

Last reviewed: September 2021

Intervention website: <https://playandlearning.org/>

GUIDEBOOK INTERVENTION INFORMATION SHEET

Play and Learning Strategies (PALS)

Please note that in the ‘Intervention summary’ table below, ‘child age’, ‘level of need’, and ‘race and ethnicities’ information is **as evaluated in studies**. Information in other fields describes the intervention as **offered/supported by the intervention provider**.

Intervention summary	
Description	Play and Learning Strategies (PALS) is a home visiting intervention for parents with a 6- to 10-month-old child living in disadvantaged communities. It is delivered by a PALS facilitator through 14 weekly 90-minute home visits. During these visitors, facilitators help parents understand and respond sensitively to their child’s cues, as well as support their child’s early language development.
Evidence rating	2+
Cost rating	2
Child outcomes	<ul style="list-style-type: none">• Supporting children’s mental health and wellbeing<ul style="list-style-type: none">- Improved prosocial behaviour.• Enhancing school achievement and employment<ul style="list-style-type: none">- Improved speech, language and communication- Improved mastery motivation.
Child age (population characteristic)	6 to 10 months
Level of need (population characteristic)	Targeted Selected

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Intervention summary	
Race and ethnicities (population characteristic)	<ul style="list-style-type: none">• African American/Black• Hispanic/Latino.
Type (model characteristic)	Home visiting
Setting (model characteristic)	Home
Workforce (model characteristic)	Home visiting practitioner
UK available?	No
UK tested?	No

Model description

Play and Learning Strategies (PALS) is a home visiting intervention for parents with a 6- to 10-month-old child living in a disadvantaged community. It aims to strengthen the bond between parent and child and to stimulate early language, cognitive, and social development.

PALS is delivered by a trained parent coach who visits the parent and child in their homes over 14 weekly 90-minute sessions. During these visits, the coach helps the parent to apply the responsive strategies known to support children's learning and emotional wellbeing while interacting with their child:

- Recognising and responding appropriately to the signals
- Maintaining the child's focus of attention
- Stimulating language development and thinking skills
- Supporting the child's autonomy-seeking
- Responding to limit-testing behaviours.

Each strategy is demonstrated via videotaped examples of real parents and their children playing together and interacting during daily routines. The practitioner also makes videotapes of the parent and child interacting together, to further highlight behaviours and reinforce coaching.

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A top-up intervention called PALS II is available for children aged between 18 months and 4 years old. This involves 11 additional 90-minute weekly sessions.

Target population

Age of child	6 to 10 months
Target population	Parents and children living in disadvantaged communities

Please note that the information in this section on target population is as **offered/supported by the intervention provider**.



Theory of change

Why		Who		How		What
Science-based assumption	Science-based assumption	Science-based assumption	Intervention	Short-term outcomes	Medium-term outcomes	Long-term outcomes
School readiness skills (including vocabulary and early self-regulation) during the preschool years are strongly associated with children's later success in primary and secondary school.	An enriching home learning environment during the early years is known to support young children's school readiness.	Low family income negatively impacts parents' ability to provide an enriching home learning environment.	<p>Parents are supported to:</p> <ul style="list-style-type: none"> • Recognise and respond to their child's signals • Help scaffold and maintain their child's focus • Stimulate their child's language development and thinking skills • Support their child's autonomy • Respond to challenging child behaviours. 	<ul style="list-style-type: none"> • Parents are better able to support their child's school readiness • Parents are better able to understand their child's early developmental and learning needs. 	<ul style="list-style-type: none"> • Improved parent–child interaction • Improved child school readiness. 	<ul style="list-style-type: none"> • Improved school achievement in secondary and primary school • Reduced income-related learning gaps • Reduced risk of behavioural and mental health problems as children develop.



Implementation requirements

Who is eligible?	Parents with a child between 6 and 10 months living in a disadvantaged community.
How is it delivered?	PALS is delivered by one home visitor/parent educator to individual families over 14 sessions of 1.5 hours' duration each.
What happens during the intervention?	<ul style="list-style-type: none"> • Each session provided by the home visitors is guided by a detailed curriculum, which is designed to teach behaviours that allow parents to be more responsive to the needs of their children. • In each session, facilitators ask mothers to review their experiences in the past week and assess to what extent they achieved the target behaviours set out by the curriculum. • Mothers are also shown an educational videotape of mothers from similar backgrounds displaying the target behaviours. This is then further discussed with the practitioner. • Interactions between the mother and the child are videotaped at times chosen by the mother. The mother is supported in assessing her behaviours and her child's responses. • The home visitor supports the mother in planning how they are going to work to make their parenting more responsive and sensitive in the time before the next session.
Who can deliver it?	Home visitors or parent coaches trained in the PALS model.
What are the training requirements?	The practitioner has 36 hours of intervention training. Booster training of practitioners is not required.
How are practitioners supervised?	It is recommended that practitioners are supervised by one host-agency supervisor, providing clinical, skills, and case management supervision.
What are the systems for maintaining fidelity?	No information available.
Is there a licensing requirement?	No
*Contact details	<p>Email address: CLISolutionsGroup@uth.tmc.edu</p> <p>Website: https://playandlearning.org/</p> <p>*Please note that this information may not be up to date. In this case, please visit the listed intervention website for up to date contact details.</p>



Evidence summary

PALS' most rigorous evidence comes from a single RCT conducted in the United States that is consistent with Foundations' Level 2+ evidence strength criteria.

This study observed statistically significant improvements in PALS I children's goal-directed play (mastery motivation), social engagement, and expressive and receptive language compared to children not receiving the intervention. PALS parents were also observed to be more sensitive, and provide more verbal encouragement and support for children's attention, compared to parents not receiving the intervention.

PALS has preliminary evidence of improving a child outcome, but we cannot be confident that the intervention caused the improvement.

Search and review

	Number of studies
Identified in search	6
Studies reviewed	2
Meeting the L2 threshold	2
Meeting the L3 threshold	0
Contributing to the L4 threshold	0
Ineligible	4



Individual study summary: Study 1

Study 1	
Study design	RCT
Country	United States
Sample characteristics	264 mother–infant pairs recruited from three hospitals serving families from lower-income background
Race, ethnicities, and nationalities	<ul style="list-style-type: none"> • 35% White • 33% African American • 30% Hispanic • 3% Other.
Population risk factors	<ul style="list-style-type: none"> • 55% of infants had a very low birth weight • 25% of infants were classified as high risk • 58% of pairs were in single-parent families.
Timing	<ul style="list-style-type: none"> • Baseline • Mid-intervention (after fifth home visit) • Post-intervention • 3-month follow-up.
Child outcomes	<p><i>PALS I</i></p> <ul style="list-style-type: none"> • Improved early communication • Reduced negative emotions • Improved goal-directed play • Improved social engagement. <p><i>PALS II</i></p> <ul style="list-style-type: none"> • Improved social cooperation and engagement • Improved language skills (PALS II only).
Other outcomes	<p><i>PALS I</i></p> <ul style="list-style-type: none"> • Improved maternal contingent responsiveness • Improved maternal emotional support • Improved maternal language input. <p><i>PALS II</i></p> <ul style="list-style-type: none"> • Improved maternal contingent responsiveness • Improved maternal quality of language input .
Study Rating	2+



Study 1

Citations	<p>Study 1a: Landry, S. H., Smith, K. E. & Swank, P. R. (2006) Responsive parenting: Establishing early foundations for social, communication, and independent problem-solving skills. <i>Developmental Psychology</i>. 42, 627–42.</p> <p>Study 1b: Landry, S. H., Smith, K. E., Swank, P. R. & Guttentag, C. (2008) A responsive parenting intervention: The optimal timing across early childhood for impacting maternal behaviours and child outcomes. <i>Developmental Psychology</i>. 44, 1335–1353.</p>
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Brief summary

Population characteristics

This study involved 264 mother–infant pairs with an infant 6 to 10 months of age, living in the United States. The sample was recruited from three hospitals serving families from lower-income backgrounds. 49% of the infants in the sample were boys.

In terms, of ethnicity: 33% of the sample were African American, 35% White, 30% Hispanic and 3% other race or ethnicity.

55% of infants were classified as having a very low birth weight, and 27% of infants were classified as high risk. 58% of pairs were in single parent families. The socioeconomic status of the sample was in the upper lower class to lower middle-class range, which is consistent with a high school education and clerical or semi-skilled occupations.

For the PALS II follow-up (study 1b), 166 mother–infant pairs participated, when infants were 24 to 28 months old.

Study design

133 infant–mother dyads were randomly assigned to the treatment condition (PALS I) and 131 to the control condition (DAS I). Randomisation was conducted to obtain equal numbers of each infant risk group (high risk, low risk, term) across each condition.

For the follow-up study, each condition was then further randomised to receive either the second form of treatment (PALS II) or the control (DAS II). This led to the creation of four conditions for assessment in study 1b:

- PALS I/PALS II (34 infant–mother dyads)
- PALS I/DAS II (33 infant–mother dyads)
- DAS I/PALS II (50 infant–mother dyads)
- DAS I/DAS II (49 infant–mother dyads).



The control condition was an active control where developmental assessment screening (DAS) facilitators made the same number of home visits on a similar schedule to the PALS intervention. DAS visits included discussion with mothers about new infant skills observed during the previous week, assessment of infant development across a range of skills with a screening measure, and feedback provided to mothers. Maternal questions about infant skill levels were answered, and mothers were provided handouts on common issues such as sleep, feeding, and pacifiers. PALS mothers also received these handouts. DAS facilitators did not answer questions from mothers on facilitating child development.

Across the initial two conditions, gender was the only demographic variable that differed across conditions. Across the four conditions created in the follow-up, maternal age was the only demographic variable found to differ across conditions.

Measurement

For PALS I (study 1a), assessments took place at baseline, mid-intervention (after the fifth home visit), post-intervention, and at three-month follow-up.

- **Researcher-led observations** included coding of infant behaviours (cooperation, early communication, negative affect, and independent goal-directed play), and the Landry Parent-Child interaction Scales (contingent responsiveness, warm sensitivity, positive affect, harshness of tone of voice, physical intrusiveness, restrictiveness response to infant attention, and quality of language input).

For PALS II (study 1b), assessment took place at baseline, mid-intervention, post-intervention, and at three-month follow-up.

- **Researcher-led assessment** included the Peabody Picture Vocabulary Test (PPVT-III) and the Preschool Language Scale (3rd Edn).
- **Researcher-led observations** included coding of infant behaviours (cooperation, early communication, negative affect, and independent goal-directed play), and the Landry Parent-Child interaction Scales (contingent responsiveness, warm sensitivity, positive affect, harshness of tone of voice, physical intrusiveness, restrictiveness, response to infant attention, and quality of language input).

Study retention

For PALS I (study 1a) 91% (N=240) of the sample was retained, but differential attrition is not reported for the conditions. The study does report that attriters differed from completers on ethnicity, as African American and 'other' ethnicities were represented in higher numbers among attriters compared to Hispanic and White participants.

For PALS II (study 1b), 90% (N=150) of the sample was retained at post-intervention, and 88% (N=147) at the three-month follow-up. Differential attrition is not reported.



Results

Data-analytic strategy

Growth curve modelling (GCM) was used to assess the effect of PALS I and PALS II, compared to the control group, both at the final timepoint and in rate of change across all timepoints. Families with data from at least two timepoints were included. An intent-to-treat design was not used.

Findings

Children who received PALS I showed improvements in social cooperation, communication, and independent goal-related play, and a reduction in negative emotion, compared to the control group. Mothers who received the intervention appeared to be more responsive, emotionally warm, less harsh, and provide improved language input. Changes in emotionally supportive behaviours were greatest for mothers of children born at a very low birth weight, and some aspects of the child's improvement in social-emotional skills were also greater for children with a very low birth weight. However, in general, benefits were comparable for children across all risk groups.

After PALS II, children who received the intervention showed improved social cooperation and engagement, as well as language skills, compared to children in the other groups.

Mothers who received either just the PALS I intervention, or PALS I and PALS II, showed more warm sensitivity, and ability to maintain the infant's focus of attention, compared to groups who did not receive PALS I. Mothers who received both interventions demonstrated more responsiveness and less redirecting of the infant's attention. This is 18 months after the PALS I intervention.

Limitations

Overall study limitations included insufficient information about attrition, demographic differences between conditions at baseline, and a lack of intention-to-treat analysis. There are further limitations in study 1b since it appears that results related to the effectiveness of either PALS I or PALS II at the toddler/preschool age arise from collapsed groups (i.e. the PALS I group includes mothers who received DAS II and PALS II, and vice versa).

Study 1: Outcomes table

Outcome*	Measure	Effect size	Statistical significance	Number of participants	Measurement time point
Child outcomes PALS I					
Increases in early communication with mother	Coded observations by examiner	D = 0.75	Yes	Not reported	Change across all timepoints



Outcome*	Measure	Effect size	Statistical significance	Number of participants	Measurement time point
Social cooperation with mother	Coded observations by examiner	D = 0.39	No	Not reported	3-month follow-up (1a)
Early communication with examiner	Coded observations by examiner	D = 0.22	Yes	Not reported	Change across all timepoints
Negative affect with mother	Coded observations by examiner	N/A	Yes	Not reported	3-month follow-up (1a)
Negative affect with examiner	Coded observations by examiner	D = 0.7	Yes	Not reported	3-month follow-up (1a)
Independent goal-related play activity	Coded observations by examiner	D = 0.47	Yes	Not reported	Change across all timepoints
Child outcomes PALS II					
Social cooperation with mother (PALS I/PALS II and DAS I/PALS II compared to other groups)	Coded observations by examiner	D = 0.3	Yes	Not reported	3-month follow-up (1b)
Social engagement with mother (PALS I /PALS II and DAS I/PALS II compared to other groups)	Coded observations by examiner	D = 0.32	Yes	Not reported	3-month follow-up (1b)



Outcome*	Measure	Effect size	Statistical significance	Number of participants	Measurement time point
Positive affect	Coded observations by examiner	N/A	No	Not reported	3-month follow-up (1b)
Use of words with mother (PALS I/PALS II and DAS I/PALS II compared to other groups)	Coded observations by examiner	D = 0.37	Yes	Not reported	3-month follow-up (1b)
Coordinating attention and word use	Coded observations by examiner	N/A	No	Not reported	3-month follow-up (1b)
Receptive vocabulary PALS I /PALS II and DAS I/PALS II compared to other groups)	PPVT-III (researcher-led assessment)	D = 0.36	Yes	Not reported	3-month follow-up (1b)
Language comprehension	PLS (researcher-led assessment)	N/A	No	Not reported	3-month follow-up (1b)
Expressive language PALS I /PALS II and DAS I/PALS II compared to other groups)	PLS (researcher-led assessment)	N/A	Yes	Not reported	Change across all time points



Outcome*	Measure	Effect size	Statistical significance	Number of participants	Measurement time point
Parent outcomes PALS I					
Maternal contingent responsiveness (PALS I)	Coded observations by examiner	D = 0.93	Yes	Not reported	Change across all timepoints
Warm sensitivity (PALS I)	Coded observations by examiner	D = 0.49	Yes	Not reported	3-month follow-up (1a)
Harshness of voice tone (PALS I)	Coded observations by examiner	D = 0.28	Yes	Not reported	3-month follow-up (1a)
Physical intrusiveness (PALS I)	Coded observations by examiner	D = 0.50	Yes	Not reported	3-month follow-up (1a)
Increase in maintaining infant foci of attention (PALS I)	Coded observations by examiner	D = 0.36	Yes	Not reported	Change across all timepoints
Reduction in redirecting infant foci of attention (PALS I)	Coded observations by examiner	D = 1.31	Yes	Not reported	Change across all timepoints
Verbal scaffolding (PALS I)	Coded observations by examiner	D = 0.79	Yes	Not reported	Change across all timepoints



Outcome*	Measure	Effect size	Statistical significance	Number of participants	Measurement time point
Labelling objects (PALS I)	Coded observations by examiner	D = 0.71	Yes	Not reported	3-month follow-up (1a)
Labelling actions (PALS I)	Coded observations by examiner	D = 0.63	Yes	Not reported	Change across all timepoints
Verbal encouragement (PALS I)	Coded observations by examiner	D = 0.71	Yes	Not reported	3-month follow-up (1a)
Parent outcomes PALS II					
Contingent responsiveness (PALS I/ II compared to control groups)	Coded observations by examiner	D = 0.51	Yes	Not reported	3-month follow-up (1b)
Warm sensitivity (PALS I/PALS II and PALS I /DASII compared to control groups)	Coded observations by examiner	D = 0.29	Yes	Not reported	3-month follow-up (1b)
Positive affect	Coded observations by examiner	N/A	No	Not reported	3-month follow-up (1b)



Outcome*	Measure	Effect size	Statistical significance	Number of participants	Measurement time point
Maintaining infant's foci of attention (PALS I/PALS II and PALS I/DASII, compared to control groups)	Coded observations by examiner	D = 0.32	Yes	Not reported	3-month follow-up (1b)
Reduction in redirecting infant foci of attention (PALS I/II compared to control groups)	Coded observations by examiner	D = 0.39	Yes	Not reported	3-month follow-up (1b)
Verbal scaffolding	Coded observations by examiner	NA	No	Not reported	3-month follow-up (1b)
Verbal encouragement (PALS I/PALS II and DAS I/PALS II compared to other groups)	Coded observations by examiner	D = 0.25	Yes	Not reported	3-month follow-up (1b)
* Some outcomes are only reported in studies 1a and 1b with an interaction by risk group, and are not reported in this table.					

Other studies

The following studies were identified for this intervention but did not count towards the intervention's overall evidence rating. An intervention receives the same rating as its most robust study or studies.

Landry, S. H., Zucker, T. A., Williams, J. M., Merz, E. C., Guttentag, C. L. & Taylor, H. B. (2017) Improving school readiness of high-risk preschoolers: Combining high quality instructional



strategies with responsive training for teachers and parents. *Early Childhood Research Quarterly*. 40, 38–51. **This study received a Level 2 rating.**

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Note on provider involvement: This provider has agreed to Foundations' terms of reference (or the Early Intervention Foundation's terms of reference), and the assessment has been conducted and published with the full cooperation of the intervention provider.