English and Spanish)	*Spanish receptive vocabulary* Intervention effect of quality of language instruction beta=0.15 p<0.01, frequency of vocabulary instruction quality beta=-0.08, teacher education beta=0.22, p<0.001, p<0.05, proportion of dual language learners in	Child age, disability status, gender, ratio of income to poverty, language spoken at home, maternal education, maternal reading skill, frequency of book reading	None analysed	Moderate. No true control group, intervention retrospectively defined.

		nt use of English.	school degree, 10% some college or associate's degree, 5% bachelor degree or higher, 57% mostly speak Spanish at home, 14% mostly English at home, 29% both English and Spanish at home.		classroom beta=0.13, p<0.001 *English receptive vocabulary* Intervention effect of teacher experience beta=0.07, p<0.05, adult-child ratio beta=0.12, p<0.001 and frequency of vocabulary instruction beta=-0.09, p<0.01, and language instruction quality beta=0.11, p<0.01			
Reference: (Jenkins, Sabol, & Farkas, 2018) **Study method: Cohort analysis (Level 3)** **Country: USA** **Sample size: Intervention group n=656, control group n=289**	2 years of Head Start preschool	1 year of Head Start preschool followed by preschool at another program/centre	(Weighted characteristics) *Intervention group* 48% male, 13% disabled, 31% white, 37% black, 32% Hispanic, 77% English as home language, caregiver education 34% below high school, 34% high school degree, 32% beyond high school, 43% married, 15% teenage mother, 12% immigrant, caregiver mean age (baseline)=28.54, 48% employed *Control group* 46% male, 10% disabled, 30% white, 38% black, 32% Hispanic, 74% English	Receptive language: Measured by PPVT Letter-word identification: Measured by letter-word subtest of the Woodcock-Johnson Psycho-Educational Battery Spelling: spelling subtest of the Woodcock-Johnson Psycho-Educational Battery **NB:** Measured at start and end of school year at 3 years old, age 4 preschool, kindergarten and first grade.	*Receptive language* No significant group effects *Letter-word identification* No significant group effects *Spelling* Significant group effects for final preschool year results Coefficient=-0.2, p<0.01, but not results at the end of kindergarten or first grade.	Child gender, race, home language, disability status, teenage mother, baseline academic scores, primary caregivers education, work status, immigrant status, depressed scale scores, age.	None analysed	High: intervention retrospectively defined, limited covariates used.

			as home language, caregiver education 34% below high school, 37% high school degree, 29% beyond high school, 44% married, 14% teenage mother, 16% immigrant, caregiver mean age=28.89, 49% employed **NB:** No significant difference in characteristics or baseline measures between groups.					
Reference: (Johnson, Martin, & Brooks-Gunn, 2013) **Study method: Cohort study (Level 3)** **Country: USA** **Sample size: app. N=1400**	Recipients of federal childcare subsidy program	Eligible non-recipients of federal childcare subsidy	Sample from Early Childhood Longitudinal Study-Birth cohort *Total sample* Maternal race 39% white, 25.7% Black, 28.9% Hispanic, 6.5% Asian or other, maternal education 24.2% less than high school degree, 43.8% high school diploma or equivalent, 27.5% some college education, 4.5% Bachelor degree or higher, 35.6% mother single, 86.2% mother proficient in English, 20% teenage mother,	Reading: Measured by study-specific tool Approaches to learning: Measured by study -specific tool **NB:** Measured at the start of the kindergarten school year	*Reading* No significant intervention effect *Approaches to learning* No significant intervention effect	Family background: Maternal race, teenage mother, maternal English proficiency, maternal education, maternal relationship status, family structure, living in urban area, maternal employment, food security Child variables: baseline child cognitive and behavioural skills at 2 years, child age, age at	The type of care provided did not mediate intervention effect. Provision of home-based care did not moderate intervention effect.	High. Does not control for childcare quality. Intervention retrospectively defined.

			68.8% lives in urban area, maternal employment 37.6% full-time, 17.2% part-time, 19.8% studying or training or looking for work, 25.4% not in labour force, 11.2% child disabled, 53.8% male, 18.1% received subsidy at age 2, 25.9% experienced food insecurity.			kindergarten commencement		
Reference: (Johnson, Finch, & Phillips, 2019) Study method: Cohort study Country: USA Sample size: app. N=3000	Attendance at preschool (Head Start centre, school-based public prekindergarten program, subsidised centre-based care, unsubsidised centre-based care, formal home-based care.	Non-attendance at preschool (parental care)	Sample from the Early Childhood Longitudinal Study – Birth cohort *Total sample* Maternal race 39.29% white, 21.16% black, 33.66% Hispanic, 5.9% Other Maternal education 34.9% less than high school education, 39.46% high school diploma or equivalent, 21.94% some college education, 3.69% Bachelor degree or higher, maternal employment 23.15% full-time, 18.2% part-time, 6.51% studying/training, 13.71% looking for work, 38.43% no in labour force, 31.94%	Reading: study specific tool Approaches to learning: study specific tool **NB:** Measured at the start of the kindergarten school year	*Reading* No significant intervention main effects. Child temperament moderated the effects of school-based prekindergarten attendance beta=0.417, SE=0.165, p<0.05 *Approaches to learning* Intervention main effect of school-based public prekindergarten program attendance beta=-0.208, SE=0.093, p<0.05. Child temperament moderated effect of attending Head Start centre beta=0.457 SE=0.19, p<0.05.	Family background: maternal race, education, employment status, relationships status, English proficiency, family structure, experience of food insecurity, living in urban area, income to needs ratio. Child measures: baseline outcome measure in prekindergarten year, age, year of school enrolment, gender, disability, state of residence	Child temperament moderated treatment effect of Head Start attendance on approaches to learning, and effects of attending school-based prekindergarten program reading skills, but not other treatment types.	High. Intervention retrospectively defined. Childcare quality not controlled for.

			mother single, Mean age at birth=26.06 SD=6.24, 80.16% English proficient, 81.7% living in urban area, 37.7% food insecurity, Mean age of child at preschool=68.09 months SD=4.45, 47.72% female, 6.43% disabled.					
Reference: (Landry, Swank, Anthony, & Assel, 2011) **Study method: Clustered randomised study (Level 2)** **Country: USA** **Sample size: Intervention group n=800, control group n=527**	eCIRCLE – online professional development program for educators. Nine courses covering classroom management, best practices/responsive teacher, setting the stage for children's talk, reading aloud, phonological awareness, letter knowledge, mathematics, written expression and language development. Provision of in-classroom mentoring and progress monitoring by teachers.	Wait-list. Teachers received training in the second year.	*Intervention group* Age at pre-test M=4.4 years SD=0.4, 51.2% female, 19.5% African American, 66.8% Hispanic, 12.1% Caucasian, 1.6% other, 20.8% tested in Spanish *Control group* Age at pre-test M=4.4 SD=0.4, 50.9% female, 18.5% African American, 68.5% Hispanic, 12% Caucasian, 1% other, 13.6% tested in Spanish **NB:** No significant difference between groups for characteristics or pre-test scores.	Expressive vocabulary: Measured by the Expressive One-Word Picture Vocabulary Test (Spanish and English versions) Composite language skills: Measured by Preschool Language Scale (Spanish and English versions) Phonological awareness: Measured in Year 1 by the elision subtest of the Preschool Comprehensive Test of Phonological and Print Processing. In Year 2 measured	*Expressive vocabulary* No main effect, but moderated program effect on second year outcome by age (younger children doing better) $F(1,1061)=4.73$, $p<0.03$, effect size=0.16 and language of testing $F(1,1061)=4.29$, $p<0.04$, effect size=0.35 (with those tested in Spanish experiencing greater gains) *Composite language skills* Significant main effect on second year outcome $F(1,1107=14.44$, $p=0.0002$. This was moderated by pretest score $F(1,1107)=19.49$, $p<0.0001$, and language of testing $F(1,1107)$, $p<0.0008$ effect size=0.34 *Composite literacy skills*	Pre-test scores, age at pre-test, language of testing	Moderating effects of age and language of testing on expressive vocabulary outcomes; pre-test scores and language of testing on composite language skills; and pre-test scores for composite literacy skills; and interaction of age and language of testing on phonological awareness.	Low

				by the auditory subscale of the Developing Skills Checklist. Composite literacy skills: Measured by print knowledge subtest of the Pre-CTOPPP **NB:** Outcomes measured in the middle and end of school year (Year 1) and the start and end of the school year (Year 2).	Program effect moderated by pre-test scores F(1,1107)=9.29, p<0.003 with greater gains for children with lower pre-test scores *Phonological awareness* Program effect moderated by interaction of age with language of testing F(1,1116)=6.13, p<0.02 with children tested in Spanish who were older demonstrating greater gains, as well as children tested in English who were younger.			
Reference: (Landry, et al., 2014) **Study method: Cluster randomised study (Level 2)** **Country: USA** **Sample size: N=542**	Responsive Early Childhood Curriculum (RECC) and RECC plus. Involves a 6 week training phase with the RECC plus receiving additional social-emotional curriculum supplements. The curriculum involved training in the responsive teaching practices including how to sensitively and promptly respond to child's signals, use positive approaches to manage child behaviour and support self-regulation, label and help children cope with	Business as usual childcare curriculum	*Total sample* 51% female, Mean age at pre-test=2.9 years SD=0.59, 78% African American, 13.4% Hispanic, 6.8% White, 1.9% other, caregiver education level 16.5% high school, 34.6% high school or technical training, 29.2% some college but no degree, 7.5% Associate's degree, 9% Bachelor's degree, 2.7% Master's degree, 0.6% Doctoral degree, 65% receiving federal childcare subsidy, 82.5% free or reduced fee	Expressive vocabulary: Measured by Expressive One-Word Picture Vocabulary Test Receptive language: Preschool Language Scale (English and Spanish versions) Early literacy skills: print knowledge subtest of the Preschool Comprehensive Test of Phonological and Print Processing	*Expressive vocabulary* No program effect *Receptive language* No program effect *Print knowledge* No program effect	Child age and teacher's qualification	None analysed	Moderate. High levels of attrition with no reporting of statistical methods for accounting for missing data.

	feeling, help children resolve conflicts with peers, use effective strategies for toddler challenges, provide rich language input, maintain, rather than redirecting children's focus of attention and scaffold children's learning by adjusting input upward or downward.		lunches, 93% predominantly speak English at home, 7% speak mainly Spanish at home	**NB:** Outcomes measured at the start, middle and end of the school year				
Reference: (Lee, Zhai, Brooks-Gunn, & Han, 2014) Study method: Cohort study Country: USA Sample size: N=6950	Attendance at Head Start centres	Attendance at other types of childcare or parental care.		Early reading: Measured by study-specific tool **NB:** Measured at kindergarten entry	*Early reading* Significant negative program effect compared with pre-kindergarten programs. Coefficient=-0.19 p<0.01 Significant positive program effects compared with parental care and other nonparental Coefficient=0.12 p<0.05 and non-centre-based care coefficient=0.09, p<0.05. Effect moderated by initial cognitive ability , with greater negative program effects compared with pre-kindergarten program for children with higher initial cognitive ability compared with low, and children attending Head Start for less or equal to 20 hours compared with full-time, and those with parents who have more than high school education compared with parents with less than high school.	Child characteristics: gender, age, ethnicity, low birth weight, prematurity, multiple birth status, duration of breast feeding, number of siblings, health status. Parental and family characteristics: maternal age at birth, mother living with parents during childhood, maternal marital status, maternal place of birth, primary home language, parental education, parental occupation, maternal	Family characteristics mediate negative program effect compared with other centre-based care. Effects moderated by initial cognitive ability, parental education and number of hours attending Head Start across all care-types (see results).	Moderate. No covariates around quality of care. Propensity score matching used in the modelling to account for selection bias and confounding factors.

					Greater negative effects compared with other centre-based care for children with parents with more than high school education. Effects compared with other nonparental care moderated by number of hours at Head Start with greater positive effects for those attending full-time rather than part-time. Effect compared with parental care moderated by parental education and number of hours of Head Start attendance with greater positive effects for children with parents with high school or less education and those that attend full-time.	depressive symptoms, maternal employment status, maternal health status, urban status, receipt of food stamps, receiving of Special Supplemental Nutrition for Women, Infants and Children (WIC), receipt of Temporary Assistance for Needy Families. Parenting behaviours: knowledge of infant development inventory, mother's cognitive stimulating activities, mother's spanking behaviour, family routine, presence of family.		
Reference: (Lipsey, Farran, & Hofer, 2015) Study method: RCT (Level 2) Country: USA	State-funded voluntary prekindergarten program provided to disadvantaged children. A full-day program that requires a licensed teacher and aide in every classroom, and	Wait-list control	*Total sample* Mean age (baseline)=51.8 months, 47.6% male, 55.9% white, 22.7% black, 19.2% Hispanic, 2.2% other, 21% English as a	Cognitive achievement outcomes: composite measures from the letter-word identification, spelling, oral	*Cognitive achievement outcomes* Significant intervention effects at the end of the prekindergarten year coefficient=5.32, p<0.001 Gains seen across all subtests, except oral	Pre-test scores, age, gender, ethnicity, native English speaking, home literacy index, maternal education, number of working parents.	For prekindergarten outcomes, maternal education and English language learner status	Low

Sample size: Intervention group n=773, control group n=303	set standards of classroom sizes and curriculum. The majority are located in public schools.		second language, 8.8% born outside of the USA.	comprehension, picture vocabulary, passage comprehension, applied problems, quantitative concepts and calculation subtests of the Woodcock-Johnson III Achievement Battery School readiness: Teaching ratings **NB:** Outcomes measured at the end of prekindergarten year, at the end of kindergarten and grade 1 and grade 2	comprehension. Moderated by native English speaking and maternal education, with a greater intervention effect on children with English as second language, maternal education of less than high school, and children with both these factors. Intervention gains were not seen at the end of the kindergarten year, the end of grade 1, and negative effects were seen at the end of second grade Coefficient=-1.91, p<0.05 (although these were predominantly explained through results on math-related subtests). No significant intervention effects fo the end of the grade 3 outcomes, and no moderators for effects past prekindergarten *School readiness* Significant effect of intervention Coefficient=0.305, p=0.005 No significant intervention effects for end of kindergarten year, grade 1, 2 or 3.		moderated intervention outcome (see results).	
Reference: (Logan, Piasta, Justice, Schatschneid	Attendance at publicly funded preschool programs (Head Start, prekindergarten programs) with instructional quality	Attendance at publicly funded preschool programs with low	*Sample 1* Mean age=53.19 months SD=3.8, 50% female, 71% white, 21% balck, 5% Hispanic, 2% other,	*Sample 1* Expressive language: Measured through coding natural	*Sample 1: expressive language* Significant program effect but only moderated though attendance.	Age, attendance, maternal education, household income, interaction between	Attendance rate and maternal education moderated effect (see result)	Moderate. Retrospective categorisation of intervention. No report on missing data.

er, & Petrill, 2011) Study method: Cohort study (Level 3) Country: USA Sample size: N=289		instructional quality	97% spoke English at home, 3% spoke Spanish, maternal education M=1.33 SD=0.96, household income M=26550 SD=17840 *Sample 2* Mean age=52.18 months SD=5.53, maternal education M=2.28 SD=1.12, household income M=3.48 SD=3.79, 46% female, 40% white, 39% black, 9% Hipsanic, 12% other, 98% spoke English as a primary language at home, 8% spoke Spanish at home	language transcripts. *Sample 2* Expressive language: Measured by study-specific narrative generation activity scored using the Narrative Assessment Protocol	Coefficient=0.049 SE=0.018 p=0.008 *Sample 2: expressive language* Significant program main effect Coefficient=-1.607 SE=0.577, p=0.008 and moderated by attendance Coefficient=0.065 SE=0.32, p=0.046 *Sample 1 and 2: Expressive language* Effect moderated by interaction of attendance and maternal interaction t(150)=-2.113, p=0.036, with children of mothers with lower education background receiving high quality instruction at preschool had greater gains with greater attendance. Children of mother with high education background made greater gains with higher attendance, regardless of attendance rates.	attendance and instructional quality.		
Reference: (Lonigan, et al., 2015) Study method: Clustered	Early learning program involving set curriculum and resources for educators and professional development involving workshops and in-class	Business as usual – usual curriculum undertaken.	*Total sample* 52.9% female, 23.8% White, 47.9% Black, 24.3% Latino, 3.9% other, Mean age (baseline) =4.48 years SD=0.43	Non-verbal cognitive abililty: Measured by the pattern analysis subtest of the Stanford-Binet Intelligence Scales	*Oral language skills* No significant intervention effect on EOWPT scores, but intervention effect on DELV risk scores when comparing implicit condition versus control.	Age, baseline non-verbal cognitive scores, ethnicity, average classroom EOWPT scores	Intervention effect on EOWPT and blending scores were moderated by site location, with Florida	Moderate. No fidelity measures over control condition.

randomised study **Country: USA** **Sample size: N=760**	coaching. Another condition included explicit content on socio-emotional and self-regulatory skills.			Oral language skills: Measured by the Expressive One Word Picture Test and the Diagnostic Evaluation of Language Variations Code related skills: Measured by the phonological awareness and print knowledge subtests of the Test of Preschool Literacy **NB:** Outcomes measured at the start and the end of the school year	Effect size=-0.25, p<0.05. *Code related skills* Significant intervention effect on elision skills, for both implicit condition compared with control group Effect size=0.3, p<0.05 And explicit condition compared with control group Effect size=0.26, p<0.05		sites showing greater gains than Texas sites.	
Reference: (Mashburn, Justice, McGinty, & Slocum, 2016) **Study method: Clustered randomised study** **Country: USA** **Sample size: N=506**	Read It Again – a pre-kindergarten curriculum that targets children's development of language and literacy skills. An additional condition included expanded professional development components.	Wait-list, conducting business as usual during control period.	*Control group* 48% male, 87% White, Mean age=53.1 months, maternal education M=12.7 years, family income M=24,800 *RIA – traditional condition* 46% male, 91% White, Mean age=52.8 months, maternal education M=13 years, family income M=29,300 *RIA – enhanced condition*	Print knowledge: Measured by the print knowledge subtest of the TOPEL Alphabet knowledge: Measured by the upper-case and lower-case alphabet recognition subtests of the PALS Print concept: Measured by the Preschool Word and Print Awareness Assessment	*Print knowledge* No main effect of intervention (enhanced and traditional versus control OR enhanced versus traditional). The level of literacy focus moderated the effect (enhanced and traditional versus control), with lower associated with greater gains in this outcome beta=-5.37 SE=2.05, p=0.009 *Alphabet knowledge* No main effects (enhanced and traditional versus control OR enhanced versus	Gender, maternal education, family income, age, ethnicity, days between assessments. Teacher/classroom variables: years of teaching, level of education, % male, average baseline assessment scores.	Literacy focus moderated the effects of enhanced and traditional intervention conditions with lower levels associated with greater gains in print knowledge and alphabet knowledge (see results). The level of language modelling in the	Low.

			49% male, 88% White, Mean age=52.9 months, maternal education M=12.8 years, family income M=26,500	Expressive vocabulary: Measured by the definitional vocabulary subtest of the TOPEL Phonological awareness: Measured by the phonological awareness subtest of the TOPEL Narrative language: Measured by the Narrative Assessment Protocol **NB:** All outcomes measured at the start and end of the prekindergarten year	traditional). Level of literacy focus moderated the effect in the same way as print knowledge beta=-10.6 SE-3.85, p=0.006 *Print concept* No main effect (traditional and enhanced versus control OR enhanced versus traditional). *Expressive vocabulary* No main effects (both conditions versus control or traditional versus enhanced condition) *Phonological awareness* No main effects (both condition versus control or traditional versus enhanced condition) *Narrative language* No main effects (both conditions versus control or traditional versus enhanced condition).		classroom did not moderate intervention effects.	
Reference: (McCoy, Morris, Connors, Gomez, & Yoshikawa, 2016) **Study method: RCT (Level 2)** **Country: USA**	Attendance at Head Start centre.	Non-Head Start attendance (parental or other formal early learning care)	*Total sample* Age M=4.04 years SD=0.66, 50% male, 31% Black, 35% Hispanic, 72% English as home language, 55% single mother, 37% mother less than high school education, 17% mother recent	Receptive vocabulary: Measured by the PPVT Oral comprehension: Measured by the Woodcock-Johnson Oral Comprehension test	*Receptive vocabulary* Significant treatment effect; Beta=5.28 SE=0.95, p<0.01 Significant interaction between condition allocation and child age; beta=-5.74 SE=1.87, p<0.01 *Oral comprehension*	Child age moderated treatment effects on receptive vocabulary, with greater gains for the older cohort-year before school (see results).	Neighbourhood characteristics: poverty, ethnic composition, crime rates, number of early childcare options, availability of social and commercial resources. Childcare	Moderate. Non-blinding of intervention allocation. Potential inconsistencies in care quality provided in intervention or control group, although these

Sample size: N=12340			immigrant, 24% poverty	Early reading: Measured by the WJ letter-word identification subtest Early writing: Measured by the WJ spelling subtest	No significant treatment effect *Early reading* Significant treatment effect; beta=4.6 SE=0.86, p<0.01 *Early writing* No significant treatment effect. Initial effect mediated after controlling for interactions between child and family characteristics. **NB:** Outcomes measured at the start and the end of the school year		characteristics: teacher qualifications, number of vacant teaching positions, provision of full-day care, local transport availability, other family services available at the centre, quality of resources and interactions. Child and family characteristics: sex, age, cohort (3 or 4 year old), ethnicity, maternal education, home language, immigrant status, maternal marital status, pre-test scores, maternal depression scores	were semi-controlled for through variables relating to childcare practices and characteristics.
Reference: (McLachlan & Arrow, 2014) Study method: Pre-test post-test with control group (Level 3)	Professional development activity for early childhood educators. Involved a 2 hour presentation which focused on how early literacy skills develop, predictors of literacy development and the importance of	No professional development provided.	*Total sample* Age M=50.16 months SD=5.07, 55% male	Rhyme identity, onset identity, own name reading, own name spelling, alphabet names: All outcomes measured by study-specific tasks **NB:** Outcomes measured before	*Rhyme identity* No intervention effect *Onset identity* No intervention effect *Own name reading* Intervention effect (greater gains in control group) F(1,52)=5.06, p=0.029, eta square=0.09	None analysed	No covariates included in model	High. No covariates included in modelling to control for confounding factors. High attrition with no statistical methods

Country: New Zealand Sample size: Intervention group n=43, control n=12	alphabet knowledge and phonological awareness. It provided examples of activities and curriculums that support this. Teachers were asked to implement ideas from this session over a period of 8 weeks.			and after 8 week period of intervention	*Own name spelling* No intervention effect *Alphabet names* No intervention effect			employed to account for missing data.
Reference: (Morrissey & Vinopal, 2018) Study method: Cohort study (Level 3) Country: USA Sample size: app, 12430	Receiving centre-based care in the year prior to commencing school	Not receiving centre-based care	Sample from the 2010-11 Early Childhood Longitudinal Study-Kindergarten Cohort *Total sample* Age M=67.54, 58% white, 12% black, 22% Hispanic, 9% other, 49% female, 2% English as second language, 20% disability, 0.4% twin, 74% parent married, 58% at least one parent employed, 8% parent less than high school educated, 18% parent high school educated only, 32% parent had some college education, 43% parents had college degree, 13% maternal demonstrated depressive symptoms,	Reading score: Measured by study specific tool at kindergarten entry	*Reading score* Significant effect of attending centre-based care (non-Head Start centre); beta=0.14 SE=0.03, p<0.001 No significant effect of attending Head Start centre. Significant moderating effect of centre-based care by neighbourhood poverty with children in moderate-high poverty neighbourhoods making greater gains; beta=0.08 SE=0.04, p<0.05	Neighbourhood poverty levels moderated the effect of centre-based (non-Head Start) care on reading skills at school entry, with children from moderate-high poverty levels demonstrating greater gains.	Gender, age, ethnicity, twin status, poverty level, English spoken at home, highest level of parental education, parent education expectations for child, welfare recipient, spanking practices, number of books in the home, parent marital status, family structure, parent employment status, geographic region, disability, maternal depression	High. Variables regarding quality of care received not controlled for.

			24% family below poverty line.					
Reference: (Mughal, Ginn, Perry, & Benzies, 2016) Study method: Pre and post-test without control group (Level 4) Country: Canada Sample size: N=78	CUPS- One World is a two-generation preschool programme that promotes school readiness and early childhood development through strengthening children's proximal environmental resources, providing access to centre-based early learning, and increasing parental psychosocial resources (Benzies et al., 2012). Children attend four days per week, five hours per day, with year-round programming, bussing, and provision of breakfast, lunch, and snacks. The curriculum builds on children's interests to motivate learning, teacher/child ratios are 1:8, and caregivers are encouraged to participate fully in children's classroom and recreational activities. Preschool teachers and social workers	No control group	*Total sample* 51% male, Age M=123.2 months, caregiver age M=40.7 years, 64% caregiver partnered, 78% caregiver completed high school, 29% had file opened with child welfare as a child	Receptive vocabulary: Measured by the PPVT- III **NB:** Outcomes measured at intake, yearly throughout program, at 7 years of age and at 10 years of age.	*Receptive vocabulary* Children's receptive language scores improved significantly between intake and age 10 years, $F(3, 75)=21.11$, $p<.001$, $\eta 2 =.46$, but no significant improvement was observed in receptive language scores between programme exit and age 7 years, or programme exit and age 10 years.	None included	None analysed	High. Confounding factors not controlled for. No control group used.

	1318 M. K. MUGHAL ET AL. visit each home several times per year. Access to community health nurses, paediatricians, dental, vision, and hearing screenings is ensured. Caregivers attend a six-week series of parenting and life skills classes.							
Reference: (Nix, Bierman, Domitrovich, & Gill, 2013) Study method: Clustered RCT Country: USA Sample size: N=356	Head Start Research-based, Developmentally-informed (REDI) intervention. Enrichment intervention was designed to complement and strengthen the impact of existing Head Start programs in the dual domains of language=emergent literacy skills and social-emotional competencies. Involved the implementation of the Creative Curriculum, daily diologic reading and the implementation of the Preschool Paths Curriculum.	Business as usual program at Head Start centre.	Specific demographics not reported. All were participants in the Head Start program.	**Expressive vocabulary**: One-word Picture Vocabulary Test **Emergent literacy skills:** Blending and Elision subscales of the Tests of Preschool Early Literacy **Kindergarten reading achievement**: Print Knowledge subscale of the Tests of Preschool Early Literacy, the phonemic decoding subscale of the Test of Word Reading Efficiency and the recall subscale from the Woodcock-Johnson	*Expressive vocabulary* Significant intervention effect; beta=0.25, p<0.05 *Emergent literacy skills:* Significant intervention effect; beta=0.49, p<0.001 *Kindergarten reading skills* Indirect intervention effects through expressive vocabulary skills (beta=0.18<0.001), emergent literacy skills (beta=0.04, p<0.01), change in emotion understanding (beta=0.2, p<0.001), and change in social problem solving (beta=0.17, p<0.01) *Learning engagement* Indirect intervention effects through emergent literacy skills (beta=0.14, p<0.01), change in emotion understanding	Classroom, child sex and ethnicity	Expressive vocabulary skills, emergent literacy skills, and change in emotion understanding and social problem solving mediated the intervention effects on kindergarten reading skills. Emergent literacy, change in emotion understanding and positive social behaviour mediated the intervention effects on learning engagement in	Moderate. Unclear whether allocation was concealed.

				Tests of Achievement **Learning engagement**: teacher report School Readiness Questionnaire and inattention subscale of the Attention Deficit Hyperactivity Disorder Rating Scale **NB:** Outcomes measured at the start and end of the prekindergarten year, and the end of the kindergarten year.	(beta=0.11, p<0.05) and change in positive social behaviour (beta=0.26, p<0.001)		kindergarten (see results).	
Reference: (Odom, et al., 2019) **Study method: Clustered RCT (Level 2)** **Country: USA** **Sample size: N=1117**	Children's School Success curriculum – daily language and literacy activities focused on vocabulary development, phonemic awareness, letter recognition, listening, and comprehension. Daily math activities draw from the Building Blocks curriculum. Content and problem solving themes for science draw upon the ScienceStart! Curriculum; and	Wait-list – business as usual	*Total sample* Age M=53.1 months SD=4.1, 54% male, n=736 low-income, n=171 disability, n=210 English learner, n=627 Caucasian, n=143 African American, n=210 Latina/o, n=137 other, maternal education 18% less than high school, 69% high school diploma, 13% some college.	**Vocabulary:** PPVT-III, and picture naming subtest of the Individual Growth and Development Indicator **Letter knowledge**: the Woodcock-Johnson letter identification subtest, study specific letter naming task, and Purdue emergent writing assessment	*Vocabulary* Significant intervention effect F(1, 86) = 6.03, p = .01, effect size=0.14 *Letter knowledge* No significant intervention effect	Site, gender, English Learner status, individualised education program status	None analysed	High. Intervention allocation not blinded, unclear about the extent of missing data or how this was dealt with.

	Dinosaur School Curriculum was drawn upon for social competence related activities. Implemented in pre-kindergarten year.							
Reference: (Onchwari & Keengwe, 2010) Study method: Pre-test and post-test with control group (Level 3) Country: USA Sample size: 44 classrooms (total sample size not provided), 22 intervention group, 22 control group	Head Start Mentor-Coach Initiative – early educator training centered on improving socio-emotional development, working with children whose first language is not English, and literacy mentoring.	Teacher did not attend professional development training.	Detail not provided. All Head Start centre students.	**Language and speech skills Reading and writing skills NB:** All measured as part of the Creative Curriculum Developmental Continuum throughout the school year.	*Language and speech skills* Significant group effect (t =-3.07; df = 626, p<0.05) with intervention group outperforming control group *Reading and writing skills* Significant group effect (t =-2.53; df = 626, p<0.05) with intervention group outperforming control group	None analysed	None analysed	High. No covariates used, retrospective selection of participants, non-blinding of participants, non-blinding of those conducting measures, unclear whether validated tools used to measure outcomes.
Reference: (Phillips, Gorton, Pinciotti, & Sachdev, 2010) Study method: Pre-test and post-test	Art as a way of Learning –is a professional development model designed by art educators, classroom teachers, and administrators to integrate the arts into everyday learning in	NA	54% female, 16% white, 15% African American, 52% Hispanic, 15% bi/multi-racial, 2% other, 96% English primary language, age (baseline) M=54.2 months SD=9.8	**Meeting early learning standards/ milestones:** Composite measure of study specific tool (ELSI) **Early reading skills:** Get Ready to Read!	*Meeting early learning standards/ milestones* Significant pre-post change t(135)>9, p=o.oo1, d=0.95 *Early reading skills* Significant pre-post change t(125)= 7.46, p<0.001, d=0.66 *Receptive vocabulary*	Early learning centre type significantly moderated effects on ELSI scores, with those attending a school-based pre-kindergarten program having	None analysed	Moderate. High attrition rate with no measures to account for missing data

without control group (Level 4) Country: USA Sample size: N=181	the classroom. Provides knowledge and skills around (a) increasing artistic literacies in dance, drama, music and the visual arts; (b) creative collaborations with arts educators and community artists; (c) enhancing the aesthetic environment; and (d) acquiring a repertoire of art integrated teaching strategies and assessment tools to support, stretch and inspire student learning.			**Receptive vocabulary:** PPVT-III **Alphabet knowledge:** Tests of Early Reading Ability (TERA-III) subtest **Reading conventions:** TERA subtest **Word meaning:** TERA subtest **Overall reading skills:** TERA composite score **NB:** Measured at the start and the end of the school year.	Significant pre-post change t(123)=1.99, p=0.48, d=0.18 *Alphabet knowledge* Significant pre-post change t(125)=2.2, p=0.03, d=0.2 *Reading conventions* No significant pre-post change *Word meaning* Significant pre-post change t(125)=2.1, p=0.029, d=0.2 *Overall reading skills:* No significant pre-post change	larger gains than those attending Head Start centres or community based organisation centres F(2,134)=36.05, p<0.001. Child age moderated effects on TERA and PPVT results with 3 year olds making greater gains than 4 or 5 year olds F(2,122)=9.92, p<0.001 and F(2,121)=7.07, p=0.001 Level of program exposure (partial cf. whole) moderated effects on GRTR and ELSI with those who were exposed to the whole program making greater gains t(124)=-3.6, p<0.001 and t(135)=-4.4, p<0.001		
Reference: (U.S. Department of Health and Human	Attendance at Head Start centre for one (4 year old cohort) or two years (3 year cohort).	Non-attendance at Head Start centre	*3 year old cohort – intervention group* 51.5% female, 24.5% white, 32.8% black, 37.4% Hispanic, 5.3%	**Receptive vocabulary:** PPVT **Letter word identification:** subtest of the WJ-	No significant intervention effects for outcomes at Grade 1 (with p<0.05)	Child and family characteristics: gender, ethnicity, disability, pre-academic skills,	*Four year old cohort* Household risk index moderated	Moderate. Diverse conditions for control group

Services, Adminstration for Children and Services, 2010) **Study method: RCT** **Country: USA** **Sample size: Intervention group n=2783, control group n=1884**			other, 71.1% English child primary language, 74.8% English parent primary language,91.4% income eligible *Control group* 51.1% female, 26.6% white, 31.8% black, 35.7% Hispanic, 5.9% other, 69.9% English child primary language, 74.8% English parent primary language91.9% income eligible *4 year old cohort – intervention group* 48.9% female, 26.7% white, 17.5% black, 52.6% Hispanic, 4.1% other, 57.1% English child primary language, 59.5% English parent primary language, 91.8% income eligible. *Control group* 50.6% female, 23.3% white, 17% black, 53.8% Hispanic, 5.9% other, 56.4% English child primary language, 58.4% English parent primary language, 87.9% income eligible	III **Spelling:** subtest of the WJ-III **Oral comprehension:** subtest of the WJ-III **Phonetic skills:** word attack subtest of the WJ-III **Basic reading:** subtest of the WJ-III **Academic applications:** WJ-III **Academic skills:** WJ-III **Passage comprehension:** WJ-III **Writing sample:** WJ-III **School language and literacy ability:** teacher report **NB:** Outcomes measured at the end of Grade 1 school year		family structure, home language, family movements, family income, economic difficulties, parental employment status, maternal recent immigrant, maternal age, teenage mother, maternal marital status, maternal education, maternal depressive symptoms	effect on 4 year old cohort on receptive vocabulary, with greater gains for those with moderate household risk effect size=11.73, p<0.05. *3 year old cohort* Maternal ethnicity moderated effect on receptive vocabulary with greater gains for children with Caucasian mothers effect size=6.37, p<0.05. Parental depressive symptoms moderated effect on receptive vocabulary, effect size=6.47, p<0.05; oral comprehension effect size=3.45,	

							p<0.05; academic applications effect size=3.45, p<0.05; passage comprehension effect size=4.89, p<0.05 for children with parents with no symptoms and negative effects for those with parents with moderate symptoms. Household risk moderated effect on spelling, effect size=8.56 p<0.05, and passage comprehension effect size=7.87, p<0.05 with greater gains for those in high risk households. Urbanicity moderated effect on academic application	

							effect size=5, p<0.05; and writing effect size=4.67, p<0.05, with those in non-urban locations having greater gains.	
Reference: (Lee, Zhai, Brooks-Gunn, & Han, 2014) **Study method: RCT** **Country: USA** **Sample size: App N=10700**	Head Start attendance at 4 years of age.	Attendance at pre-kindergarten program, non-Head Start centre-based care and parental care at 4 years of age.	Sample from the Early Childhood Longitudinal Study – Birth Cohort *Intervention condition* 50% male, 24% white, 29% black, 39% Hispanic, 1% Asian, 6% other, maternal age at birth M=24.95, mother married at child's birth 47%, depression symptom at 9 months 52%, maternal employment 53% not working, 33% full-time, 14% part-time, 31% mother born overseas, parental education 23% less than high school, income at 2 years <20000 2% *Control group – prekindergarten* 51% male, 54% white, 17% black,	**Early reading skills:** validated study-specific tool **NB:** Measured at kindergarten entry	*Early reading* Significant intervention effect with Head Start group making significant fewer gains than children in pre-kindergarten program coefficient=-0.19, p<0.01, and greater gains compared with children in other non-parental care coefficient=0.12, p<0.05 and parental care coefficient=0.09, p<0.05	Child, family and maternal characteristics, pre-enrolment scores and propensity score matching weights.	Intervention effect compared with pre-kindergarten condition was moderated by initial cognitive ability, with children with high cognitive ability doing worse coefficient=-0.26, p<0.001; children whose parents had more than high school level education coefficient=-0.019, p<0.05, and children that attended Head Start part-time coefficient=-0.23, p<0.001.	Low. Propensity score matching used to account for possible selection bias.

			22% Hispanic, 4% Asian, 4% other, maternal age at birth M=29.25, maternal married at child's birth 72%, depressive symptoms at 9 months 40%, maternal employment status 40% not working, 41% full-time, 19% part-time, 21% mother born overseas, parental education 7% less than highschool, income at 2 year <20000 19% *Control group – other centre-based care* 50% male, 67% white, 9% black, 15% Hispanic, 4% Asian, 5% other, maternal age at birth M=29.23, depressive symptoms at 9 months 36%, maternal employment 38% not working, 38% full-time, 25% part-time, 15% mother born overseas, parental education 5% less than high school, income at 2 year <20000 13% *Control group – other non-parental care*				Intervention effect compared with other centre-based care was moderated by parental education with children whose parents had more than high school level education doing worse coefficient=-0.13, $p<0.05$. Intervention effect compared with other non-parental care moderated by Head Start participation with children that attended full-time doing better coefficient=0.19, $p<0.05$. Intervention effect compared with children in parental care moderated by parental education with children whose parents had less	

			55% male, 42% white, 16% black, 35% Hispanic, 2% Asian, 5% other, maternal age at birth M=26.51, depressive symptoms at 9 months 45%, maternal employment 29% not working, 53% full-time, 18% part-time, 20% mother born overseas, parental education 15% less than high school, income at 2 year <20000 24% *Control group – parental care* 49% male, 45% white, 12% black, 36% Hispanic, 2% Asian, 5% other, maternal age at birth M=26.66, depressive symptoms at 9 months 46%, maternal employment status 64% not working, 19% full-time, 17% part-time, 30% mother born overseas , parental education 20% less than high school, income at 2 year <20000 32%				than high school education doing better coefficient=0.1, p<0.05; and Head Start attendance with children attending full-time doing better coefficient=0.12 , p<0.05	

			NB: Propensity score matching used in modelling to account for significant differences in characteristics of participants in different conditions					
References: (Raver, et al., 2011) (Zhai, Raver, & Jones, 2012) (Zhai, et al., 2010) Study method: RCT Country: USA Sample size: Depending on study outcome: N=-543	Chicago School Readiness Project - designed to support low-income children's self-regulation and their opportunities to learn in early educational settings. The CSRP intervention built on existing community resources to support children's optimal development, providing teachers with extensive training and support on effectively managing children's dysregulated behaviour. Includes teacher training and mental health consultations for families.	Head Start program attendance .	*Total sample* 47-48% male, 66-69% African American, 26% Hispanic, 8% other, 68-69% single parents, 19-23% parents Spanish speaking	**Receptive vocabulary:** PPVT **Letter naming:** Study specific task **Executive functioning:** Preschool Self Regulation Assessment (PSRA) **Effortful control:** PSRA **Attention/impulsivity:** PSRA **School readiness:** Teacher report questionnaire **NB:** Above outcomes measured at the start and the end of the preschool year **Language and literacy:** modified version of Academic Rating Scale measured in kindergarten	*Receptive vocabulary* Direct intervention effect, coefficient=1.46, p<0.05. Indirect effect mediated through executive functioning, coefficient=0.38, p<0.01. Dosage effects with children that experienced high dosage teacher training having greater effect size than low dosage after propensity score matching (1.27 cf 3.7, p<0.01) and effect size only reaching significant for those receiving high dosage of mental health consultation versus low dosage (2.59, p<0.01) *Letter naming* Direct intervention effect, coefficient=0.24, p<0.01. Indirect effects mediated through executive functioning, coefficient=0.03, p<0.01 and attention/impulsivity, coefficient=0.03, p<0.05	(Varies slightly by study) Child gender, child membership in the race/ethnic category of African American versus Hispanic, parent's self-identification as Spanish speaking in the home, large family size, poverty risk, teacher education and psychosocial characteristics, availability of a full-time family worker at the Head Start site, the size of the program, the proportion of teachers with a bachelor's degree, the proportion of TAs with some college, teachers demonstrating depressive symptoms, the	See results	Moderate. Attrition rates unclear for some studies.

					Executive functioning Direct intervention effect, coefficient=0.28, p<0.05 *Effortful control* No intervention effect *Attention/impulsivity* Direct intervention effect, coefficient=0.2, p<0.05. After propensity score matching samples, dosage effects observed with effect size only reaching significance for those with high dosage of teacher training versus low (0.49, p<0.001) and high effect size for high dosage of mental health consultation versus low (1.37 cf2.78, p<0.001) *Kindergarten language and literacy skills* Intervention effect observed only for those attending a high performing school, coefficient0.58, p<0.05, but low performing schools	proportion of families with at least one parent employed, and the proportion of families receiving Temporary Assistance for Needy Families		
Reference: (Reynolds, et al., 2014) (Reynolds A. J., Richardson, Hayakawa, Englund, & Ou, 2016)	Child-Parent Centre Education Program – school-based preschool program implemented in Chicago. Expansion of the program in some sites extended hours from 3 hours to full-day.	Study 1: CPC program sites with part-day hours. Study 2: non-CPC	***Study 1*** *Intervention group* 53% female, 89% black, 8% Hispanic, 5% disability, age (baseline) M=51.6 months, mother completed high school 80%, 90% eligible for	**Literacy skills:** Teaching strategies GOLD Assessment System literacy subtest **Language skills:** subtest of GOLD Assessment System	***Study 1*** *Literacy skills* No intervention effect on raw score but effect on the proportion of children who gained scores equal to or greater than national norm; standard mean diff=0.37, p=0.03.	*Study 1* Sex, ethnicity, subsidised lunches, age, special education status, school average scores, baseline scores, timing of	*Study 1* Age moderated intervention effect on literacy skills, with 3 year olds making greater gains than 4 year olds; adj	Moderate. Possible selection bias, non-inclusion of possible confounding factors. Variance in control condition.

Study method: Study 1 and 2: Pre-test post-test with control group (Level 3) **Country: USA** **Sample size: Study 1: N=2630** **Study 2: intervention group n=1724, control group n=906**	Study 1: full-day attendance Study 2: full and part-day attendance	preschool attendance	free meals, 65% single parent status, 54% mother employed *Control group* 52% female, 93% black, 7% Hispanic, 4% disability, age (baseline) M=45.8 months, 78% mother completed high school, 92% eligible for free meals, 66% single parent status, 48% mother employed ***Study 2*** *Intervention group* 52% female, 64% black, 34% Hispanic, 10% disability, age (baseline) M=48.4 months, 74% mother's completed high school, 85% eligible for subsidised lunches, 49% single parent status, 71% mother employed *Comparison group* 50% female, 46% black, 54% Hispanic, 9% disability, age (baseline_ M=48.6 months, 63% mother completed high school, 83% single	**Cognitive skills:** subtest of the GOLD Assessment System **NB:** Outcomes measured at the start and end of the school year.	*Language skills* Intervention effect on raw scores; standard mean diff=0.34, p=0.01; and the proportion that gained scores greater or equal to national norm; standard mean diff=0.57, p=0.01 *Cognitive development* No intervention effect ***Study 2*** *Literacy skills* Intervention effect; standard mean diff=0.4, p=0.001. *Language skills* Intervention effect; standard mean diff=0.31, p=0.001 *Cognitive skills* Intervention effect; standard mean diff=0.48, p=0.001	baseline measurements.	mean diff. diff=5.7, p=0.01. *Study 2* Attendance rate (full-day versus part-day), child and family characteristics and whether site was newly established did not moderate effects.	

			parent status, 47% mother employed					
Reference: (Wenz-Gross, Yoo, Upshur, & Gambino, 2018) **Study method: Clustered RCT (Level 2)** **Country: USA** **Sample size: N=972**	The Second Step Early Learning Curriculum - is a preschool curriculum targeted to 4–5-year old's, but suitable for use in mixed age (3–5-year-old) classrooms. SSEL has 28 weekly themes divided into five units with daily large or small group activities to introduce and practice skills. It is guided by the extensive research base on self-regulation and social competence and their importance for school readiness.	Business as usual preschool program	*Total sample* Age (baseline) M=52.98, 48.7% female, 27.5% parents married, parental education 12.7% <high school, 33.6% completed high school, 51.8% >high school level, income level 25.7%<10000, 42.3% Anglo-American, 26.3% African-American, 39.7% Hispanic, 2% Asian-American, 2.9% other	**Executive functioning:** Head-Toes-Knees-Shoulders task, less is more task, Backward Digit Span Test. **Pre-literacy/language skills:** letter-word identification, story recall and understanding directions subtests of the Woodcock-Johnsons Tests of Achievement. **School readiness:** Early Screening Inventory- R **NB:** Executive function and pre-literacy/ language outcome measured at the start and the end of the preschool year, school readiness outcome measured during the kindergarten year.	***Executive functioning*** Intervention effect. coefficient=0.21, p<0.01 ***Pre-literacy/ language skills*** Indirect intervention effects through executive functioning. Intervention positively associated with end of preschool executive functioning scores (see above) which was positively associated with pre-LL outcomes at the end of the preschool year (coefficient=0.49, p<0.01) ***School readiness*** Indirect intervention effects through executive functioning and pre-LL outcomes. Pre-LL outcomes (see intervention effect above) positively associated with school readiness scores (coefficient=0.27, p<0.001)	None analysed.	Executive functioning and pre-LL outcomes mediated intervention effects on school readiness (see results)	Moderate. Comparison group condition not described in detail.
Reference: (Williford, Maier,	Attendance at preschool with high	Attendance at preschool	*Total sample* Age (baseline) M=50.18, 49% male,	**Receptive vocabulary:** PPVT-III	*Receptive vocabulary* Group effect beta=1.68 SE=0.79, p<0.05	Baseline scores, ethnicity, age, gender, maternal	Level of child engagement moderated	High. Retrospective designation of

Downer, Pianta, & Howes, 2013) Study method: Cohort study (Level 3) Country: USA Sample size: N=605	quality teacher-child interactions	without high quality teacher-child interactions	13% Spanish home language, income to needs ratio=1.15, maternal education=12.23 years, 12% white, 48% black, 31% Hispanic, 3% Asian, 5% multi-ethnic	**Expressive vocabulary:** Picture vocabulary subtest of the Woodcock-Johnson Psychoeducational Battery **Phonological awareness:** phonological awareness subtest of the Test of Preschool Early Literacy **Print knowledge:** Test of Preschool Early Literacy **Working memory:** Backward Digit Span subtest **Inhibitory control:** Pencil tap test	*Expressive vocabulary* No group effect *Phonological awareness* No group effect *Print knowledge* Group effect beta=1.6 SE=0.59, p<0.01 *Working memory* No group effect *Inhibitory control* Group effect beta=0.05 SE=0.02, p<0.05	education, Spanish as home language, level of child engagement	group effect on expressive vocabulary, with positively engaged children demonstrating greater gains in lower quality classroom beta=-2.64 SE=1.3, p=0.04, effect size=0.37	condition. Non-extensive covariates included.
Reference: (Yazejian, et al., 2017) Study method: RCT (Level 2) Country: USA Sample size: N=206	Educare – Early education model involving teacher mentorship and family support.	Business as usual condition	*Control group* Age (baseline) M=0.79 years SD=0.39, 46% male, 32% Hispanic, 59% black, 38% white, 21% home language other than English, parent education 11.2 years SD=1.3, 16% teenage mothers, 43% mother depressive symptoms,	**Expressive communication Auditory communication NB:** Outcomes measured by subscales of the Preschool Language Scale 4th at 9 months of age and 1 year later.	*Expressive communication (English)* Intervention effect Beta=4.6 SE=1.53, p<0.01 *Expressive communication (Spanish)* No intervention effect *Auditory communication (English)* Intervention effect Beta=8.74 SE=2.06, p<0.001	Treatment site, birth weight, age, home language	Language testing moderated effect, with no intervention effect on Spanish language testing	Moderate. Participants not blind to allocation.

			16% mother works full-time, *Intervention group* Age (baseline) M=0.76 years SD=0.43, 54% male, 43% Hispanic, 56% black, 39% white, 15% home language other than English, parent education M=11.38 years SD=2.48, 16% teenage mother, 42% mother depressive symptoms, 28% mother works full-time		*Auditory communication (Spanish)* No intervention effect			

Table of Studies included

At-risk families

Early Education services

Reading instruction and intervention

Study description	Intervention delivery	Control group type	Sample description	Outcomes measured (and tools/scales used)	Results	Covariates	Study description	Intervention delivery
Reference: (de Buck, Vanderkerckhove, & Hannes, 2018) **Study method: Systematic review (Level 1)** **Countries: Unclear** **Sample size: 38 included studies**	Didactic instruction delivered with the intent to improve the development of at-risk children.	Various	Various – preschool children (ages 2 to 5 years)	Listening comprehension Phonological sensitivity Literacy skills Short-term comprehension skills	*Listening comprehension* One study showed positive effect of book reading on this outcome *Phonological sensitivity* One study showed positive effect of book reading on this outcome *Literacy skills* Four studies showed overall positive impact of poetry intervention on this outcome. *Short-term comprehension skills* Four studies showed overall negative effect on short-term comprehension skills	Not detailed	Not detailed	High. Evidence for most activity-types graded as low or very low. The majority of studies did not include at-risk populations.

References: (Goldfeld, et al., 2012) (Goldfeld, et al., 2011) **Study method: Clustered RCT (Level 2)** **Country: Australia** **Sample size: intervention group n=365, control group n=265**	Let's Read program – shared reading intervention delivered to parents and caregivers at 4, 12, 18 and 42 months during universal well-care visits at maternal and child health centres based in relatively disadvantaged areas. All intervention nurses attended 2-hour group training sessions run by the research team 5 weeks before each intervention point. Educational strategies comprised role-play, feedback, and modeling practice, supported by tip sheets and a desk mat acting as a quick trial reference guide and reminder.	Business as usual nurse-provided well-care visits.	*Control group* Age (baseline) M=8.1 weeks SD=3.9, 47% male. Primary caregiver: age (baseline) M=32.1 years SD=5.9, 74% married, 70% born in Australia, 0.4% First Nations, 80% completed high school, 86% English main language spoken at home. Secondary caregiver: age (baseline) M-34.9 SD=5.9, 71% born in Australia, 0.4% First Nations, 68% completed high school, 20% family health care card. *Intervention group* Age (baseline) M=9,6 weeks SD-4.5, 56% male. Primary caregiver: age (baseline) M=31.6 years SD=4.9, 77% married, 76% born in Australia, 0.8% First Nations, 77% completed high school, 83% English main language	**Core language:** Composite score of subtests of the Clinical Evaluation of Language Fundamentals (CELF)- preschool **Expressive language:** Subtest of the CELF-Preschool **Receptive language:** Subtest of the CELP-preschool **Intrasyllabic:** Subtest of the Sutherland Phonological Awareness Test – Revised (SPAT-R) **Phonemic:** Subtest of the SPAT-R **Letter-sound knowledge:** subtest of the SPAT-R **Parent preliteracy and reading practices:** parent report and StimQ **NB:** age-appropriate outcomes measured at baseline (3-4 months), 1 year, 2 year, 3 year and 4 year)	No intervention effect observed for any of the outcomes	Parent mental health scores, child's sex, English main language at home, primary caregiver's level of education, health care card status, parent employment status, local government area	None analysed	Low

Intervention delivery	Study description	Covariates	Results	Outcomes measured (and tools/scales used)	Sample description	Control group type	Intervention delivery	Study description
					spoken at home. Secondary caregiver: age (baseline) M=34.4 years SD=5.3, 76% born in Australia, 0% First Nations, 65% completed high school, 20% family health card			

Study description	Intervention delivery	Control group type	Sample description	Outcomes measured (and tools/scales used)	Results	Covariates	Study description	Intervention delivery
Reference: (Goldstein, et al., 2016) **Study method: Clustered RCT (Level 2)** **Country: USA** **Sample size: intervention group n=83, control group n=77**	Story Friends program – delivered in a classroom context. Included two storybook series. the storybooks and prerecorded audio included embedded lessons on challenging vocabulary words and story questions (cf. Spencer, Goldstein, Sherman, et al., 2012). Each instructional book included two embedded lessons for each of two challenging vocabulary words (e.g., enormous, brave) and one embedded lesson for each of three inferential story questions (e.g., "Why was Leo sad?").	Small groups read the same stories but without the embedded lessons.	*Experimental group* Age (baseline) M=57.4 SD=3.26, 2.5% disability status, 18.8% English language learner *Control group* Age (baseline) M=57.8 SD=3.44, 5.1% disability status, 17.9% English learner status	**Vocabulary learning:** Unit Vocabulary Test **Comprehension:** Assessment of Story Comprehension **NB:** Measured before and after each unit	*Vocabulary learning* Intervention effect beta=2.02 SE=0.14, p<0.001. Moderated by unit with less growth over for intervention group for each proceeding unit beta=-.21 SE=0.04, p<0.001 *Comprehension* No intervention effect	Pre-test scores, baseline language skills, unit, interaction between intervention group and unit.	See results.	Moderate. Unclear whether participants were blind to allocation. Validity of outcome measures unclear.

Study description	Intervention delivery	Control group type	Sample description	Outcomes measured (and tools/scales used)	Results	Covariates	Study description	Intervention delivery
Reference: (Henning, McIntosh, Arnott, & Dodd, 2010) **Study method: Pre and post-test with control group (Level 3)** **Country: Australia** **Sample size: N=54**	A 20-week programme that involved training a preschool teacher to deliver oral language and PA activities as part of everyday teaching within the planned curriculum. The oral language component of the programme was delivered over 10 weeks.	Business as usual preschool program	*Total sample* Age at follow-up (two years after intervention) M=6 years 8 months, n=28 females, all attended school in low SES area.	**Receptive vocabulary:** PPVT-III **Concepts and Following Directions:** Subtest of the Clinical Evaluation of Language Fundamentals (CELF-4) **Formulated sentences:** subtest of the CELF-4 **Passage comprehension:** subtest of the Woodcock Reading Mastery Tests – R **NB**: All outcomes measured 2 years post-intervention	All outcomes showed no intervention effect.	Pre-intervention language ability.	No moderation effect of baseline language ability.	High. High attrition rate (44%) limited covariates, non-random allocation.

Study description	Intervention delivery	Control group type	Sample description	Outcomes measured (and tools/scales used)	Results	Covariates	Study description	Intervention delivery
Reference: (Huffsetter, King, Onwuegbuzie, & Schneider, 2010) **Study method: RCT (Level 2)** **Country: USA** **Sample size: intervention group n=31, control group n=31**	Headsprout Early Reading program - The whole program consists of 80 online episodes (lessons) that last approximately 20 min each. This study, included the first 40 episodes, as they are considered developmentally appropriate for preschool children.The online episodes use explicit instruction and cumulative practice to teach phonics, phonemic awareness, vocabulary, reading comprehension, oral reading, the use of sound elements to decode words, print awareness, and deriving meaning from text.	Math-based program – Millie's Math House	Both groups attended Head Start centres, all children met criteria for reduced lunch fees had families that met the poverty line threshold. *Experimental group* Age (baseline) M=60.39 months, n=12 female, n=25 African American, n=6 Hispanic, n=17 English as a second language, n=11 no special needs *Control group* Age (baseline) M=60.61 months, n=16 female, n=27 African American, n=4 Hispanic, n=15 English as a second language, n=16 no special needs	**Early reading ability:** Test of Early Reading Ability - III **Language development:** Test of Language Development-Primary III **NB**: Outcomes measured pre-test and post-test (after 8 week of intervention)	*Early reading ability* Intervention effect $F(1,59)=39.35$, $p<0.01$, eta square=0.24 *Language development* Intervention effect $F(1,59)=37.03$, $p<0.01$, eta square=0.17	Pre-test scores.	None analysed	Low

Study description	Intervention delivery	Control group type	Sample description	Outcomes measured (and tools/scales used)	Results	Covariates	Study description	Intervention delivery
Reference: (Justice, McGinty, Piasta, Kaderavek, & Fan, 2010) **Study method: Cluster randomised study (Level 2)** **Country: USA** **Sample size: intervention group n=201, control group n=178**	Whole class read alouds conducted four times a week for 30 weeks using a print-referencing style (condition 1) or conducted two times a week for 30 weeks (condition 2)	Read alouds conducted using teacher's usual style four times a week for 30 weeks.	*Total sample* Age (baseline) M=51.9 months SD=4.5, 54% female, 42% Caucasian, 37% African American, 8% Hispanic, 11% other, 88% English spoken at home, 7% Spanish spoken at home, maternal education 17% less than high school degree	**Language ability:** Composite score of the Clinical Evaluation of Language Fundamentals - Preschool **Print knowledge:** Composite score of the Preschool Print and Word Awareness Test, upper-case alphabet recognition and name writing subtests of the Phonological Awareness Literacy Screening Tool – PreK **NB:** Measured at the start and the end of the school year	*Language ability* No intervention effect *Print knowledge* Intervention effect coefficient=0.18 SE=0.09, p=0.045	Age, baseline scores, instructional quality in classrooms	Moderators tested but no significant interactions observed.	Moderate. Unclear whether teachers were blind to intervention allocation, missing data not reported.

Study description	Intervention delivery	Control group type	Sample description	Outcomes measured (and tools/scales used)	Results	Covariates	Study description	Intervention delivery
Reference: (Kegel & Bus, 2012) **Study method: RCT (Level 2)** **Country: Netherlands** **Sample size: N=312**	Living Letters - The computer program begins with 20 games in which children practice finding their name or mama between other signs and words. In the tutor condition (LL-Tutor), children received increasingly supportive oral feedback from the tutor to their responses.	Clever together – computer game involving playing hide and seek	*Total sample* 60% male, maternal education 70% vocational education highest level, age (baseline) M=52.9 months SD=3.2,	**Code-related skills:** composite score from study specific spelling, name-letter knowledge and phonemic sensitivity tasks	*Code-related skills* Intervention effect with greater gains for condition with tutor when control group compared with this condition Beta=-0.38 SE=0.1, p<0.01, d=-0.48 and when Living Letter without a tutor is compared with this condition Beta=-0.48 SE=0.09, p<0.01, d=-0.71.	Age, maternal education, pre-test receptive vocabulary scores, nonverbal intelligence scores, pre-test code-related scores, working memory and inhibitory control scores	Inhibitory control scores moderated effect of Living Letter with tutor compared with no tutor, with those with lower inhibitory control gaining better scores with a tutor, and no difference of scores for either condition for children with higher inhibitory control scores. Beta=0.17, p=0.03, d=0.32.	Moderate. Unclear whether participants were blind to allocation.

Study description	Intervention delivery	Control group type	Sample description	Outcomes measured (and tools/scales used)	Results	Covariates	Study description	Intervention delivery
Reference: (Kirk, Vizcarra, Looney, & Kirk, 2014) **Study method: Pre-test post-test with control group** **Country: USA** **Sample size: intervention group n=51, control group n=21**	Literacy lessons incorporating physical activity undertaken in classroom settings - lessons were used in the areas of Picture Naming (assessment of expressive language development), Rhyming (assessment of phonological awareness) and Alliteration (assessment of phonological awareness)	Business as usual curriculum	Both participating preschools were Head Start centres *Total sample* More than 99% were African American, age M=3.8 years, more than 95% below the poverty line	**Alliteration** **Picture naming** **Rhyming** **NB:** All outcomes measured using the Preschool Literacy Individual Growth and Development Indicators pre-intervention, at 3 months and at 6 months.	*Alliteration* Significant change from baseline at 6 months for intervention group M=1.0 SD=0.3, $p<0.05$ but not control group *Picture naming* Significant change from baseline at 6 months for intervention group M=24.8 SD=3.4, $p<0.01$ but not control group *Rhyming* No significant change for either group	Gender	None analysed	High. Limited use of covariates to account for confounding factors, no true control group (literacy lessons without physical activity)

Study description	Intervention delivery	Control group type	Sample description	Outcomes measured (and tools/scales used)	Results	Covariates	Study description	Intervention delivery
Reference: (La Cour, McDonald, Thomason, & Tissington) **Study method: Pre-test post-test with control group** **Country: USA** **Sample size: intervention group n=12, control group n=10**	Caregivers attended a workshop regarding effective storybook reading, coupled with the receipt of twenty storybooks for use in reading with their child at home.	Business as usual	All participants attended Head Start centres and all were 4 years old. *Total sample* n=19 female, n=5 Caucasian, n=24 African American, n=4 Hispanic	**Reading skills:** Reading readiness assessment of the BRIGANCE Diagnostic Comprehensive Inventory of Basic Skills Revised **NB:** Pre and post-test (after 7 week implementation)	*Reading skills* No intervention effect.	None analysed	None analysed	Moderate. Confounding factors not controlled for.

Reference: (Lonigan, Purpura, Wilson, Walker, & Clancy-Menchetti, 2013) **Study method: RCT (Level 2)** **Country: USA** **Sample size: N=324**	Dialogic reading intervention – conducted in small groups. In this model, there are three tiers that vary in the complexity of questions asked and the feedback provided. Level I includes simple "wh-" questions, modeling, and corrective feedback (e.g., praise, repetition, labeling). Level II includes primarily open-ended questions and expansions. includes questions that extend conversations about the book to children's own experiences. Use of a particular level depended on children's familiarity with the book and their oral language skills. At the beginning of the year and as each new book was introduced, most dialogic reading involved Level I. As	Shared book reading without dialogic reading strategies or letter knowledge or phonological awareness training.	All participants enrolled in Head Start centres. *Total sample* 46% females, age (baseline) M=54.3 SD=5.9, 82% African American, 14% Caucasian, 4% other ethnicity.	**Expressive vocabulary:** Expressive One-word Picture Vocabulary Test **Receptive vocabulary:** basic concepts subtest of the Clinical Evaluation of Language Fundamentals - Preschool **Phonological awareness:** Study specific tasks **Letter name knowledge:** Study specific tasks **Letter sound knowledge:** Study specific tasks **NB:** Outcomes measured at the start, mid and end of the school year	*Expressive vocabulary* Intervention effect when comparing dialogic reading conditions to conditions without dialogic components (conditions 4 and 5) effect size=0.18, p<0.05. *Receptive vocabulary* Intervention effect when comparing dialogic reading conditions to conditions without dialogic components (conditions 4 and 5) effect size=0.17, p<0.05. *Phonological awareness* Intervention effect when comparing conditions with PA training and those without (condition 2 and 5) effect size=0.25, p<0.01 *Letter name knowledge* No intervention effect	Pre-test scores, nonverbal cognitive scores, age.	None analysed	High. Moderate attrition rate (>10%) with no effects to statistically control for possible bias

Study description	Intervention delivery	Control group type	Sample description	Outcomes measured (and tools/scales used)	Results	Covariates	Study description	Intervention delivery
	children acquired the vocabulary to talk about the book and as the year progressed, dialogic reading increasingly involved Level II and Level III. *Condition 1* involved dialogic reading with a phonological awareness focus conducted 5 days a week for 10 min a day for 12 weeks. *Condition 2* involved a letter knowledge focus for the same duration and dosage, and *Condition 3* involved alternating weeks of both focuses. *Condition 4* involved both phonological awareness and letter knowledge focus without the dialogic reading component.				*Letter sound knowledge* Intervention effect when comparing conditions with letter knowledge training compared to those without (conditions 1 and 5) effect size=0.26, $p<0.01$			

Reference: (Paciga, 2015) **Study method: Clustered RCT** **Country: USA** **Sample size: N=130**	Digital storybook listening lesson. Four conditions: CD-ROMA, CD-ROMB, OMS and SO. Condition 1 involved full animation of book, automatic provision of extra-textual discourse prompts for reader. Condition 2 involved full animation, extra-textual discourse prompts when clicking on icon, and has hotspots providing more information on the text and illustrations, and to turn the page. The third condition has static images, no extra-textual discourse prompts and hotspots only for page turning. Condition 4 allows panning and cropping of static images, no extra-textual information and no hotspots.	See intervention delivery.	All classrooms had student populations primarily of African-American or Hispanic descent and more than 90% of the children qualified for free or reduced-price lunch. Participants ranged in age from 3 years, 0 months to 5 years, 8 months.	**Listening comprehension:** Explicit comprehension: Study specific task, implicit comprehension: Study specific task **NB:** measured after intervention	*Listening comprehension* No main effect for conditions on outcomes, however, interaction between computer skills and the two animated conditions (Condition 1 and 2) was significant. Children with greater computer skills had a greater intervention effect beta=0.05 p<0.01 for both interactions with conditions.	Baseline receptive vocabulary scores, level of task completion, background knowledge on story topic.	Moderation effect of computer skills for two animated conditions of the story (see results)	Moderate. Unclear whether participants or teachers were blind to allocation, outcome measures not validated.
Reference: (Penuel, et al., 2012) **Study method: Clustered RCT**	PBS Kids Raising Readers Curriculum Supplement - curriculum supplement that	The comparison group supplement focused on	*Total sample* Age (baseline) M=56.7 months SD=2.9, 68% low-income, 6%	**Letter-name knowledge:** Subtest of the Phonological Awareness Literacy	*Letter-name knowledge* Significant treatment effect	Pre-test scores	Pre-test scores moderated treatment effect of letter-name knowledge, with	Moderate. Unclear whether participants were blinded to allocation.

Study description	Intervention delivery	Control group type	Sample description	Outcomes measured (and tools/scales used)	Results	Covariates	Study description	Intervention delivery
Country: USA **Sample size: N=396**	integrated print-based activities with content from video clips and games associated with three public education television programs Sesame Street, Between the Lions, and SuperWhy! Focused on developing four early literacy skills: letter naming, identification of letter sounds, understanding of story and print concepts, and phonological awareness. The curriculum supplement took 10 weeks to implement and was intended to provide participating children with 25 hours of activities.	science, not literacy, and it also included media elements. The supplement was of the same duration as the literacy supplement (10 weeks), and like the literacy supplement, it integrated video from educational television programs and associated online games with classroom activities.	Caucasian, 28% African American, 53% Hispanic, 10% Asian or Pacific Islander, 3% Native American, maternal education 26% less than high school.	Screening for Pre-kindergarten (PALS-PreK) **Letter-sound awareness:** Subtest of the PALS-PreK **Beginning sound awareness:** Subtest of the PALS-PreK **Story and print concepts:** study specific assessment adapted from the Test of Early Reading Ability **NB:** Outcome measured pre-test and 4 weeks post-test	beta=7.58, SE=1.8, p<0.001 *Letter-sound awareness* Significant treatment effect beta=3.21 SE=1.0, p<0.01 *Beginning sound awareness* No significant treatment effect *Story and print concepts* No significant treatment effect.		children in the third and fourth quintile making greater gains beta=-5.42 SE=2.0, p<0.01 and beta=-7.06 SE=1.8, p<0.001 respectively. Maternal education and poverty status were not observed to moderate results.	Unvalidated tool used to measure one outcome.

References: (Piasta, Justice, McGinty, & Kaderavek, 2012) (Hart, Piasta, & Justice, 2016) **Study method: RCT (Level 2)** **Country: USA** **Sample size: N=366**	Project STAR (Sit Together and Read) – Children assigned to the high- or low-dose STAR conditions experienced a shared reading program in which their teachers used explicit print references during reading so as to increase children's contact with print. In the high-dose condition, children experienced four reading sessions per week for 30 weeks (120 sessions total); in the low-dose condition, children experienced two sessions per week (60 sessions total). In all other ways, the two STAR conditions were identical. Teachers implementing the STAR program received training in how to make general verbal print references, such as questions about print (e.g., "Do you know this letter?"), and	Regular reading program	*High dose condition* Age M=52.84, SD=4.65, 47% female, 98% speak English at home, 44% Caucasian, 34% African American, 8% Hispanic/Latino, 9% multi-racial, 1% other, maternal education , 16% no high school diploma, 24% family income<$15000 *Low dose condition* Age M=52.84, SD=4.65, 54% female, 99% speak English at home, 41% Caucasian, 43% African American, 4% Hispanic/Latino, 7% multi-racial, 3% other, maternal education , 16% no high school diploma, 35% family income<$15000 *Comparison condition* Age M=52.24, SD=4.47, 44% female, 99% speak English at home, 42% Caucasian, 39% African	**Letter-word identification:** subtest of the Woodcock-Johnson Test of Achievement III **Spelling:** subtest of the WJ-III **Passage comprehension:** subtest of the WJ-III **NB:** outcomes were measured at 1 and 2 years post-intervention	*Letter-word identification* Significant intervention effect comparing high dose condition with comparison at 2 years post (effect size=0.27, p=0.02) and high dose versus low dose (effect size=0.19, p=0.03) but not low dose versus comparison. *Spelling* Significant intervention effect at 2 years post comparing high dose condition with comparison (effect size=0.31, p=0.002) and low dose versus condition (effect size=0.21, p=0.046) but not high dose versus low dose *Comprehension* Significant intervention effect at post 2 years for high dose versus comparison (effect size=0.26, p=0.025) but not	Preschool early literacy scores (PA and Alphabet knowledge), age, gender, ethnicity, maternal education, family income.	3 way interaction between intervention status, effortful control and literacy interest on kindergarten reading skills (letter-word identification and passage comprehension): For treatment group, literacy interest moderated the impact of effortful control, with no effect of effortful control with children with low literacy interest, but higher results for children with high effortful control and high literacy interest. The opposite was true for the comparison group, with effortful control having no observable effect on scores for children with high literacy interest, but greater scores for children with high effortful control and	Moderate. Although background of dropped-off cases did not differ from those who were included in analysis, missing data due to large attrition rate was not statistically controlled for.

Study description	Intervention delivery	Control group type	Sample description	Outcomes measured (and tools/scales used)	Results	Covariates	Study description	Intervention delivery
	nonverbal print references (such as tracking the print with one's finger) during shared reading. Training was accomplished via an 8-hr fall workshop, a 3-hr winter "refresher" workshop, and two written feedback letters from project staff. In the workshops, teachers received information about four print "domains" that they can explicitly reference during shared reading: print meaning, book and print organisation, letters, and words.		American, 5% Hispanic/Latino, 12% multi-racial, 2% other, maternal education , 22% no high school diploma, 33% family income<$15000		low dose versus high dose or low dose versus comparison.		low literacy interest.	

Study description	Intervention delivery	Control group type	Sample description	Outcomes measured (and tools/scales used)	Results	Covariates	Study description	Intervention delivery
Reference: (Suggate, 2010) **Study method: Systematic review and meta-analysis** **Countries: Not reported** **Sample size:**	Included interventions that focused on phonological awareness, phonics, comprehension or a mixture.	All studies were RCTs or quasi-experimental between study design.	N=27 between-group comparisons for interventions undertaken among preschool and kindergarten students for a total of N=2376	n=25 comparisons for prereading outcomes, n=17 for reading outcomes, and n=4 for comprehension outcomes	*Prereading outcomes* d=0.43, p<0.05 *Reading outcomes* d=0.5, p<0.05 *Comprehension outcomes* d=0.16, p<0.05	Not reported	Grade of implementation and instruction type moderated effect size, with phonics instruction having a greater effect on outcomes when implemented prior to Grade 1.	Low. Publication, measurement and methodological bias accounted for.
Reference: (Wang, Christ, & Chiu, 2014) **Study method: Pre-test and post-test with control group (Level 3)** **Country: USA** **Sample size: intervention group n=14, control group n=14**	Early childhood vocabulary intervention – based on four components: vocabulary exposure and instruction, vocabulary-learning strategy instruction, vocabulary-relations instruction, and opportunities to apply newly learned vocabulary. Intervention was delivered in a classroom setting	Business as usual curriculum (Creative Curriculum)	All participants attended Head Start centres. *Intervention group* n=5 females, n=6 Caucasian, n=2 Asian, n=5 Latino, n=1 multi-racial, n=3 bilingual, n=1 English language learner. *Control group* n=7 females, n=4 African-American, n=6 Caucasian, n=4 Hispanic.	**Target word vocabulary score:** semi-structured interviews with children **NB:** Outcome measured pre and post intervention	*Target word vocabulary score* Intervention effect coefficient=1.32 SE=0.32, p<0.001, 0.83R square=	Pre-test target word vocabulary score, child age, sex, ethnicity, PPVT-III pre-test score, expressive vocabulary pre-test score,	Child ethnicity and pre-test receptive and expressive vocabulary scores did not mediated intervention result.	Moderate. Non-extensive covariates. Attrition rate unclear.

Family and early literacy programs and campaigns

Study description	Intervention delivery	Control group type	Sample description	Outcomes measured (and tools/scales used)	Results	Covariates	Study description	Intervention delivery
Reference: (Albarran & Reich, 2014) Study method: RCT (Level 2) Country: USA Sample size: N=198	The Educational intervention group was given six baby books embedded with education material corresponding to the paediatric anticipatory guidance typically provided during well-child visits over the first year (intervention 1). The non-educational comparison group was given visually identical baby books on the same schedule, but these books had rhymes related to the pictures rather than educational information (intervention 2).	The control group did not receive any books.	*Intervention group 1* maternal ethnicity 68% African American, maternal education 13% college educated or above, maternal marital status 81% single or other, 89% unplanned pregnancy *Intervention group 2* maternal ethnicity 63% African American, maternal education 9% college educated or above, maternal marital status 86% single or other, 82% unplanned pregnancy *Control group* maternal ethnicity 53% African American, maternal education 22% college educated or above maternal marital status 74% single or other, 71% unplanned pregnancy	**Expressive language:** subscale of the Preschool Language Scale 4th Ed **Receptive language:** subscale of the Preschool Language Scale 4th Ed **Language total:** composite measure of the Preschool Language Scale 4th Ed **NB:** Outcomes measured when child was 18 months	*Expressive language* Intervention effect (group 1 vs group 2) beta=-0.15 SE=0.39, p<0.01, (group 1 vs control) beta=0.19 SE=0.38, p<0.001, (group 2 vs control) beta=0.16 SE=0.34, p<0.001 *Receptive language* No intervention effect *Language total* Intervention effect (group1 vs control) beta=0.17 SE=0.53, p<0.01 (group 2 vs control) beta=0.12 SE=0.47, p<0.05	Age, maternal education, age and ethnicity, income, marital status, planned pregnancy, change in maternal self-efficacy.	None analysed	Moderate. Attrition rate high but not statistically controlled for.

Reference: (Rikin, et al., 2015) Study method: Cohort study (Level 3) Country: USA Sample size: N=256	Reach Out and Read program – Medical providers distribute books to caregivers during health supervision visits from age 6 months to 5 years, give age-appropriate literary guidance on how the children will likely interact with the book, and model developmentally appropriate reading. By the time a child is 5 years old, he or she will have a library of about 10 books from the ROR program.	NA	Age 14.8% 6-11 months, 26.2% 12-23 mo, 22.7% 24-35 mo, 15.2% 36-47 mo, 21.1% 48-71 mo, 47.3% female, caregiver education 27.1% did not complete high school, 85.5% speak English at home, 32% speak Spanish at home, 3.9% speak other language at home, caregiver ethnicity 1.6% Asian, 68% African American, 27.7% Latino, 2.3% Caucasian, 0.4% other	**Frequency caregiver reads to child:** Questionnaire **NB:** Outcomes measured once cross-sectionally on a convenience sample	*Frequency caregiver reads to child* Intervention effect, with receiving 4 or more books from paediatrician positively associated with caregivers reading to their child often vs rarely OR=2.1; daily vs often OR=2.2; and daily vs rarely OR=4.61; and receiving one or more book from the paediatrician also positively associated with reading daily vs rarely OR=3.06	Using nonparametric method of classification and regression trees, demographic and other home environment variables were also analysed for positive association with reading frequency.	None analysed	High. Intervention type established retrospectively, no true control group. Outcome based on non-validated self-report tool.
Reference: (Samiei, Bush, Sell, & Imig, 2016) Study method: Cohort study (Level 3) Country: USA Sample size: N=263	Imagination Library – families are posted a book every month after their child's birth until their fifth birthday.	Families that did not participate in the program	*Total sample* Age M=66 months SD=3.9, app 51% male, 67% African American, 80% economically disadvantaged.	**Language and pre-literacy skills:** Kindergarten readiness indicator – Language scores **NB**: Measured at kindergarten entry	*Language and preliteracy skills* Intervention effect $F(1,253)=9.81$, $p<0.01$ eta square=0.03	Age, economic disadvantage, gender, prekindergarten experience, ethnicity, reading habits.	None analysed	High. Retrospective intervention condition, lack of protocols around control or intervention.

Reference: (Scott, van Bysterveldt, & McNeill, 2016) **Study method: Pre-test post-test with control group (Level 3)** **Country: New Zealand** **Sample size: intervention group n=27, control group n=10**	Growing Great Readers - 7-week modularized program, completed in the classroom setting. The first two sessions were focused on increasing the parents' knowledge of the language and literacy development of their children, as well as how to choose an appropriate book for their child's age and interests. Sessions 3–6 (content sessions) directly targeted increasing the parents' skills when reading with their children in four key areas. The final session was a summary session.	No intervention provided	*Intervention group* Age (baseline) 1 year 8 months, 66% Caucasian, 26% Maori/Pasifika, 8% other *Control group* Age (baseline) M=1 year 7 months, 56% Caucasian, 31% Maori/Pasifika, 13% other	**Reading frequency:** Home Literacy Survey **NB:** shared reading behaviours undertaken pre-intervention and two weeks after. Reading frequency measured during first session and 1 year after.	*Reading frequency* No intervention effect	None analysed	None analysed	High. No controlling for confounding factors. Reliance on self-report for outcomes with no blinding to allocation.
Reference: (Sloat, Letourneau, Joschko, Schryer, & Colpitts, 2015) **Study method: Systematic review (Level 1)** **Countries: USA** **Sample size: N=4 studies**	Consists of one of three types of interventions—improved access to books; instruction, advice, or encouragement to parents on how to read interactively with children; or a combination of strategies aimed both at improving access to books and promoting reading interaction	Various	N=4 studies reported on N=664 students. All studies used control groups and random or quasi-random methods of allocation. n all four included studies were parents with children between birth and 48 months, with all studies targeting low-income populations. Two studies focused on children between 5 and 11 months, while the remaining two studies recruited children from 12-to-36 and 38 months of age.	**Time parents spent reading:** Parent questionnaires **Expressive and receptive vocabulary:** modified English and Spanish versions of the MacArthur Communication and Development Inventory	*Time parents spent reading* Meta-analysis of three studies favoured intervention over control conditions Mean diff=1.61 95%CI (1.03,2.19) z=5.45, p<0.001 *Expressive and receptive vocabulary* Three studies reported improved expressive and receptive vocabulary (the fourth did not measure it as an outcome)	None reported	None reported	Low. All studies assessed using Cochrane's test of bias tool.

Parenting programs

Study description	Intervention delivery	Control group type	Sample description	Outcomes measured (and tools/scales used)	Results	Covariates	Study description	Intervention delivery
Reference: (Andrews, Motz, Pepler, Jeong, & Khoury, 2018) **Study method: Pre-test pot-test without control group** **Country: Canada** **Sample size: N=168**	Breaking the Cycle – an early prevention and intervention program for pregnant and parenting women using substances and their young children aged 0–6 years in Toronto, Canada. The program supports the development of substance-exposed children by addressing maternal addiction problems and the mother-child relationship through a comprehensive, integrated, cross-sectoral model.	NA	*Total sample* Maternal education 65% did not complete high school, monthly income M=1098 SD=772, 98% involved with child protective services	**Child development:** counsellor report **NB:** assessed pre and post intervention	*Child development* Significant intervention effect on increased post-intervention scores relating to accessing women's focus services r=0.34, p=0.04, parent-child focused services r=0.6, p=0.03, total number of group services r=0.47, p=0.003, proportion of group services r=0.36, p=0.02 and the range of services r=0.35, p=0.03 accessed.	None analysed	None analysed	High. No control group or confounding factors controlled for.

References: (Bagner, et al., 2016) (Bagner, Garcia, & Hill, 2016) Study method: RCT (Level 2) Country: USA Sample size: N=60	Infant Behaviour Program - a home-based adaptation of the Child-Directed Interaction (CDI) phase of PCIT, an evidence-based intervention for preschool behaviour problems. Parents are taught by a therapist to follow their infant's lead in play by decreasing don't skills (i.e., commands, questions, and negative statements) and increasing do skills (Praising the infant, Reflecting the infant's speech, Imitating the infant's play, Describing the infant's behaviour, and expressing Enjoyment in the play). Sessions conducted weekly for app. 5-7 weeks for 1-1.5 hours.	Standard paediatric care	*Total sample* Age (baseline) M=13.47 months S1.31, 55% male, 98% minority status, 95% maternal minority status, 43% mother speaks English, maternal education 70% high school graduate or less, 60% below poverty line	**Number and range of utterances:** Transcript of natural language sample analysed with Child Language Data Exchange System **NB:** Outcomes measured at baseline and post-3 and 6 month follow-ups.	*Number and range of utterances* Intervention effect at 6 months post-intervention but not at 3months. F(7,50)=13.91, p<0.001, d=0.63	Infant age at baseline, sex, maternal education level, language spoken at home, baseline language production scores.	Infant externalising behaviour problems at post-treatment significantly mediated intervention effect with intervention significantly associated with IEBP coefficient=-0.23, p<0.01 and IEBP significantly associated with language outcome coefficient=-37.25, p<0.001	Low
Reference: (Brotman, et al., 2016)	ParentCorps program – series of thirteen 2 hour	Pre-kindergarten program as usual	*Intervention group* 46.8% male, 45% single parent,	**Reading achievement:** Reading and math	*Reading achievement*	None analysed	No moderators observed	Low

Study method: RCT (Level 2) Country: USA Sample size: N=1050	groups held at child's school after-hours. Parent and child groups held concurrently in separate rooms. Parent groups focused on the following parenting practices: stablishing structure and routines for children, providing opportunities for positive parent–child interactions during child-directed play, using positive reinforcement to encourage compliance, selectively ignoring mild misbehaviors, and providing consistent, nonphysical consequences for misbehavior (e.g., time-out, loss of privileges). Child groups were exposed to these same skills.		36.6% parent unemployed, 70% low-income, 48.9% parent education level high school diploma or lower, 86.1% African American, 10.9% Latino *Control group* 48.5% male, 43.4% single parent, 39.3% parent unemployed, 69% low income, 43.6% parent education level high school diploma or lower, 85.6% African American, 8.7% Latino	achievement – Kaufman Test of Educational Achievement Brief Form **NB:** Measure at the end of kindergarten and second grade	Significant intervention effect d=0.32, 95%CI(-0.06, 0.7)			
Reference: (Cassidy, et al., 2017)	Circle of Security – Parenting – attachment-based	Wait-list control	*Intervention group* Age (baseline) M=50.68 months	**Cognitive flexibility:**	*Cognitive flexibility* No intervention effect	Maternal age and marital status	Maternal attachment anxiety moderated	High. Non-blinding of participants and

Study description	Intervention delivery	Control group type	Sample description	Outcomes measured (and tools/scales used)	Results	Covariates	Study description	Intervention delivery
Study method: RCT (Level 2) **Country: USA** **Sample size: N=141**	intervention based on video-feedback procedures resulting in individualised diagnostic and treatment plans. Runs for 10 weeks.		SD=5.94, 43% males, maternal education 11% did not complete high school, 52% high level high school diploma, maternal ethnicity 81% African American, 11% Caucasian, 5% other, 91% single parent *Control group* Age (baseline) M=51.15 months SD=6.01, 41% males, maternal education 24% did not complete high school, 39% highest level high school diploma, maternal ethnicity 68% African American, 14% Caucasian, 11% other, 74% single parent	Dimensional Change Sort Card **Inhibitory control:** Puppet-says task **NB:** Outcomes measured at baseline and approximately 2 months post-intervention	*Inhibitory control* Intervention effect t(128)=2.31, p=0.02, d=0.4		intervention effects on inhibitory control t(122)=-2.16, p=0.03, with effects greater for those with mothers with lower levels of anxiety	no statistical accounting for participants lost to attrition.

Study description	Intervention delivery	Control group type	Sample description	Outcomes measured (and tools/scales used)	Results	Covariates	Study description	Intervention delivery
Reference: (Cluxton-Keller, et al., 2014) **Study method: RCT** **Country: USA** **Sample size: Intervention group n=249, control group n=123**	Health Families Alaska Program – provides home visits for up to 3 years to families deemed at-risk for child maltreatment	Alternative parenting and family-support services	*Total sample* 52% female, maternal education 61% graduated high school, 53% live below poverty level, maternal ethnicity 20% Alaskan native, 56% Caucasian, 8% multiracial, 16% other, 25% maternal depressive symptoms	**Cognitive and mental development:** Bayley Scales of Infant Development- MDI **NB:** Outcome measured at baseline and follow-up when child is 2 years old	*Cognitive and mental development* Significant intervention effects with intervention group having higher scores than control group $p<0.05$	Parents relationship (at baseline)	Interaction between maternal severe depressive symptoms and maternal discomfort with trust (beta=-1.86, $p<0.05$). Intervention significantly impacted outcome when mothers had either severe depression or discomfort with trust, but did not have an impact when a mother had both or neither.	Moderate. Large attrition with no mechanism to account for missing data, and no indication of blinding of allocation for participants or those measuring outcomes.

Study description	Intervention delivery	Control group type	Sample description	Outcomes measured (and tools/scales used)	Results	Covariates	Study description	Intervention delivery
Reference: (Cote, Orri, Tremblay, & Doyle, 2018) Study method: RCT Country: Ireland Sample size: intervention group n=115, control group n=118	Preparing for Life program – combination of three intensive parenting supports: home visiting; Triple P Positive Parenting Program; and a baby massage course. During the first 5 years, the treated parents received twice monthly visits in their own home that were focused on the identification of developmental milestones and appropriate parenting practices based on a curriculum of 210 tip sheets.	Families received a set of low intensity provisions, including developmentally appropriate toys and books, support to participate in community-based social events and public health workshops, and newsletters, birthday cards, and access to a support worker who could help them access other services.	*Treatment group* Maternal marital status 14% married, maternal education 34% did not complete high school, 43% unemployed, 55% reside in public housing, 28% previous mental health condition. *Control group* Maternal marital status 18% married, maternal education 40% did not complete high school, 41% unemployed, 55% reside in public housing, 24% previous mental health condition.	**General cognitive skills:** Developmental Profile-3 **Vocabulary:** words and gestures subtest of the MacArthur-Bates Communicative Development Inventories **NB:** Outcomes measured at 1, 1.5, 2, 3 and 4 years.	*General cognitive skills* Treatment effect with intervention group more likely to follow a high development trajectory than control group OR=4.5, 95% CI=2.22-9.65 *Vocabulary* Treatment group more likely to follow a high development trajectory OR = 2.02, 95% CI = 1.08–3.82, NNT = 6	Child gender	None analysed	Moderate. Unclear whether participants were blinded to allocation.

Reference: (Edwards, et al., 2011) **Study method: Cohort study (Level 3)** **Country: Australia** **Sample size: Treatment group n=1448, comparison group n=714**	Communities for Children - initiative involved providing funding to a large non-government organisation in each area (the facilitating partner). The facilitating partner established committees that included other local service providers and community representatives to decide on the services required in communities to allocate funding for these services to local providers. The local service providers then delivered these services.	Matched locations based on area-characteristics without CfC implementation	*Intervention group* 50.2% female, 8.9% aboriginal or Torres Strait Islander, maternal education 2% only finished Year 8 or below, 3% Year 9, 11% Year 10, 8% Year 11, 19% Year 12, maternal employment 6% unemployed, 23.1% father not present, 26.2% parent born overseas *Comparison group* 49.7% female, 4% aboriginal or Torres Strait Islander, maternal education 1% never attended school, 5% only finished Year 8 or below, 3% Year 9, 10% Year 10, 6% Year 11, 17% Year 12, maternal employment 4% unemployed, 18.8% father not present, 41.5% parent born overseas	**Home learning environment:** Parent report questionnaire **Receptive vocabulary:** LSAC short form of PPVT **NB:** Measured at baseline and 12 months post-implementation	*Home learning environment* No intervention effect *Receptive vocabulary* No intervention effect	Child gender, aboriginal or torres strait islander status, maternal education, maternal employment, father involvement, parent born overseas, parental income, mother's age, baseline measures	Several tested but none observed	Moderate. Unclear the extent participants were aware of allocation.

Study description	Intervention delivery	Control group type	Sample description	Outcomes measured (and tools/scales used)	Results	Covariates	Study description	Intervention delivery
Reference: (Feinberg, Jones, Roettger, Solmeyer, & Hostetler, 2014) **Study method: RCT (Level 2)** **Country: USA** **Sample size: N=77**	The FF intervention program consisted of eight classes, with four weekly classes conducted during the second or third trimester of pregnancy and four weekly classes conducted within the first months postpartum. Classes focused on emotional self-management, conflict management, problem solving, communication, and mutual support strategies that foster positive joint parenting of an infant.	Families provided with mailed literature on selecting quality childcare and developmental stages.	Full details not provided in this paper. Available in Feinberg et al 2008.	**Learning engagement:** Teacher report questionnaire **Academic motivation:** motivation subscale of the Academic competence evaluation scales **NB:** Collected when child was aged 5 to 7.5	*Learning engagement* Intervention effect for children whose parents demonstrated negative communication at baseline coefficient=1.15, 95%CI=0.39-2.62, p<0.05 *Academic motivation* Intervention effect for children whose parents demonstrated negative communication at baseline coefficient=16.35, 95%CI=5.21-27.5, p<0.01	Both outcomes moderated by communication between parents at baseline, with intervention effect greater on children whose parents demonstrated negative communication (see results).	Family income, child gender, parental education, economic strain, marital status, frequency of psychological violence, and father report of couple conflict.	Moderate. Participants not blind to condition allocation.

Study description	Intervention delivery	Control group type	Sample description	Outcomes measured (and tools/scales used)	Results	Covariates	Study description	Intervention delivery
Reference: (First 5 LA Family Literacy Initiative, 2012) **Study method: Cohort study (Level 3)** **Country: USA** **Sample size: intervention group n=423, control group numbers vary by outcome**	Components of the program include early childhood education, parent-child interactive literacy activities, parenting education and adult education. They serve children from birth to age 5 and includes 15 hours of early childhood education plus 2-3 hours of parent-child interaction; adults receive 10-12 hours of adult education and 2-3 hours of parenting education per week.	Participants in the School Readiness Language Development Program - a less intensive preschool program provided to 4 year olds for 10 hours a week, with a focus on oral language development.	Details not provided, although control group were matched to treatment group via demographic variables (propensity score matching).	**Reading achievement:** English language arts score – California Standards Test – measured at Grade 2-5	*Reading achievement* Significant intervention effect; intervention group z==0.06 cf control group=-0.03, $p<0.05$	Not specified	None analysed	High. Lack of detail in report around covariates and the treatment of missing data.

Reference: (Guttentag, et al., 2014) Study method: RCT Country: USA Sample size: N=361	My Baby and Me – the high-intensity condition began during the third trimester of pregnancy and continued until each child reached 30 months of age. Coaches worked individually with each mother– child dyad at home or in a location of their choice (e.g., relative's home, local library). The intervention was designed to provide a cohesive, developmentally sequenced curriculum across 55 sessions.	Low intensity conditions – assigned a family coach, providing printed informational materials and appropriate referrals to community agencies.	*Control group* 26% teenage mother, maternal ethnicity 52% African American, 10% Caucasian, 3% multiracial Hispanic, 0.5% Asian, 0.5% other, 2% multiracial, maternal education 3% Year 8 or less, 40% Year 9-12, 76% postpartum depression (1 month) *Intervention group* 27% teenage mother, maternal ethnicity 51% African American, 11% Caucasian, 0.5% black Hispanic, 2% multiracial Hispanic, 2% Asian, 2% multiracial, maternal education 5% Year 8 or less, 40% Year 9-12, 77% postpartum depression (1 month)	**Expressive language** Preschool Language Scale – expressive communication scale **Receptive language** Preschool Language Scale – auditory comprehension scale **Cognitive skills** Cognitive scale of the Bayley Scales of Infant and Toddler Development **NB:** PLS measured at 10, 16 and 24 and 30 months. Cognitive skills measured at 30 months.	*Expressive language* Intervention effect mediated by levels of maternal negativity *Receptive language* No intervention effect *Cognitive skills* No intervention effect	Unclear	Intervention effect was mediated by indirect effect of maternal negativity (see results)	Moderate. Unclear whether participants were blinded to allocation condition.
Reference: (Hackworth, et al., 2017)	Smalltalk (standard) – provided to parents	Parents of infants received six weekly group	Sample described in supplemental materials Table 1.	**Home learning activities:** LSAC modification of Early	*Home learning activities*	Baseline scores, child age, child gender, single	None analysed	Moderate. Outcomes relied on parent-

Study method: Clustered RCT (Level 2) **Country: Australia** **Sample size: N=986**	of infants and of toddlers. Both groups involved 10 2 hour weekly sessions. The infant group was run through a maternal and child health service, the toddler group involved a facilitated program session. Program content aimed to increase the frequency of five responsive parenting behaviours (tuning in, following the child's lead, listening and talking, teachable moments and warm and gentle engagement) and five strategies for providing a stimulating home learning environment (shared book reading, supporting children's play, learning through everyday routines, using community resources and monitoring use of	sessions focusing on age-relevant parenting issues (e.g. feeding, sleeping, safety, exercise and behaviour). Parents of toddlers received ten weekly playgroup sessions conducted according to the guidelines for government-funded playgroups.	Families were ineligible if they did not speak English, were under the age of 18 years or were receiving intensive support or child protection services. They did need to display at least one marker of social disadvantage. Age of infant group M=8 months SD=2.3 and toddler group M=22.3 months SD=7.2	Childhood Longitudinal Study kindergarten cohort measure **Home literacy environment:** Home literacy environment index **NB:** Measured at baseline, 12 weeks and 32 weeks after intervention	Infant group: No intervention effect by 32 weeks Toddler group: Intervention effect for small talk-group only effect size = 0.17, 95% CI 0.01, 0.38. *Home literacy environment* No intervention effect at 32 weeks for infant or toddler groups.	parent, language other than English spoken at home, mother ≤25 years of age, mother did not complete year 12 and no parent employed		report, although it was indicated that participants may have been blind to intervention allocation.

	media). Information was provided about three additional factors that have indirect effects on children, namely the importance of looking after oneself (self-care), having confidence in one's parenting (personal agency) and building connections with other parents and services (community connectedness). The small talk plus condition involved six fortnightly 1-hour visits from a home coach. Sessions reinforced the content covered in group sessions using a narrated DVD which guided the coach and parent through practice of the key parenting strategies (with modelling and video-feedback), planning and reviewing their use.							

References: (Loughlin-Presnal & Bierman, 2017) (Mathis & Bierman, 2015) **Study method: Clustered RCT** **Country: USA** **Sample size: N=200**	Research-based Developmentally Informed Parent program (REDI-P) – 10 home visits and six "booster" sessions after the child transitioned into kindergarten. Visits followed the REDI classroom curriculum and targeted the same two domains of child language-literacy and social-emotional skills with evidence-based instructional practices. Each month, parents were provided with resources to support parent-child activities. Home visitors used videotapes and role plays to demonstrate positive teaching techniques, such as attending, encouraging, and extending conversations and incorporated motivational strategies designed	Carers received home learning activities via mail.	Sample from Head Start centres. *Total sample* 56% male, age (baseline) M=4.45 SD=0.29, 55% Caucasian, 26% African American, 19% Latino, parental education 86% high school or less, median income 18,000, 36% single parents, 36%married, , 100% English spoken at home, 16% Spanish spoken at home too,	**Emergent literacy skills:** letter-word identification subtest of the Woodcock-Johnson Tests of Achievement – Revised, letter naming fluency subscale of the Dynamic Indicators of Basic Early Literacy Skills, study specific task testing letter sound fluency, and Test of Word Reading Efficiency **Academic performance:** teacher report Academic Performance Rating scale – academic success subscale **Child self-directed learning:** School Readiness Questionnaire and Learning Behaviours Scale **NB:** Outcomes measured at the start of the prekindergarten year and the end of the kindergarten year	*Emergent literacy skills* Intervention effects beta=0.22, p<0.01, mediated by parent academic expectations which were positively associated with intervention beta=0.29, p<0.01 and emergent literacy skills beta=0.22, p<0.01 *Academic performance* Intervention effect mediated through parent academic expectations which were positively associated with intervention beta=0.29, p<0.01 and with academic performance beta=0.21, p<0.01 *Child self-directed learning* Intervention effects mediated through parent academic expectations which were positively associated with intervention beta=0.28, p<0.01 and with self-	Baseline score, family SES, parent education, maternal depression, single parent family, child gender, age, aggression, vocabulary, block design, and peg-tapping.	Academic expectations of parents mediated all three outcomes (see results). Supportive parenting interactions with child at baseline moderated intervention effect, with those with pre-intervention high levels having greater literacy skills gains than those with initial low parent supportive interactions.	Moderate. Unclear whether people measuring outcomes were blind to allocation.

Study description	Intervention delivery	Control group type	Sample description	Outcomes measured (and tools/scales used)	Results	Covariates	Study description	Intervention delivery
	to increase parent investment in their child's school readiness and efficacy beliefs.				directed learning beta=0.14, p<0.05			

Study description	Intervention delivery	Control group type	Sample description	Outcomes measured (and tools/scales used)	Results	Covariates	Study description	Intervention delivery
Reference: (Marti, et al., 2018) **Study method: Cohort study (Level 3)** **Country: USA** **Sample size: =133**	Get Ready for School – preschool intervention targeting children's development of language, literacy, mathematics, and self-regulation skills by enhancing the home and classroom environments. The GRS intervention offers teachers and parents a set of activities that are meant to be integrated into playful time. Classroom material is supplemented by resources delivered in print and online, as well as face-to-face via workshops.	Children with low attendance to program	51% male, age (baseline) M=50.28 months SD=4.12, 72% Latino, 9% Caucasian, 9% African American, 5% Asian, 1% native American, 22% other, 1% biracial, caregiver education level 25% less than high school, 35% at least high school, family income to needs ratio=0.8573% father present, 55%two-parent household, 36% American-born, caregiver employment 26% not working	**Letter-word identification:** letter identification subtest of the Woodcock-Johnson Test of Academic Achievement **Oral language:** Picture vocabulary subtest of the WJ Test of Academic Achievement **Phonological awareness:** Clinical Evaluation of Language Fundamentals - Preschool **Self-regulation:** Head Toes Knees Shoulders task and toy wrap task from the Preschool Self-regulation assessment **NB:** Baseline and approximately 7 months later.	*Letter-word identification* Effect of attendance on post-intervention scores beta=0.16 SE=0.07, p=0.03 *Oral language* Effect of attendance on post-intervention scores beta=0.13 SE=0.06, p=0.03 *Phonological awareness* Effect of attendance on post-intervention scores beta=0.19 SE=0.08, p=0.03 *Self-regulation* No effect of attendance on HTKS task but significant effect on Head Knees Toes task beta=-0.21 SE=0.09, p=0.02	Nested classroom, ethnicity, gender, language, parental education (only variables shown to significantly correlated to outcomes were included – models including child age and time between pre-test and post-test showed no difference in results.	None analysed	High. No true control group, intervention defined retrospectively

Reference: (Neuhauser, Ramseier, Schaub, Burkhardt, & Lanfranchi, 2018) **Study method: Clustered RCT** **Country: Switzerland** **Sample size: intervention group n=131, control group n=113**	Parents as Teachers – Designed to support caregivers from pregnancy to when their child is 3 years, it includes home visits and group connections, information about child development for parents, suggested parent–child interaction activities, and child screening.	No child care and education information received but were referred to services as needed.	*Intervention group* 13% single parent, 57% female, 14% multilingual, 73% born outside country *Control group* 15% single parent, 47% female, 7% multilingual, 75% born outside country	**Receptive language** **Expressive language** **NB:** Both outcomes were assessed by subtests of the Bayley Scales of Infant and Toddler Development -II at baseline and around their first, second and third birthdays.	*Receptive language* Indirect mediation effect, with maternal sensitivity at Year 1 significantly associated with intervention coefficient=0.21 $p<0.05$ and significantly associated with receptive vocabulary at Year 2 coefficient=0.12, $p<0.05$. Year 2 receptive vocabulary was then significantly associated with Year 3 score as mediated through maternal sensitivity coefficient=0.07, $p<0.05$ *Expressive language* Indirect intervention effects through Year 2 receptive vocabulary scores which significantly associated with Year 3 expressive vocabulary scores coefficient=0.02, $p<0.05$, as mediated through baseline maternal	Child's sex, age at first measurement, firstborn, multilingualism, number of siblings; mother's education, duration of residence in Switzerland, age at birth; and study site	Maternal sensitivity at baseline as described in results mediated intervention effect for both expressive and receptive vocabulary. Baseline family stress measured moderated intervention effects on Year 2 receptive vocabulary, mediation effects of maternal sensitivity on Year 2 receptive vocabulary, and mediated pathway of intervention effects through maternal sensitivity and Year 2 receptive vocabulary on Year 3 receptive and expressive vocabulary. In all cases there were greater gains when family stress was high.	Moderate. Unclear whether participants and coders were blind to allocation. Scale used to measure outcomes not yet validated in German.

Study description	Intervention delivery	Control group type	Sample description	Outcomes measured (and tools/scales used)	Results	Covariates	Study description	Intervention delivery
					sensitivity scores (see results above)			

Reference: (Neville, et al., 2013) Study method: RCT (Level 2) Country: USA Sample size: N=141, intervention group n=66, control group 1 n=38, control group 2 n=37	Parents and children making connections: Highlighting attention - parents attended eight weekly, 2-h small-group classes that occurred in the evenings or on weekends, and their children participated in concurrent small-group training activities. The parent component of PCMC-A was adapted from Linking the Interests of Families and Teachers (LIFT) curriculum, an evidence-based conduct disorder prevention program for elementary-aged students (45). The adapted LIFT intervention consisted of strategies targeting family stress regulation, contingency-based discipline, parental responsiveness and	Control group 1: Head Start program business as usual Control group 2: Attention Boost for Children (ABC), was an active training comparison program of equivalent intensity in terms of contact hours, but unlike PCMC-A, the focus of the program was primarily on child classroom training.	All students attended Head Start centres *Intervention group* n=27 male, age (baseline) M=4.48 SD=0.49, Hollingshead index maternal education=4.41, paternal education=4.36, SES=29.5 *Control group 1* n=18 male, age (baseline) M=4.5 SD=0.64, Hollingshead index maternal education=4.66, paternal education=4.46, SES=29.8 *Control group 2* n=18 male, age (baseline) M=4.45 SD=0.62, Hollingshead index maternal education=4.53, paternal education=4.31, SES=28.03	**Selective attention:** measured by ERP **Non-verbal cognitive skills:** Stanford-Binet – 5th ed. Non-verbal IQ scale **Receptive language:** sentence structure and concepts & directions subtests of the Clinical Evaluation of Language Fundamentals – Preschool 2nd ed. **Preliteracy skills:** sound matching, rhyming and letter awareness subtests of the Preschool Individual Growth and Development Indicators and the sound matching and rhyming tasks of the Get It, Got It, Go! series **NB:** Outcomes measured immediately before and after 8 week intervention	*Selective attention* Intervention effect with greater post-gains in intervention group, no differences between control groups *Non-verbal cognitive skills* Intervention effect with intervention group making greater gains than control group1 $p<0.01$, d=0.4 or control group 2 $p<0.01$, d-0.38 *Receptive language* Intervention effect with intervention group making greater gains than control group 1 $p<0.05$, d=0.22 or control group 2 $p<0.05$, d=0.22 *Preliteracy skills* No intervention effect	Age, pre-test scores	None analysed	Moderate. Unclear whether participants were blind to allocation. Substantial attrition rate with no statistical methodology to account for this, although no demographic differences were found between final group and those that attrited.

Study description	Intervention delivery	Control group type	Sample description	Outcomes measured (and tools/scales used)	Results	Covariates	Study description	Intervention delivery
	language use, and facilitation of child attention through links to child training exercises. The child component of PCMC-A consisted of small-group activities (four to six children, two adults) designed to address the fundamental goal of improving regulation of attention and emotion states							

Reference: (Olds, et al., 2014) **Study method: RCT** **Country: USA** **Sample size: N=735**	Nurse Family Partnership – has 3 goals: 1) to improve outcomes of pregnancy by helping women improve their health-related behaviours; 2) to improve children's subsequent health and development by helping parents provide competent care of their children; and 3) to enhance mother's personal development by promoting planning of future pregnancies and helping women continue their educations and find work. Condition 1 – program including home visits during pregnancy and the first 2 years of child life delivered by nurses Condition 2: program delivered by para-professionals	Free developmental screening and referral for their child at 6, 12, 15, 21, and 24 months of age	Women were recruited if they had no previous live births and either qualified for Medicaid or had no private health insurance. Medicaid eligibility in Colorado at the time was extended to pregnant women with incomes at or below 133% of the federal poverty guidelines. *Total sample* 85% unmarried, 47% Hispanic, 35% non-Hispanic white, 15% African-American, and 3% American Indian/Asian	**Receptive language:** PPVT at age 6, Preschool Language Scale at age 2 and 4 **Intellectual functioning:** KABC Mental processing composite **Reading achievement:** PIAT **Sustained attention:** Leiter sustained attention scale **Executive cognitive functioning:** trail making test form, digit span task **NB:** Outcomes measured at ages 6 and 9 years	*Receptive language* Condition 1 resulted in greater gains for mothers with low-resources over 2-6 year period compared with control group effect size=0.3, p=0.14 *Intellectual functioning* No intervention effect *Reading achievement* No intervention effect *Sustained attention* Negative intervention effects of condition 2 for mothers with higher resources over the 4-9 year period effect size=-0.21, p=0.03 and at 9 years effect size==-.0.26, p=0.035 Intervention effects for condition 1 for low resource mothers over the 4-9 year period effect size=0.36, p<0.01, and at age 6 effect size =0.33, p<0.05 *Executive cognitive functioning*	Maternal psychological resource index, smoking status, whether mothers registered in the study after 28 weeks of gestation, housing density, maternal conflict with her mother/mother figure, and neighbourhood disadvantage	Access to resources moderated intervention effects on receptive language and sustained attention (see results)	Moderate. Unclear whether participants were blind to allocation, and unclear the extent attrition and missing cases were dealt with.

Study description	Intervention delivery	Control group type	Sample description	Outcomes measured (and tools/scales used)	Results	Covariates	Study description	Intervention delivery
					No intervention effect			
Reference: (Rayce, Rasmussen, Klest, Patras, & Pontoppidan, 2017) **Study method: Systematic review (Level 1)** **Countries: Various** **Sample size: N=16 studies**	Structured psychosocial interventions, with a minimum of three sessions and at least half of these delivered postnatally.	Various	At-risk families in OECD countries with children less than 12 months old.	**Language and communication skills** **Cognitive development**	*Language and communication skills* Out of the three studies that measured this outcome, only one showed a significant impact. A meta-analysis could not be conducted on this outcome. *Cognitive development* Meta-analysis showed no significant effects size based on five studies d=0.13; 95% CI −0.08 to 0.41	Not detailed	Not detailed	Low.

Study description	Intervention delivery	Control group type	Sample description	Outcomes measured (and tools/scales used)	Results	Covariates	Study description	Intervention delivery
Reference: (Roggman, et al., 2016) Study method: Cohort study (Level 3) Country: USA Sample size: N=71	Early Head Start program – home visiting program (detail not provided in article) – high quality according to Home Visit Rating Scale regarding responsiveness to family strengths and culture, relationship with family members, facilitation of parent-child interactions, non-obtrusiveness and collaboration, parent-child interaction, parent engagement and child engagement.	Low quality home visits delivered as part of Early Head Start program	*Total sample* 24% receiving public assistance, 24% single parent, 84% Caucasian, 87% mother speaks English, 70% completed high school, 57% unemployed, 42% male, 16% disability	**Parent provided developmental support:** Home observation measure of the environment **Receptive vocabulary:** PPVT **NB:** Outcomes measured at age 3	*Parent provided developmental support* Intervention effect coefficient=0.23, p<0.05 R square=0.43 *Receptive vocabulary* Intervention effect mediated by parent developmental support with R square increasing from 0.08 to 0.22 when mediator added to model. Mediator significantly associated with outcome coefficient=0.48, p<0.05.	Site	Parent provided developmental support mediated intervention effect on receptive vocabulary (see results).	High. Limited covariates used to control for confounding factors, intervention defined retrospectively and no true control group used.

Reference: (Sheridan, Knoche, Kupzyk, Edwards, & Marvin, 2011) **Study method: Clustered RCT** **Country: USA** **Sample size: control group n=101, intervention group n=116**	Getting Ready intervention – provided by trained Head Start teachers involving a home visit and the development of a home-school plan	Head Start business as usual.	*Total sample* Age (baseline) M=43.05 months SD=3.57, 49% female, 32% Caucasian, 18% African American, 27% Hispanic, 3% American Indian, 1% Asian, 20% other, 33% does not speak English, 12% identified disability, parent education level 27% less than high school, 11% at least high school completion, 49% single parent, 25% unemployed,	**Expressive communication:** expressive communication scale of the Preschool Language Scale 4th ed **Oral language skills:** Teacher Rating of Oral Language and Literacy (TROLL) **Reading skills:** TROLL **Writing skills:** TROLL **NB:** Outcomes measured at the start and end of the school year over the 2 years of Head Start	*Expressive communication* No intervention effect *Oral language skills* Intervention effect coefficient=0.01, p<0.01 *Reading skills* Intervention effect coefficient=0.02, p<0.001 *Writing skills* Intervention effect coefficient=0.02, p=0.003	Baseline scores, child gender, parent education, and child primary language	Presence of development concern moderated intervention effect on expressive communication coefficient=0.9, p<0.05, language use coefficient=0.03, p<0.05, reading coefficient=0.03, 0<0.05 and writing coefficient=0.04, p<0.05. Not speaking English at baseline also moderated intervention effects on language use coefficient=0.05, p<0.05, and reading coefficient=0.03, p<0.05. Parental education and parent health also moderated intervention effect on language use with those whose parents had less than high school showing less gains coefficient=-0.5, p<0.05, as did those with parents with low health	High. Intervention allocation not blind to participants. Relatively low retention rate.

Study description	Intervention delivery	Control group type	Sample description	Outcomes measured (and tools/scales used)	Results	Covariates	Study description	Intervention delivery
							coefficient=-0.01, p<0.05	
Reference: (Sierau, et al., 2016) Study method: RCT (Level 2) Country: Germany Sample size: intervention group n=394, control group n=361	Based upon Family Nurse Partnerships in USA.- The Pro Kind is a home visiting program - focused on improving maternal prenatal health, family functioning, parenting competencies, and economic self-sufficiency to enhance children's development and to reduce child abuse and neglect	Access to standard community services – no home visits	*Intervention group* 86% unmarried, 89% born in Germany, 55% less than high school diploma, 82% low income, 29% single mother, 10% depression DAS *Control group* 89% unmarried, 84% born in Germany, 50% less than high school diploma, 81% low income, 298% single mother, 13% depression DAS	**Mental development:** Bayley Scales of Infant Development **Psychomotor development:** BSID **Mother rating of language development:** Parent questionnaire **Direct test of language development:** SETK **NB:** Outcomes measured when child is 6 months, 12 months and 24 months	*Mental development* No main intervention effect but children from families in high risk group had greater gains in intervention group than high risk group in control condition Wald=4.861, df=1, p=.028 *Psychomotor development* No intervention effect *Mother rating of language development* No intervention effect *Direct test of language development* No intervention effect	time (if available), child's sex, and presence of a psychiatric disorder	Risk profile moderated treatment effects on mental development (see result)	Moderate. High attrition rate and unclear whether participants were blind to their allocation.

Reference: (Vallotton, et al., 2012) **Study method: RCT (Level 2)** **Country: USA** **Sample size:** **Study 1: N=3001** **Study 2: N=146**	Participation in Early Head Start program	Families did not receive Early Head Start services	*Total sample Study 1* 49% female, 89% at or below the poverty line, 34% African American, 23% Hispanic, 43% Caucasian, 39% teenage mother, 35% receiving welfare, 48% low parental education, 61% single parent, 55% unemployed *Study 2* 49% female, 84% at or below the poverty line, 14% African American, 5% Hispanic, 3% other, 77% Caucasian, 24% teenage mother, 36% receiving welfare, 28% low parental education, 67% single parent, 68% unemployed	*Study 1* **Productive vocabulary:** MacArthur CDI at 14 and 24 months *Study 2* **Productive vocabulary** Transcript of mother child interactions at 14, 24 and 36 months	*Productive vocabulary Study 1* Intervention effect on vocab at 2 years coefficient=-2.4, p<0.05. Moderated by gender and family stress, with intervention effect moderated by family stress levels (high stress making greater gains) for female children but not male children *Productive vocabulary* Age moderated intervention effect, with greater gains after 14 months coefficient=2.4, p<0.01. Three way interaction between gender, family stress and intervention, with family stress moderating intervention effects for male children (intervention effect higher for male children from high stress families) but not female children coefficient 1.0, p<0.05.	*Study 1* Age, risk level, firstborn status, self-regulation score, gender, family stress, vocabulary at 14 months, interaction with intervention and gender, family stress and intervention, gender and family stress, three way interaction between gender, family stress and intervention status *Study 2* Vocabulary scores at each wave, child age, gender, risk status, family stress, first born status, self-regulation, teen mother, welfare recipient, low parental education, single parent status, unemployment status	See results	Moderate. Control group condition unclear, as is whether intervention allocation was masked by participants or those measuring outcomes.

Culturally and linguistically diverse (CALD) families

Study description	Intervention delivery	Control group type	Sample description	Outcomes measured (and tools/scales used)	Results	Covariates	Study description	Intervention delivery
Reference: (Ansari, et al., 2017) **Study method: Cohort study** **Country: USA** **Sample size: N=11902**	Attendance at public prekindergarten programs in Miami Dade county public schools, 3-4 hours a day, using the Houghton Mifflin curriculum.	Centre-based care	*Intervention group* Age (kindergarten entry) M=66.3 months SD=3.52, 52% female, 7% special needs, 69% received free or reduced lunch receipt, 82% spoke Spanish at home, 24% received preschool assessment in Spanish, 11% born overseas *Control group* Age (kindergarten entry) M=66.26 SD=3.47, 50% female, 8% special needs, 87% received free or reduced lunch receipt, 81% spoke	**Third grade reading outcomes:** Florida Comprehensive Assessment Test **Grade Point Average (third grade)**: Composite assessment score for reading, writing, language arts, math, science, social studies, art, music and physical education	*Reading outcomes* Main intervention effect beta=0.12, SD=0.02, p<.001 R square=0.25 p<0.001. No longer significant once mediators added to model (see mediators and moderators). *Grade point average* Main intervention effect beta=0.15, SD=0.02, p<0.001) R square=0.26 p<0.001. No longer significant once mediators added to model (see mediators and moderators). **NB:** Both outcomes measured in third grade	Children's age at kindergarten entry, children's gender, children's nativity, home language during kindergarten, free or reduced lunch receipt during kindergarten, and special needs status during third grade	Intervention effects on reading outcomes mediated by preacademic skills (beta=0.23, SD=0.01, p<0.001), social-behaviour skills (beta=0.04, SD=.01, p<0.001) and English fluency (beta=0.18, SD=0.01, p<0.001) were mediators for this outcome, Rsquare=0.28, p<0.001 Intervention effects on grade point average mediated by preacademic skills (beta=0.22, SD=0.01, p<0.001), social-behaviour activities (beta=0.09, SD=0.01, p<0.001) and English fluency	Moderate. Possible variation in control condition.

			Spanish at home, 63% received preschool assessment in Spanish, 10% were born overseas.				(beta=0.13, SD=0.01, p<0.001) act as mediators Rsquare=0.29, p<0.001	
Reference: (Buysse, Peisner-Feinberg, Paez, Hammer, & Knowles, 2014) Study method: Systematic review (Level 1) Countries: USA Sample size: 25 studies	Early care and education practices, including curriculums, professional development programs, classroom language and literacy instruction.	Various	All but one study focused on students aged 3-5 years, and 92% of studies involved children of Spanish/Latino background in the USA.	**See results**	*Language and literacy skills* Six studies showed positive effect, six showed no effect *Primary school reading skills* One study showed positive effect *Cognition* One study showed positive effect. *Receptive vocabulary* Five studies showed positive effect, two showed no effect *Spelling* One study showed positive effect *Phonological awareness* One study showed positive effect *Letter-word identification* Two studies showed positive effect *Alphabet knowledge* Two studies showed effect, one showed no effect.	Various	Various	Moderate. Bias not addressed in report. The majority (72%) were RCT designed studies with the remaining using quasiexperimental designs.

					Print concept One study showed effect *Expressive language* Three studies showed effect *Writing* Two studies showed effect, one showed no effect.			
Reference: (Crosnoe, Ansari, Purtell, & Wu, 2016) **Study method: Cohort study** **Country: USA** **Sample size: 1092**	Attended centre-based care	Did not attend centre-based care	Sample from the Early Childhood Longitudinal Study – Kindergarten cohort (Latinas not born in USA). *Total sample* Maternal education M=11.15 years SD=2.74, 75% mothers married to father, 79% maternal home language not English, 50% female, income to needs ratio=1.61,	**Enrolment of children in extracurricular activities** **Parental provision of educational resources** **NB:** Outcomes measured in study-specific questionnaire in during the kindergarten year	*Enrolment of children in extracurricular activities* Significant group effect with positive associations with childcare attendance coefficient=0.14, p<0.01, R square =0.19 *Parental provision of educational resources* No group effect	Maternal education, education in the US, education outside of the US, maternal age, income-to-needs ratio, marital status (to father), home language (non-English), child gender, public school attendance, kindergarten math score, urbanicity measure.	No outcome related mediators analysed	High. Variation of care received in both intervention and control conditions, non-validated outcome measurements used.
Reference: (Duran, Roseth, & Hoffman, 2015) **Study method: RCT**	Head Start preschool program delivered in Spanish over 2 year	Head Start preschool program delivered predominantly in English over 2 years	*Total sample* All Spanish speaking, age (baseline) M=43.43 months SD=3.27, parental	**Receptive vocabulary:** PPVT- IV **Expressive vocabulary:** picture vocabulary subtest of the	*Receptive vocabulary* Intervention effect for Spanish version of PPVT measure affecting growth over the two years beta=3.38, p<0.001	Baseline score, slope over two years (linear growth) slope diff. Year 1 and 2 (linear growth),	None analysed	High. Participants were not blind to allocation. Unclear whether those measuring outcomes were blinded. Moderate

Country: USA Sample size: treatment group n=15, control group n=16			education 84% did not complete high school,	Woodcock-Munoz Language survey (WLMS) and the picture naming subtest of the Early Literacy- Individual Growth and Development Indicators (EL-IGDI) **Letter-word identification:** letter-word identification subtest of the WMLS **Phonological awareness:** Rhyming subtest of the EL-IGDI and the Get Ready to Read screening tool **NB:** All outcomes measured at the start and the end of the school year and the IL-IGDI and Get Ready to Read measured at the midpoint of the year in addition.	but not English version *Expressive vocabulary* Intervention effect for two year growth on Spanish measure of WLMS beta=1.3, p<0.05 and EL-IGDI beta=2.08, p<0.01. Negative effect on overall scores for Spanish measure of IL-IGDI beta=-4.95, p<0.05 *Letter-word identification* Intervention effect for growth over 2 years in English measure of outcome beta=0.89, p<0.05. *Phonological awareness* Negative intervention effect on Spanish measure for change in scores over Year 2 beta=-3.41, p<0.05	interaction between intervention and baseline score, interaction between intervention and slope.		level of attrition (>10%)
Reference: (Goodrich, Lonigan, & Farver, 2017)	Literacy Express Preschool Curriculum – educators trained to deliver explicit instruction in early literacy skills.	Educators did not receive training in the Literacy Express	*Total sample* All were Spanish speaking and recruited from Head Start centres Age	**Language:** Expressive communication subtest of the Preschool language Scale – 4th ed	*Language* (English) Intervention effect when comparing Condition 2 with Condition 1 effect size	Child age and pre-test score, interaction between child age and intervention	Pre-test English language scores moderated intervention effect, on Spanish expressive	High. Participants not blinded to intervention status and unclear whether those measuring

Study methods: Clustered RCT (Level 2) **Country: USA** **Sample size: N=526**	Condition 2 includes provision of mentoring support.	Preschool Curriculum	(baseline) M= 51.55 months SD=4.67, 52% male	**Phonological awareness:** Blending and elision subtests of the Preschool Comprehensive Test of Phonological and Print Processing **Print knowledge:** print knowledge subtest of the CT-PPP	0.23, p<0.05. No intervention effect on Spanish language skills *Phonological awareness* (English) Intervention effect on elision measure when comparing Condition 2 with control effect size=0,32 p<0.05. No intervention effect on Spanish PA. *Print knowledge* (English) Intervention effect. effect size =0.4, p<0.01 when comparing Condition 2 with control. No intervention effect on Spanish print knowledge.	status, and interaction between pre-test score and intervention status	language, with those with low and average English language skills pre-test experiencing greater gains F(2,445)=3.93, p<0.05	outcomes were blind to allocation. Substantial missing data with no statistical attempts to account for this.
Reference: (Gorman, Brice, & Berman, 2012) **Study method: Pre-test post-test with control group (Level 3)** **Country: USA**	Reading Acquisition Program for Spanish Speakers – Run for 16 weeks. Each session consisted of the following sequence of activities: large group circle time, small group/individual centers, snack, literacy-enriched dramatic play, and large group circle	Regular Head Start program	Spanish was the primary home language for all children and all were eligible and attended Head Start program. For intervention group age M=50 months SD=5.38, for control group age M=51.92, SD=5.38	**Phonological awareness:** Comprehensive Test of Phonological Processing **Vocabulary:** Receptive and Expressive One-Word Picture Vocabulary Tests **NB:** Outcomes measured at the	*Phonological awareness* Significant intervention effect t(28) = 2.17, p = .02 No effect on Spanish gains or English gains in PA comparing Condition 1 with Condition 2 *Vocabulary* Significant intervention effect	None analysed	None analysed	High. No control of confounding factors, non-blinding of allocation

Sample size: intervention group n=18, control group n=12	time before dismissal. The RASPA program addressed numerous language and literacy skills including PA and vocabulary, which were of primary interest in the current study, and also alphabet knowledge, print awareness, early writing, background knowledge, and narration. For Condition 1 program was delivered in English, for Condition 2 it was delivered in Spanish.			start and the end of the school year	t(28) = 1.753, p = .046 Greater Spanish gains among those in Condition 2 than Condition 1 t(16) = 2.25, p = .039, but no difference between these conditions for English gains in vocabulary			
Reference: (Grover, Lawrence, & Rydland, 2018) **Study method: Cohort study** **Country: Norway** **Sample size: N=26**	Exposure to denser and diverse vocabulary during teacher-led circle time and peer-play at preschool	Exposure to less dense and diverse vocabulary during teacher-led circle time and peer play at preschool	*Total sample* n=15 boys, all Norwegian born with Turkish born parents	**Receptive vocabulary skills:** Norwegian versions of PPVT measured at four points from preschool to Grade 5	*Receptive vocabulary* Significant effect of density (number of words) used during circle time beta=3.6, p<0.001. Significant effect of diversity of vocabulary used during circle time beta=3.5, p<0.001. Significant effect of density of words used in peer play on outcome beta=2.8, p<0.05 and diversity of words used in peer play beta=3.6, p<0.01	Turkish receptive vocabulary, interaction between intervention and Turkish receptive vocabulary, interaction of maternal education by age,	Density of teacher-led vocabulary effects moderated by Turkish language skills, with greater gains made for children with higher Turkish vocabulary beta=2.3, p<0.05. Same result for density of words exposure during peer play beta=2.3, p<0.05	High. Non-extensive covariates used to control for confounding factors. Intervention defined retrospectively.

Reference: (Palermo & Mikulski, 2014) **Study method: Cohort study** **Country: USA** **Sample size: N=107**	Preschool attendance with high levels of positive peer interaction and English exposure.	Preschool attendance without high levels of positive peer interaction and English exposure.	*Total sample* Age (baseline) M=53 months SD=4, 96% of Mexican descent, 90% born in USA. 41% only spoke Spanish at home, 70% lived in two-parent households, 82% income less than 30,000	**Receptive vocabulary** **Letter-word identification** **NB:** Both outcomes measured by subtests of the Woodcock-Johnson Tests III at the end of the school year	*Receptive vocabulary* Direct effect of positive peer interaction on outcome coefficient=0.2, p<0.05 and peer English exposure coefficient=0.22, p<0.01. *Letter-word identification* Indirect effect of positive peer interactions through learning behaviours (positively associated with intervention coefficient=0.59, p<0.001 and outcome, coefficient=0.29, p<0.01). And indirect effect of positive peer interactions through teacher reported English proficiency (positively associated with intervention, coefficient=0.28, p<0.01 and outcome, coefficient=0.31, p<0.01)	Children's nonverbal cognitive skills, family income, family relative use of English and Spanish, number of children's books in English in the home and proportion of English and Spanish language used among peers during observation.	Effects of positive peer interaction on receptive vocabulary mediated by teacher reported English proficiency (association with intervention coefficient=0.29, p<0.01 and association with outcome coefficient=0.42, p<0.001). Learning behaviour and teacher reported English proficiency mediated effect of positive peer interactions on letter-word identification (see results).	Moderate. Intervention defined retrospectively.

Reference: (Yazejian, Bryant, Freel, & Burchinal, 2015) **Study method: Cohort study** **Country: USA** **Sample size: N=5037**	EduCare – early education model providing family support – High dosage (age of entry)	EduCare – low dosage (age of entry)	*Total sample* n=1492 dual language learners, age (baseline) M=2.64 years SD=1.39, 11% Caucasian, 44% African American, 36% Hispanic, 10% other, 10% special needs, 15% teenage mother, 56% single parent, parent education M=12.44 years SD=2.06, 23% maternal depression	**Receptive vocabulary:** PPVT **Spanish language skills:** Preschool Language Scale **Self-control:** subtest of the Devereux Early Childhood Assessment (DECA) **Initiative:** subtest of the DECA **NB:** Outcome measured by DECA collected at the start and the end of the school year, PPVT outcomes were collected close to the child's 2nd and 3rd birthdays and at the end of the school year after that.	*Receptive vocabulary* Main effect of age of entry B = −5.26, SE = 0.50, p < 0.001. The significant quadratic term for age of entry (B = 1.81, SE = 0.21, p < 0.001) indicated that the advantage of entering a year earlier was larger for younger children than for preschoolers. Main effect of time spent in program (B = 1.88, SE = 0.57, p < 0.01), and main effect of quadratic term (B = 1.19, SE = 0.21, p < 0.001) indicated that the gain per year tended to be larger the longer children spent in EduCare. Interaction between age of entry and time in EduCare (B = 4.31, SE = 0.36, p < 0.001) suggested that children showed larger gains over time when they entered EduCare. at older ages. Greater effect of age of entry seen among dual language learners DLL B = 2.43, SE = 0.98, p <	Gender, ethnicity, health rating, special needs status, teenage mother, family structure, parental education, food insecurity, maternal depression, classroom quality	Dual language learner status moderated intervention effects for most outcomes (see results)	Moderate. Retrospective defining of intervention.

					0.05; EO B = 1.34, SE = 0.61, p < 0.05 *Spanish language skills* DLL children who spent more time in EduCare had higher PLS-4 scores (B = 1.61, SE = 0.70, p < 0.05), a modest effect size (d = 0.11). This suggests that children did not lose their skills in Spanish the longer they stayed in EduCare, but rather, gained a little over time, regardless of what age they entered. *Self-control* Children who entered EduCare at younger ages had lower self-control ratings (B = 1.83, SE = 0.11, p < 0.001), but scores were also higher when children spent more time in EduCare (B = 1.59, SE = 0.12, p < 0.001). These trends were stronger among the DLL than EO children for both age of entry (DLL B = 2.16, SE = 0.20, p < 0.001; EO B = 1.51,			

					SE = 0.13, p < 0.001) and time in EduCare (DLL B = 2.01, SE = 0.22, p < 0.001; EO B = 1.18, SE = 0.14, p < 0.001) *Initiative* Main effect of age of entry on outcome (B = 0.40, SE = 0.13, p < 0.01) with older age of entry associated with greater gains. Teachers also rated children higher the longer they had been enrolled (B = 3.98, SE = 0.22, p < 0.001) and this was also more pronounced with more years of attendance (B = 0.33, SE = 0.08, p < 0.001). Gains were slightly slower for dual language learners than English only children with Time in EduCare a stronger and significant predictor for the DLL than EO children in the linear association (linear DLL B = 4.83, SE = 0.38, p < 0.001, EO B = 3.13, SE = 0.24, p < 0.001).			

Family and early literacy programs and campaigns

Study description	Intervention delivery	Control group type	Sample description	Outcomes measured (and tools/scales used)	Results	Covariates	Study description	Intervention delivery

Reference: (Caesar & Nelson, 2014) Study method: RCT Country: USA Sample size: n=11 intervention group, n=8 control group	Parents were requested to send labeled drawings of family activities to their children's classroom for supplementing bilingual language and literacy instruction	Identical curriculum but without parent-led journaling activity.	*Experimental group* Age (baseline) M=48.6 months, 45% female, 45% disability or development concerns, 55% fathers with high school education, 45% mothers with high school education, 55% Spanish only at home, 18% English/Spanish at home, 27% Spanish/Mixteco at home *Control group* Age (baseline) M=46.4 months, 25% female, 63% disability or development concerns, 25% fathers with high school education, 13% mothers with high school education, 50% Spanish only at home, 25% English/Spanish at home, 25% Spanish/Mixteco at home	**Comprehension Phonological awareness Alphabetic principle Print concepts** **NB**: All outcomes measured by the Early Literacy Skills Assessment pre and post-intervention	*Comprehension* No intervention effects for English outcome *Phonological awareness* No intervention effects for English outcome. Significant change for Spanish outcome in intervention group but not control group effect size=0.42, p<0.05 *Alphabetic principle* Significant change for English outcome effect size=0.51 p<0.05 for intervention group but not control group. Same result for Spanish outcome effect size=.61, p<0.01 *Print concepts* Significant change in English outcome for intervention group effect size=0.47, p<0.05 but not for control group. Same result for Spanish outcome effect size=0.53, p<0.05	None analysed	Language of test implementation moderated intervention effect, with greater gains in outcomes when tests conducted in Spanish.	Moderate. Non-blinding of testers.

Study description	Intervention delivery	Control group type	Sample description	Outcomes measured (and tools/scales used)	Results	Covariates	Study description	Intervention delivery
Reference: (Mesa & Restrepo, 2019) **Study method: Pre and post-test without control group (Level 4)** **Country: USA** **Sample size: N=5**	Family Reading Intervention for Language and Literacy in Spanish - Mothers participated individually in one 1-hr training session a week for 7 consecutive weeks. In the first week of the FRILLS program, the trainer and the mother discussed how reading aloud helps children to develop a strong oral language foundation for future reading. From the second to the seventh week, each training session started with the mother selecting a book from a 25-book collection. Using an approach that included modelling, coaching, and practicing, the trainer taught the mother how to prepare the selected book with examples of three comments, two high level questions, and two recasts	NA. Within-subject control condition involved mother reading a book as normal.	*Total sample* All attended Head Start centres and were aged 4-5 years. All from Spanish speaking households.	**Number of inferences** **Conversational turns** **Number of different words** **Mean length of utterances** **NB:** Outcomes measured by study-specific tool at baseline, during intervention and 2 weeks post-intervention, based on transcripts of book reading activity between mother and child.	*Number of inferences* No intervention effect observed *Conversational turns* Observable change during and post-intervention *Number of different words* Observable change during post-intervention *Mean length of utterances* No observable effect of intervention.	None analysed	None analysed	High. Non-random selection for recruitment. Non-validated measure for language skills.

Study description	Intervention delivery	Control group type	Sample description	Outcomes measured (and tools/scales used)	Results	Covariates	Study description	Intervention delivery
Reference: (Purcell-Gates, et al., 2012) **Study method: Pre-test and post-test without control group (Level 4)** **Country: Canada** **Sample size: N=14**	Literacy for Life: The LFL program ran for a total of 12 months, with 3 additional months devoted to teacher development in ways to incorporate real-life, situated literacy activity into a family literacy (adult and early literacy) program. Two classes per week, 2 hours per class, were offered. Each class began with the family-time-together component. Following this, the adults met with the adult literacy teacher and the children met separately with the emergent literacy teacher	NA	*Total sample* Not detailed. All between the ages of 3-5 years with English at as a second language. Family backgrounds were recent migrants and refugees.	**Alphabet knowledge** **Print concepts** **Comprehension of written material** **NB:** Measured at the start and end of the school year via subtests of the Tests of Early Reading Ability- III	*Alphabet knowledge* No significant change *Print concepts* Significant pre and post test difference Mean change=2.16, $p<0.05$ *Comprehension* No significant change	None analysed	Level of real-world context used in program content showed no significant impact on outcomes due to small sample size.	High. No control group.

Indigenous and First Nations communities: Early Education services and parenting program

Study description	Intervention delivery	Control group type	Sample description	Outcomes measured (and tools/scales used)	Results	Covariates	Mediators and moderators	Bias
Reference: (Benzies, Tough, Edwards, Mychasiuk, & Donnelly, 2011) (Benzies, et al., 2011) **Study method: Pre-test post-test without control group (Level 4)** **Country: Canada** **Sample size: N=45**	One-World program – incorporates early childhood education, parent education and family support. Early childhood education – centre-based, preschool program designed to prevent developmental delays and promote literacy, numeracy and social competence. Children attended classes 4 days a week, 5 hours per day and provided with breakfast, lunch and snacks. Parent education – mandatory 6-week series of parenting and life-skills classes involving group and one-on-one sessions focused on positive parenting strategies, and strategies to promote child development. Incorporated existing programs such as Nobody's Perfect and 1,2,3 Magic. Family support – four home visits per year by a registered social worker involving strategies such as goal setting, counselling, and advocacy to access food, housing and legal and child welfare systems.	N/A	All children from low-income families and had one or more developmental risks and were of Aboriginal heritage. Mean age (baseline)=45.8 months 56% male, 22.2% in foster care by 7 years, caregiver type; 94.7% mother, 57.9% married, 31.6% completed high school, 50% received government support as primary income, 55.2% had stable housing, 57.9% had a welfare file open for child, 68.4% had welfare file open for themselves	Receptive vocabulary: Measured by the PPVT-III **NB:** post-intervention outcomes assessed immediately after program implementation and when the child was 7 years old	*Receptive vocabulary* Mean (baseline)=88.37 SD=15.78 Mean (program exit)=98.03 SD=12.65 Mean (7 years old)=95.17 Significant intervention effect for score at baseline and immediate post-intervention and at seven years, but not between immediate post-intervention and seven years t(11)=3.48, p=0.005; t(11)=2.234, p=0.047	None analysed	Cultural background moderated the effect of the duration of program participation and receptive vocabulary. Time in program was significantly correlated with PPVT-III scores for Aboriginal children but not immigrant children and non-Aboriginal Canadian children.	High. No control group, random allocation or control of confounding factors.

Study description	Intervention delivery	Control group type	Sample description	Outcomes measured (and tools/scales used)	Results	Covariates	Mediators and moderators	Bias
Reference: (Williams, Berthelsen, Viviani, & Nicholson, 2017) **Study method: Cohort study (Level 3)** **Country: Australia** **Sample size: n=146 (intervention group), n=392 control group**	Playgroup participation at ages 2 to 3 years– answer to question about whether the child had attended a playgroup or baby group in the last year and whether it had a facilitator. Two conditions: play group participation for at least one year or two.	Non-playgroup participation	Participants in the Longitudinal Study of Indigenous Children (LSIC) *Intervention group* 55% female, 83% parent Aboriginal or Torres Strait Islander, 25% none LORI, 49% Low, 22% Moderate, 4% High/Extreme, IRISEO M=5.31 SE=0.21, parent level of education M=5.75 SE=0.25, parent income bracket M=4.3 SE=0.16 *Control group* 48% female, 82% parent Aboriginal or Torres Strait Islander, 29% LORI None, 48% Low, 14% Moderate, 9% High/Extreme, IRISEO M=5.63 SE=0.12, Parent level of education M=5.59 SE=0.14, parent income bracket M=4.32 SE=0.09	Expressive vocabulary: Measured by the Renfrew Word Test Parent engagement in home learning activities (music and dance, read a book, told an oral story, did drawing, art or craft): Measured by parent report **NB:** Both outcomes measure when child is 4 years old.	*Expressive vocabulary* Significant group effects when home learning activities included in an indirect effects model as mediator, for both one and two years participation Model fit X^2=144.62, df=103, p<0.001	Level of relative isolation (LORI), decile of relative Indigenous socioeconomic outcomes (IRISEO), child age, Parent or Aboriginal or Torres Strait Islander status, parent education level, parent income	Home learning activities was significantly associated with Playgroup participation, which was significantly associated with expressive vocabulary outcomes.	High. Lack of detail around intervention.

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