Research and
Policy Centre

Changing children's trajectories

Results of the HIPPY Longitudinal Study

Julie Connolly & Shelley Mallett

2020

Brotherhood of St Laurence
Working for an Australia free of poverty

The Brotherhood of St. Laurence (BSL) is a social justice organisation working to prevent and alleviate poverty across Australia. Our mission is to pursue lasting change, to create a more compassionate and just society where everyone can thrive. Our approach is informed directly by the people experiencing disadvantage and uses evidence drawn from our research, together with insights from our programs and services, to develop practical solutions that work. For more information visit <www.bsl.org.au>.

Dr Julie Connolly is a Research Fellow at Per Capita, and Professor Shelley Mallett is the Director of BSL Research and Policy Centre and Professorial Fellow at the University of Melbourne.

Published by

Brotherhood of St. Laurence
67 Brunswick Street
Fitzroy, Victoria 3065
Australia

ABN 24 603 467 024

ARBN 100 042 822

T (03) 9483 1183

www.bsl.org.au

ISBN 978-1-921623-79-0

Suggested citation: Connolly, J & Mallett, S 2020, *Changing children's trajectories: results of the HIPPY Longitudinal Study*, Brotherhood of St. Laurence, Fitzroy, Vic.

Contents

Acknowledgements

The study could not have been completed without the assistance of many individuals and agencies. The authors wish to acknowledge the many families who participated in the research, taking the time to share their experiences of HIPPY.

The project was funded by the Department of Social Services. HIPPY Australia and many individual sites facilitated data collection, welcoming and supporting the research assistants. The development and design of the project was generously supported by an Independent Advisory Group (listed in Appendix A). A team of 20 research assistants worked tirelessly to engage the families and collect the data. Dr Eric Dommers, Dr Anita Kochanoff and Dr Tim Gilley supervised data collection during different phases of the project and contributed to the initial analysis. Dr Keith Goldstein provided statistical support and expertise to help finalise the project.

Brotherhood of St Laurence

Changing children's trajectories

Key findings from the largest Australian HIPPY study to date

Disadvantage and poverty can hinder a child's learning and subsequent life outcomes. The early years are key.

With 1 in 6 children in Australia living in poverty, mitigating these impacts is crucial for so many.

The Home Interaction Program for Parents and Youngsters (HIPPY) is an early learning and parenting program targeting young children in low income households. It provides parents/carers with the confidence and tools to support their child's education and helps them create a home learning environment which improves their child's school readiness and the parent-child relationship.

HIPPY negates the effect of poverty on school readiness

Above average

School readiness vs Australian average

17%

more parents reading to children 5+ days per week by end

3×

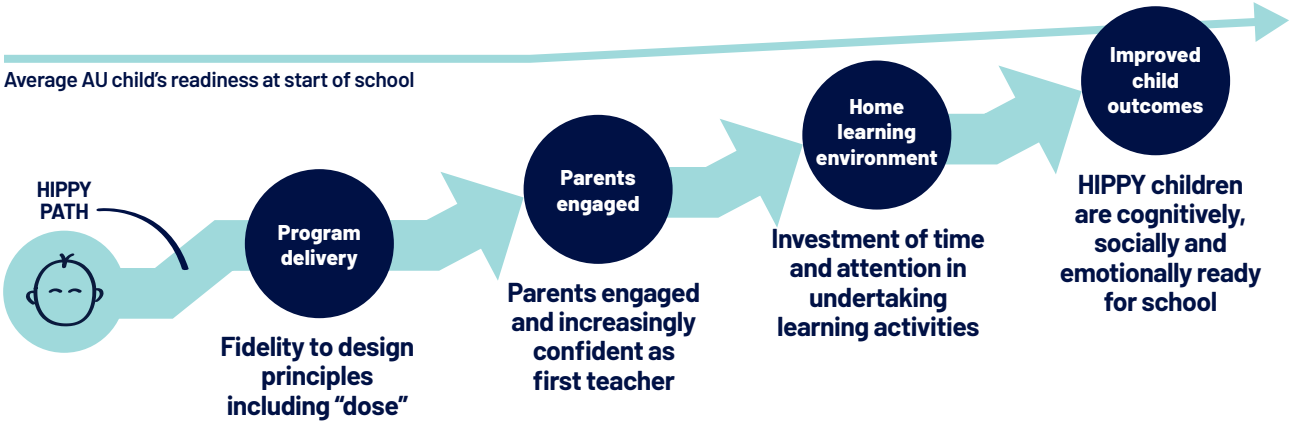
more parents doing literacy & numeracy work with child

80%

of parents spending more quality time with children

On average HIPPY children performed below the Australian average on the Who Am I? assessment at the start of the two-year program. By HIPPY's end, their average scores slightly exceeded the Australian mean, changing their trajectory and putting them on comparable footing with their peers.

More than a developmental gain: a changed trajectory for life



Creating conditions that support child learning and development

Improving parental warmth & family functioning

Investing time & attention with children during HIPPY activities

Creating a safe & stimulating home learning environment

Attendance at group meetings is significantly correlated with improved child learning outcomes

Citation: Connolly, J & Mallett, S 2020, *Changing children's trajectories: results of the HIPPY Longitudinal Study*, Brotherhood of St. Laurence, Fitzroy, Vic.

The Brotherhood of St. Laurence acknowledges the Traditional Custodians of the land and waterways on which our organisation operates. We pay our respects to Aboriginal and Torres Strait Islander Elders past, present and emerging.

Brotherhood of St Laurence
Working for an Australia free of poverty

HippyAustralia
Families Learning Together

ARBN 100 042 822 / ABN 24 603 467 024

Summary

The HIPPY Longitudinal Study (HLS) investigated the impact of the Home Interaction Program for Parents and Youngsters (HIPPY) on participating families. It is the largest and most comprehensive study of HIPPY undertaken in Australia to date, with an initial sample of 569 parent-child dyads—comprising two cohorts of parents drawn from 45 sites and who commenced HIPPY in either 2016 or 2017. Two-thirds of these were surveyed on three occasions to understand the impact of HIPPY across the two years of program delivery.

The HLS found a strong theoretical and empirical foundation for program design. Parents were successfully engaged, indicating high levels of satisfaction with key aspects of the program. There is evidence that parents actively reconfigured the home learning environment using HIPPY's distinctive pedagogical practices and activities. Close to program commencement, the average performance of HIPPY children on a test of literacy and numeracy skills was below the Australian mean. After completing HIPPY, on average, HIPPY children performed above the relevant Australian mean. This suggests a changed trajectory, not just a developmental gain, indicating that HIPPY works to redress the deleterious impact of poverty and financial hardship on child development.

Theoretical foundations for the design of HIPPY

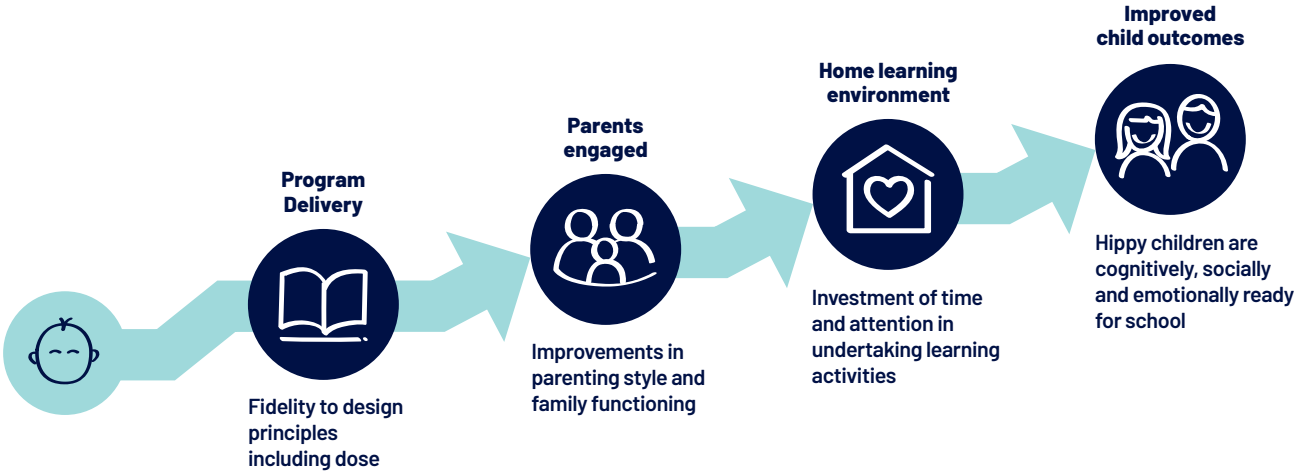
HIPPY is a multi-faceted and multi-year intervention delivered in over 100 Australian communities facing high levels of socioeconomic disadvantage. It delivers an integrated parenting support and early learning program that works to increase parents' confidence as their child's first teacher and to reconfigure the home learning environment in order to improve the school readiness of participating children. Through a combination of home visits and group meetings, HIPPY provides parents with a structured and developmentally appropriate curriculum, encouraging and supporting them to undertake learning activities with their children.

This report examines the theory and supporting evidence for the way that HIPPY has been adapted and delivered in Australia. Because the curriculum had already been aligned to the Australian Early Years Learning Framework, the literature review explored the foundations for HIPPY's distinctive parental engagement and pedagogical practices. Key findings included:

- Both national and international evidence provide a strong rationale for the way that HIPPY is targeted in disadvantaged communities; and the HLS sample confirms that participating families experience high levels of compounding disadvantage compared to Australian norms.
- Models of human development—socio-cognitive (Bandura) and bio-ecological (Bronfenbrenner)—also provide a firm theoretical foundation for the structure and sequence of learning activities that are designed to (1) promote parents' self-efficacy as their child's first teacher and (2) reconfigure the home learning environment.
- Contemporary evidence suggests that the factors which HIPPY has the capacity to target—parenting style, family functioning and the home learning environment—can moderate the otherwise deleterious impact of financial hardship on children's outcomes.

The literature review also provided the outlines for a theory of change for the parenting development/pre-school learning components of the program: three steps with three discrete causal mechanisms which should cumulatively promote improved child outcomes. These are summarised in Figure 1.

Figure 1 **Steps in theory of change to explain improved child outcomes, accompanied by hypothesised casual mechanisms at each stage**



The HLS confirms the factors that lead to improved child outcomes

The HLS allowed us to observe whether each of the hypothesised causal mechanisms was activated by program delivery and to track the impact on child outcomes. The study found:

- **Program delivery:** This is consistent with program logic, with some indications that adaptations reflect parents' preferences and family circumstances, although attendance at group meetings could be improved.
- **Parents engaged:** Parents are highly satisfied with HIPPY and the ways it advances their aspirations for their children. Additionally, there is evidence that parental warmth improves among those parents who scored lower on this measure at the baseline and that this can be partially attributed to HIPPY. Increases in parental warmth also predicted increased use of inductive reasoning by parents.
- **Home learning environment (HLE) configuration:** Parents actively alter the HLE in ways consistent with HIPPY's distinctive pedagogical practices, resulting in more time invested in undertaking learning activities with their children.
- **Improved child outcomes:** At program commencement, on average children in the sample performed below Australian norms on an assessment of the foundation skills for literacy and numeracy. This assessment was made using a pre-literacy/numeracy cognitive skills test, the Who Am I? (WAI) test. By the program's conclusion their scores had lifted, and on average children were assessed at above the Australian mean. This suggests a changed learning trajectory which cannot be fully accounted for by developmental gains.

Closer interrogation of improvements in children's learning outcomes further reveals:

- Attendance at group meetings, which means parents are exposed to a full HIPPY dose, is significantly associated with improvements in learning outcomes.
- Improvements in parenting warmth have a positive effect on children's learning outcomes.
- The rate of improvement for children with parents with low levels of English fluency is significantly greater than other subgroups, for example children from families who are marginally poorer or whose parent has completed less formal education.
- Negative family functioning and some aspects of child temperament, pertaining to hyperactivity, are negatively correlated with children's cognitive development, particularly foundational literacy skills.

These findings are anticipated by the broader literature which indicates that parenting style, family function and levels of parental investment—particularly time devoted to supporting developmentally appropriate activities—have an impact on child outcomes.

Family challenges

The HLS also revealed a subset of families who face additional challenges. The evidence suggests that:

- The majority of children who are developmentally vulnerable on social and emotional indicators of wellbeing at program commencement remain so throughout the program.
- Aboriginal and Torres Strait Islander children in the sample do not achieve the same level of improvement as their non-Indigenous peers.
- In the second year of the program an increasing number of parents report very low satisfaction and joy in parenting. Time pressures in families increase during this transition and participation in group meetings declines markedly.

These findings do not suggest shortfalls in program delivery. Rather they are indicative of the disadvantages faced by participating families and thus illustrate the complexity with which staff grapple. Nonetheless, it is possible that the continuing influence of these factors could weaken HIPPY's impact and the sustainability of noted outcomes. Tackling these issues is consistent with HIPPY's theoretical foundations, and its aspirations to be a whole-of-family and whole-of-child intervention.

Recommendations

HIPPY is a light-touch and low-cost intervention. The following recommendations have been drafted without expectation of further investment in HIPPY which could otherwise accelerate the implementation of proposed reforms. Fortunately, the prime-provider model means that HIPPY Australia can steward further innovation across sites, using collaborative principles derived from design thinking, and can develop discrete projects to build on the insights generated by the HLS.

Stewarding innovation across 100 sites

- Establish a national community of practice to drive culturally significant adaptations to program delivery to improve outcomes for Aboriginal and Torres Strait Islander children enrolled in the program.
- Implement a site innovation incentive scheme that rewards sites for increased attendance at group meetings and improved school transitions.
- Ensure HIPPY consultants undertake regular consultations with diverse families during site visits to better understand their experiences of program participation.
- Monitor and evaluate the above strategies through the creation of an accessible repository of creative practices and innovations that improve Indigenous engagement and retention, improve attendance at group meetings and lead to parents reporting greater ease with school transitions.

Program adaptations to improve outcomes for parents and children

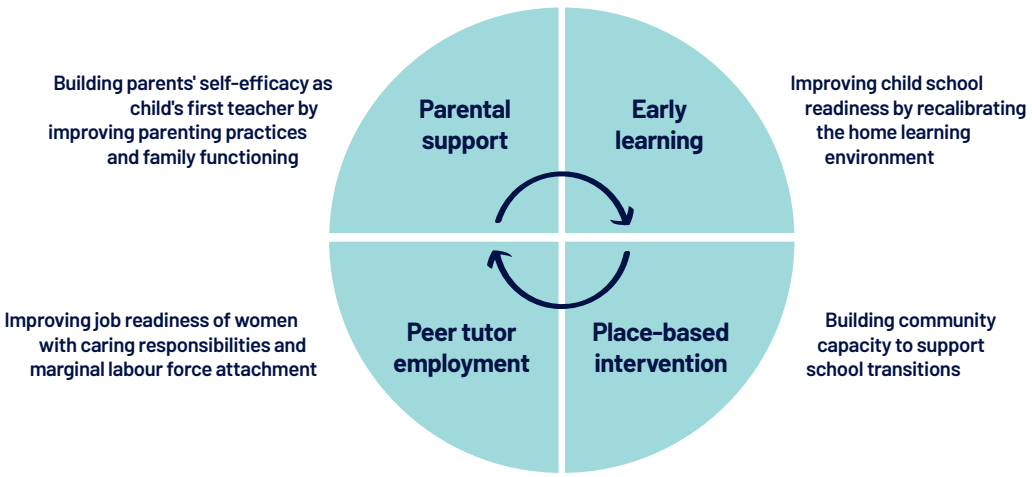
- The HLS found four sets of issues that could be more intentionally worked on with families to improve learning and school readiness outcomes: improving child concentration; reducing child emotional distress; improving parental warmth; and techniques used by families to resolve conflict, manage time and discipline children.
- These issues affect a sizeable minority of families directly, which suggests a differentiated approach may be required. HIPPY may wish to consider the use of non-intrusive assessments of family functioning and child emotional wellbeing at different points in program delivery to allow sites to select appropriate support materials and consider active and warm referral pathways for families.
- A comprehensive approach to address these issues will:
  - ensure support materials are available at individual sites so that staff have access to information and advice on each topic
  - review tutor training to ensure that home tutors understand the impact of family functioning, parental behaviours and child concentration and emotional wellbeing on learning outcomes
  - review activity packs and group meeting topics to include activities and sessions that address these issues directly
  - create online resources (including an information repository and/or curated access to other sites) for parents, to complement topics canvassed in group meetings.

1 Introduction

About HIPPY

The Home Interaction Program for Parents and Youngsters (HIPPY) is a multifaceted intervention for disadvantaged families with children aged between 4 and 5 years. HIPPY Australia functions to ensure model fidelity across 100 sites, each of which is charged with delivering four components of the program. The parenting support and early learning components are the focus of this report. Additionally, HIPPY creates a transitional labour market for home tutors, a peer workforce drawn from program participants who are responsible for a significant part of program delivery. This component of the HIPPY model aims to support women with caring responsibilities to re-engage with employment. Each HIPPY site is also engaged with its local community. Each of the four program components contributes to HIPPY's core purpose to reduce the impact of financial hardship and other forms of systematic disadvantage on child wellbeing, promoting improved learning outcomes and greater school readiness so that children can thrive and reach their potential (Figure 2).

Figure 2 Four program components of HIPPY

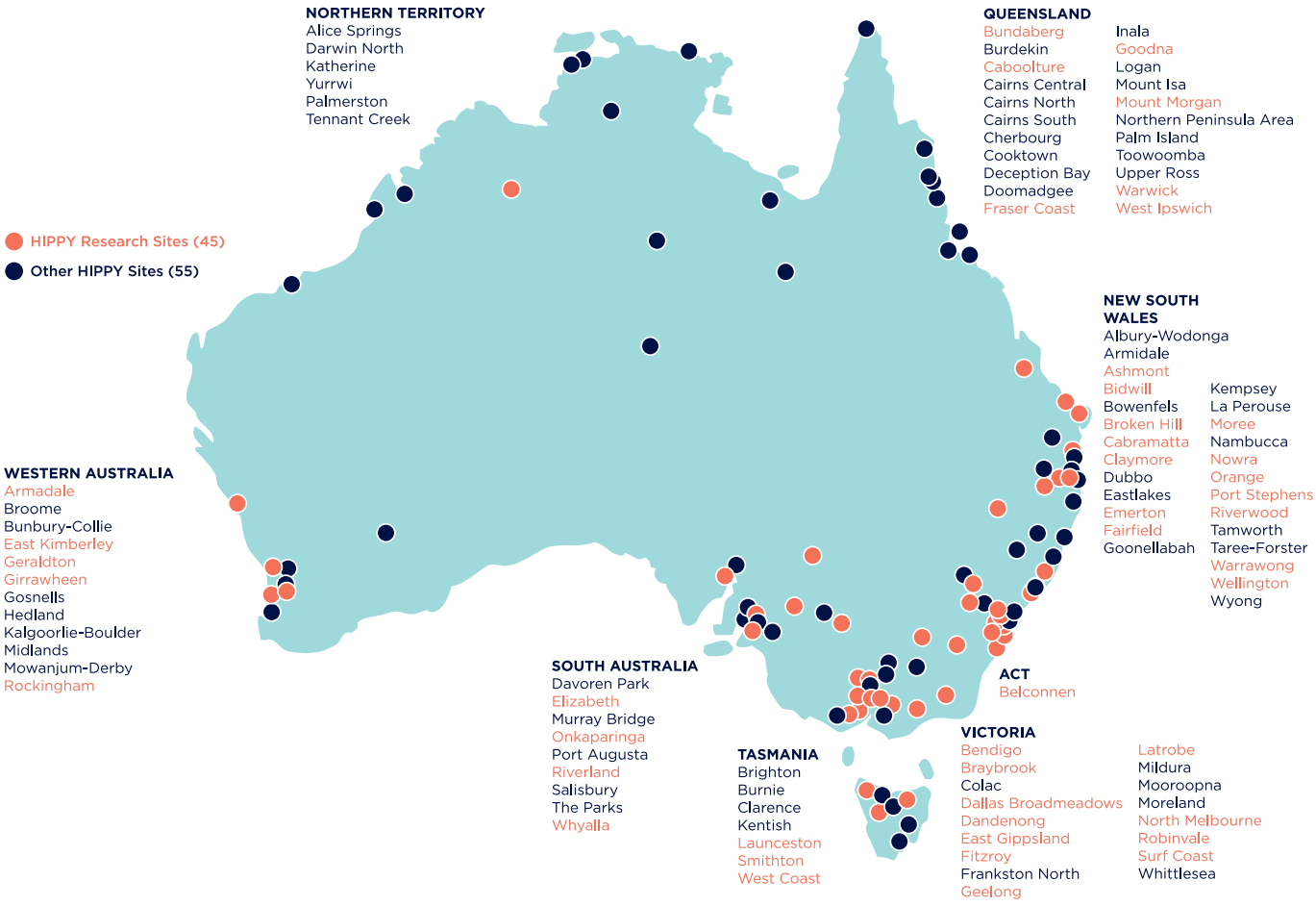


The history of HIPPY in Australia

HIPPY in Australia is part of a global network of home visiting programs which work with parents in communities facing multiple forms of disadvantage, encouraging them to understand and celebrate their role as their child's first teacher. Originally developed in Israel in the late 1960s to support parents from a migrant background to prepare their children for school (Goldstein 2017), HIPPY currently operates in 10 countries, with HIPPY-inspired programs in another four countries in the network. Licensing arrangements are managed by HIPPY International.

HIPPY was first trialled in Fitzroy by the Brotherhood of St. Laurence (BSL) in 1998. It was subsequently funded by the Australian Government in 2008 and now operates in 100 sites across the country, with approximately 4500 families participating each year. HIPPY is currently funded under the Department of Social Services (DSS) Families and Children Activity that supports interventions to improve the wellbeing of children and the functioning of families, particularly those in disadvantaged or vulnerable communities.

Figure 3 HIPPY locations and Longitudinal Study sites in Australia



The BSL continues to operate HIPPY Australia, as a national prime provider. In this prime-provider model, HIPPY Australia retains the exclusive international licence to deliver HIPPY and, on behalf of government, contracts with 64 local agencies, including 15 Aboriginal Controlled Community Organisations (ACCO) to provide the program in the selected sites. HIPPY Australia is responsible for the provision of resources, training and policy direction in all sites, maintaining a network of consultants that provide advice and support centrally and on site, and engaging in continuous improvement activities.

Features of the parenting support and early learning components of the HIPPY model

HIPPY operates as a voluntary program with individual sites responsible for recruitment. Five additional characteristics distinguish the delivery of HIPPY:

- **Duration:** HIPPY is offered over two years, when children are 4 and 5 years of age. During the first year HIPPY operates across 30 weeks, alternating weekly home visits and group meetings. In the second year, the program operates for 15 weeks, following a similar structure. Children are often enrolled in kindergarten programs in the first year and the preparatory year of school in the second. The program logic assumes that this is an appropriate age range for an early learning intervention designed to increase the school readiness of children.
- **Dual delivery mode:** HIPPY is delivered through a combination of home visits and group meetings. During home visits, home tutors use HIPPY packs and role-play learning activities with parents, who are then encouraged to undertake these with their children. Group meetings provide enhancement activities and occasions for parents to learn more about child development and their role as first teacher. This combination aims to ensure delivery is convenient for parents while providing multiple opportunities for connection.

- **Strategies to build parents' skills:** HIPPY uses role-play and role-modelling to demonstrate to parents how they can create learning opportunities for their child using HIPPY materials. Parents are encouraged to imagine creative forms of interaction and workshop these with peer support before attempting them with their child. The role-play approach is capable of nuance. It is thought to be particularly suitable for parents with low levels of literacy and/or English language proficiency.
- **Curriculum:** The HIPPY curriculum, which has been aligned to the Australian Early Years Framework, involves tasks that develop language and problem-solving skills, enhance perceptual skills and develop logical thinking. HIPPY activities also support the development of gross and fine motor skills. Program packs, which contain a variety of learning activities and books, are delivered to families, who are encouraged to engage in educational activities with their children for 15 minutes for five days a week.
- **Pedagogical strategies:** Everywhere learning is central to HIPPY's philosophy. It encourages parents to maximise the opportunities for learning in everyday situations and thus to normalise and demystify learning for their children in their lived context. Parents are taught the 3Cs strategy: correct, complete and confirm. This simple technique enables adults to encourage their child's learning, without resorting to negative feedback. When children do not give the correct response to a question, the parent avoids the use of 'no' which can be discouraging. Instead the parent gives the correct response and moves on to another question. When a child gives a partially correct response, the adult repeats the child's response and completes the correct response. When the child gives the correct response, the adult repeats the response and confirms that it is correct. Parents are also encouraged to use behaviour-specific praise.

The early childhood policy context

The impact of financial disadvantage on school readiness

A substantial body of evidence indicates that children who live in poverty and financial disadvantage are less academically successful at school, with lasting effects on social and economic participation. The OECD's Programme for International Student Assessment (PISA) consistently finds that, across middle and high-income nations, the reading scores of the 10% most socioeconomically advantaged students are approximately three school years in advance of children in the lowest 10% by socioeconomic status (Schleicher 2019, p. 5). This finding holds true for the Australian sample (Thomson et al. 2019, p. 18).

Moreover, the divergence in academic performance according to socioeconomic position is evident prior to school commencing. According to analyses of the Longitudinal Study of Australian Children (LSAC), at ages 4 and 5 children from financially disadvantaged families are less school-ready (Edwards et al. 2009, p. 2). International evidence suggests mobility in developmental performance is possible for children from a higher socioeconomic background, but less likely for children from lower socioeconomic backgrounds (Feinstein 2003). In Australia the evidence also indicates that children who commence school from low socioeconomic areas with signs of developmental vulnerability continue on a poor development trajectory through the first few years of school (Australian Early Development Census 2014).

Because of the persistence of such findings over many decades of research there is consensus that early intervention, prior to the commencement of school, is warranted. Nobel Prize – winning economist James Heckman has argued cogently across many publications that early intervention can kickstart a process of dynamic complementarity, whereby early investment in skill development raises the productivity of subsequent investments in the same (Cunha & Heckman 2010). In the economist's terms, early intervention avoids the efficiency trade-offs that plague later interventions to remediate the impact of disadvantage in early childhood.

Explaining the link between financial hardship and child outcomes

A growing body of literature makes use of large data-sets to analyse the various factors that can mediate and moderate the impact of financial disadvantage on child outcomes (Blaurock & Kluczniok 2019; Hartas 2012; Hayes & Berthelsen 2020; Kuger, Marcus & Spiess 2019; Sylva et al. 2004; Toth et al. 2020; Warren 2017). As will be discussed in the following chapter, some analyses focus on much broader income levels and social structures. Nonetheless, the literature finds a multiplicity of household level factors that have some influence on child outcomes. These are summarised in Figure 4.

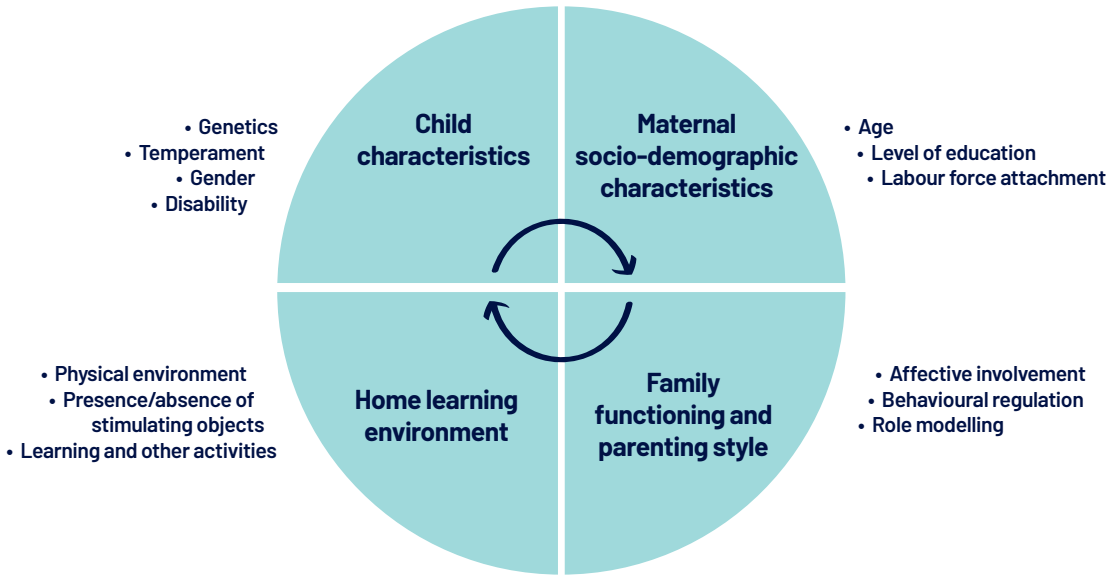
There is a live debate about which factors are most important. Some studies find that the relationship between poverty and poorer outcomes can be fully, or nearly fully, accounted for by factors other than income: 'the hypothesis that the home environment variables fully mediate the relationship between income and children's outcomes cannot be rejected' (Berger, Paxson & Waldfogel 2009, p. 985). Others suggest that income poverty continues to have an independent and direct influence on outcomes. Using LSAC data, for example, Diane Warren paints a complicated picture. Differentiating between the effects of persistent and episodic poverty on multiple child outcomes—cognitive, social and health—Warren finds that parental investment, maternal mental health and parenting style each account for some, but not all, of the observed variance in child outcomes by socioeconomic disadvantage (Warren 2017).

Multiple factors requiring multiple interventions

There is thus a debate in the literature about which factors mediate or transform financial disadvantage into poorer development outcomes for children and which factors can be moderated to mitigate the consequences of poverty. Understanding the causal pathways through which poverty exerts a detrimental effect on child wellbeing is of academic interest. It also has significance for early childhood policy and practical application in the design of effective remedial interventions (Barnett 2001):

- If poverty has a direct impact, direct financial transfers and other strategies to increase resources through labour market attachment and participation should prevail in policy solutions.
- If the sociodemographic characteristics of mothers, like maternal age, mental health and education levels, significantly mediate outcomes for children, access to centre-based early childhood education and care (ECEC) can have a compensatory and remedial function when such individual features coincide with income poverty.

Figure 4 Household level factors that can influence the impact of poverty on child outcomes



- If factors like parenting style, family functioning and the home learning environment are influential, direct interventions to build parents' capacity and restructure the home learning environment may be warranted.

But it is not necessary to choose one intervention. If the logic of Heckman's analysis holds, multiple interventions are likely to be warranted to change the learning trajectories of young children whose families experience financial hardship. HIPPY is primarily concerned with the third grouping of factors. Analysing its success should deepen our understanding of how financial disadvantage produces educational disadvantage and how to disrupt and reverse this.

Australian policy settings

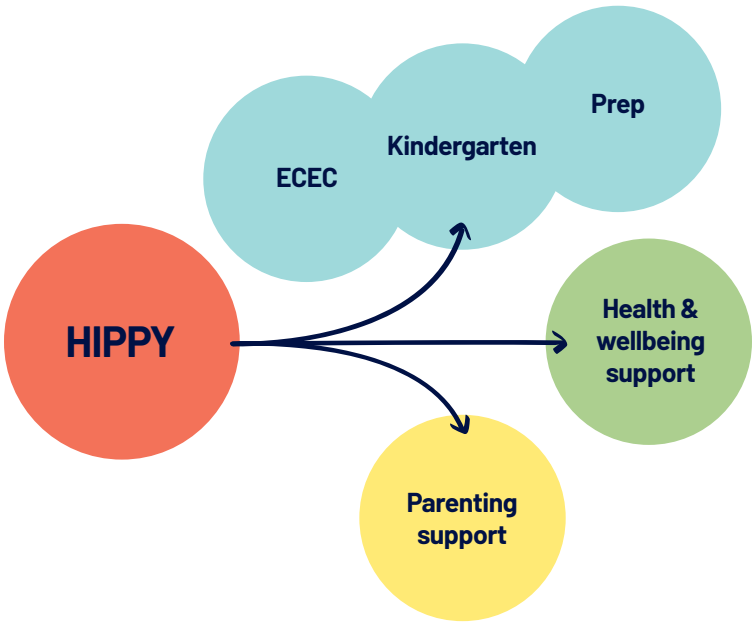
Since it has been funded by the Australian Government, HIPPY has been commissioned by Departments of both Education and Social Services, which reflects its rather unusual position in the landscape of service provision in Australia (Figure 5). HIPPY is distinctive largely because of the unique combination of program components and attributes.

All parts of this service provision landscape share in the objective to achieve improved child outcomes. The causal mechanisms activated by each are, however, quite distinct and many of the service types are universal or universally available. This means that while most programs and services recognise the impact of multiple forms of disadvantage, not all are specifically configured to mitigate these. Leaving aside issues that are relevant to all human services—namely commissioning, regulation, funding and evaluation—in the broad remit of early childhood policy, advocacy to address disadvantage canvasses the following topics:

- increasing the quality of ECEC (Cook, Corr & Breitkreuz 2017)
- providing equitable access to at least two years of pre-school education (Torii, Pilcher & Fox 2017)
- precise policy interventions to address the health and wellbeing challenges of children from disadvantaged families (Goldfeld et al. 2018)
- building community capability and empowerment alongside direct service provision (Arabena et al. 2016)
- implementing consistent principles in policy subdomains and supporting family transitions between these (Molloy et al. 2018).

Nowhere in these debates is emphasis placed on the home learning environment, the efficacy of which is central to the analysis undertaken by the HLS.

Figure 5 HIPPY's location in the service provision landscape in Australia



The contribution of the HLS

The HLS has afforded us multiple observations about the different factors that can have an impact on the children of disadvantaged families. The purpose of the study, however, was not simply to add to the extensive literature that describes the deleterious impact of poverty on child development.

Instead, using a combination of validated tools and questions specific to the delivery of HIPPY, the HLS allows us to observe:

- whether participating in HIPPY changes parenting practices and the home learning environment
- whether participating in HIPPY improves children's outcomes, on criteria that pertain to cognitive development and socio-emotional wellbeing
- whether noted changes in either parenting practices or the home learning environment also promote improved child outcomes.

The findings yield lessons for HIPPY. But importantly they have implications for early childhood policy that aims to improve developmental outcomes for children more broadly.

"The findings of the HLS have implications for early childhood policy that aims to improve developmental outcomes for children more broadly."

2 Changing children's trajectories: theoretical foundations and evidence base

Since the beginning of HIPPY in the late 1960s and its introduction to Australia in 1998, theories of child development have been refined and, as discussed, debate about what explains the impact of socioeconomic disadvantage on child outcomes continues. Not surprisingly, the policy context has altered too. Internationally there is increasing interest in the potential of interventions in the home learning environment, alongside formal ECEC, to equalise the life chances of children born into disadvantage. The following discussion:

- explores developments in the theoretical and evidentiary bases for interventions that aim to improve the pre-school child's learning outcomes through building parental capacity
- explains the key concepts and debates that structure contemporary analyses of the causal pathways through which poverty affects children's outcomes, paying attention to those capable of moderation through program intervention.

The literature review facilitates an assessment of whether the parenting support and early learning components of the HIPPY model remain justified. The chapter concludes with a theory of change which functions as an explanatory model that guides the interpretation of the HLS findings.

Human development and the way children learn

Several normative frameworks could be employed to articulate the values and ethical commitments that motivate a program like HIPPY. Rights-based frameworks that advocate for children's human rights are one example. The literature review undertaken for this chapter, however, revealed the centrality of *human development* as both a practical and a normative framework (Shonkoff 2010). In broad terms, theories of human development attempt to describe how we learn. This involves identifying developmental milestones: to be able to differentiate perception and response, for example, is important. But theories of human development are not just descriptive; they also contain aspirations regarding the realisation of human potential. The normativity of the models includes a conception of a flourishing human being, and thus applies to the whole of the child. Theories of human development integrate the analysis of physiological and cognitive development with social-emotional wellbeing. They aim to describe the preconditions for both mutually rewarding adult relationships, which provide the foundations for social participation, and the capacity to influence one's own environment, and thus develop personal autonomy.

By the mid-twentieth century, accounts of how humans develop had settled into three distinct approaches: maturational, behaviourist and psychodynamic (Spodek & Saracho 1999). Maturational accounts suggested that genetics catalyse development, understood as the unfolding of inherited potentialities along a somewhat predetermined trajectory. Behaviourists located the catalyst for development in environmental influences. In other words, changes in the environment or, as in operant conditioning, the deliberate manipulation of environmental feedback stimulate development along particular trajectories. And psychodynamic theorists looked to the expression of conflicting and endogenous drives to understand human development. Thus, the terms

of the nurture–nature debate were set with each approach emphasising a specific catalytic agent: genetic influences, environment factors and individual intentionality, which unfolds in the context of the former considerations.

These analyses continue to influence early childhood education and pedagogy. Accordingly, maturational theory indicated the importance of time-sensitive forms of readiness for learning, opportunities for which should be developmentally appropriate. Behaviourists emphasised the importance of structured reinforcement for learning. Psychodynamic theories supported an emphasis on play and creativity, to foster an authentic expression of identity. Research continues and is increasingly informed by advances in the study of epigenetics and neurological development (Arabena et al. 2016; Moore et al. 2017).

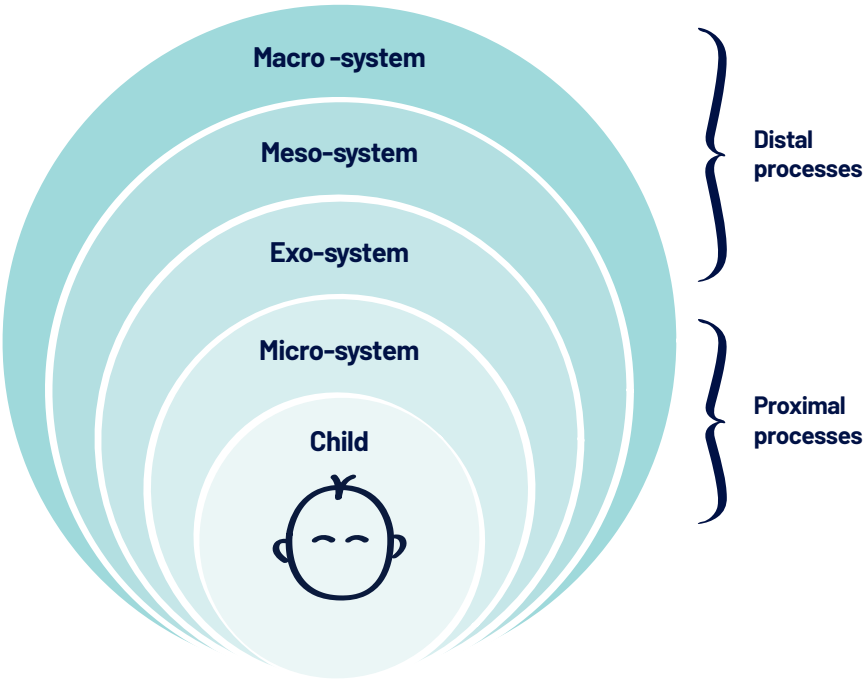
From the 1970s, however, socio-cognitive and bio-ecological approaches emerged, combining and extending the insights of each. In particular, they furthered our understanding of the processes and mechanisms which support development and learning, with specific implications for (1) the importance of developmental readiness, reinforcement and creativity for early learning and (2) how to structure approaches that support early learning and that respond to the complex social systems of which children are a part. Both approaches cohere around emphasising the agency of the child and the context in which development occurs.

Albert Bandura's name is almost synonymous with socio-cognitive approaches to development, the term with which he recast social learning theory in 1986 (Grusec 1992). Urie Bronfenbrenner is associated with the bio-ecological approach (Bronfenbrenner & Morris 2006). Both thinkers share an interest in the process of human development, and thus the way that children learn, which emphasises interaction with and adaptation to context. Both are interested in the active child who is neither simply an unfolding potentiality, nor just a product of conditioning. For both theorists, human development is dynamic and over time occurs in progressively more complex contexts. There are also some important differences between them; in part these are methodological. Unlike Bandura, Bronfenbrenner was unrelentingly critical of the explanatory power of experimental studies, whose highly controlled conditions can deviate considerably from lived experience (Rosa & Tudge 2013). Nonetheless, Bandura's deep conceptualisation of the psychological processes through which human development occurs is complemented by Bronfenbrenner's more detailed consideration of the systemic context which structures opportunities for development.

Bandura and his colleagues focused on the psychological mechanisms that allow children to learn—that is, to abstract information from a variety of social experiences, and to form mental representations, which can then be used to both imitate (successive approximation of more complex behaviours) and innovate (novel interpretations) (Grusec 1992). Bandura focuses on three processes: attention/observation; retention/integration, through which the aforementioned mental representations are formed; and conversion, at which point that which is learned is enacted and embodied. He proved that these processes are activated by particular pedagogical practices: reinforcement, reasoning and modelling. Importantly these processes are activated in specific social conditions—the ***socio-*** component of the model's appellation. While learning and development are contingent on social conditions, Bandura also argued for the importance of individual ***cognition*** in learning. What we think helps us understand motivation. In particular, Bandura examined the importance of self-regulation, which enables us to be attentive to learning opportunities. He pioneered research into self-efficacy, which refers to a set of beliefs or cognitions about one's own capacity for successful action. The importance of self-efficacy has been subsequently validated in a large variety of fields of endeavour, from pain tolerance to career development (Bandura & Locke 2003).

Bronfenbrenner's theory of child development underwent three significant modifications from its early articulation in 1973 (Rosa & Tudge 2013). Figure 6 summarises the layered theoretical system that Bronfenbrenner developed. The initial ecological approach described a nested hierarchy of systems that directly and indirectly influence the context in which the child develops. There are proximal processes, which encompass the individuals and institutions that have a direct relationship with the child. But he also discusses the more distant or distal systems, including broad policy settings like social security, that also configure the child's context. This theoretical innovation is a point of distinction from other approaches (including Bandura's), many of which acknowledge but do not explicitly theorise the social structures which influence development and learning.

Figure 6 Bronfenbrenner's nested systems in which child development occurs



In the 1980s, Bronfenbrenner placed more emphasis on the child's active participation in learning and development, and the influence of genetics (Derksen 2010, p. 330). The final formulation of the theory as *bio-ecological* retained the early emphasis on development as progressive adaptation within systems (ecology) and the later emphasis on the influence of genetics (bio) (Bronfenbrenner & Morris 2006). In this later articulation of the bio-ecological approach, Bronfenbrenner refined his account of the proximal processes through which most developmental gains are achieved. These are activities whereby the child engages in progressively more complex and but still reciprocal interactions with people, objects, concepts and symbols in their immediate environment. In the later model they are described by the PPCT, or person-process-context-time, model (Bronfenbrenner & Morris 2006). Bronfenbrenner's approach enables the identification of patterned variation in learning and development outcomes, based on both genetics and context (Darling 2007). Like Bandura, and particularly in the middle phase of his work, Bronfenbrenner emphasised the meaning that individuals derived from their experiences.

Applying theory to practice

Together the theories of Bandura and Bronfenbrenner provide cause for confidence in each of the distinctive characteristics of the HIPPY integrated parenting and pre-school education program described in the previous chapter:

- **Duration:** Bronfenbrenner's emphasis on the importance of sustained interaction to facilitate development (Minh et al. 2017) is reflected in both the length of HIPPY and the fact that parents are encouraged to undertake learning activities with their children daily.
- **Dual delivery mode:** During both home visits and group meetings, HIPPY employs role-modelling and reinforcement as well as direct instruction, all of which support learning according to Bandura.
- **Strategies to engage parents:** HIPPY works to build parents' confidence and capacity as their child's first teacher, to change the way that parents understand themselves and their role. HIPPY provides parents with practical strategies, activities and tools to reconfigure the home learning environment. Again, this practice is consistent with Bandura's recommendations for building self-efficacy.

- **Curriculum:** HIPPY activates all dimensions of Bronfenbrenner's PPCT model of development. HIPPY actively reconfigures the environment in which a young child is developing, both by supporting caregivers (person) and by directly supplying the objects and symbols with which the child interacts (process). HIPPY supports the slow but steady increase in the complexity of the proximal learning processes with which the child is engaged (context). The duration (time) of HIPPY is discussed above.
- **Pedagogy:** HIPPY's distinctive pedagogical techniques involve the forms of reasoning, reinforcement and modelling that according to Bandura support learning.

The effect of socioeconomic disadvantage on human development

The utility of Bronfenbrenner's bio-ecological model of development extends to a consideration of the impact of socioeconomic factors on children. By the time he was developing the theory in the early 1970s there had already been half a century of research that demonstrated the negative impact of poverty on children's outcomes (Bradley & Corwyn 2002, p. 375). This research continues to this day and its insights can be usefully classified using Bronfenbrenner's distinction between proximal and distal processes. The manifold variables that have been identified as influential in proximal and distal processes by this extensive research are summarised in the Figures 7 and 8 as household and neighbourhood-level factors.

Associated research into the impact of these household-level and neighbourhood-level factors falls into two broad categories: attempts to quantify the relative significance of each for child outcomes and research to theorise the processes by which such factors exert an effect. Take the neighbourhood-level factors: a recent review of 42 studies that explored the impact of such neighbourhood effects concluded that there was good evidence that these factors are correlated with child outcomes (Minh et al. 2017). Moreover, that these assume a greater significance as children age and are more directly integrated in the community. Recent Australian research further demonstrates that where neighbourhood-level factors are scarce or of less quality, it can compound the deleterious effects of disadvantage evident at the household level on child outcomes (Goldfeld et al. 2018). The causal pathways governing the effect of such neighbourhood-level factors, however, are not yet clear. The working theory is that neighbourhood-level factors interact with and exacerbate the proximal processes, or household-level factors, which also have more direct effects on children.

Figure 7 Household-level factors that give rise to proximal processes which impact poverty's role in child outcomes

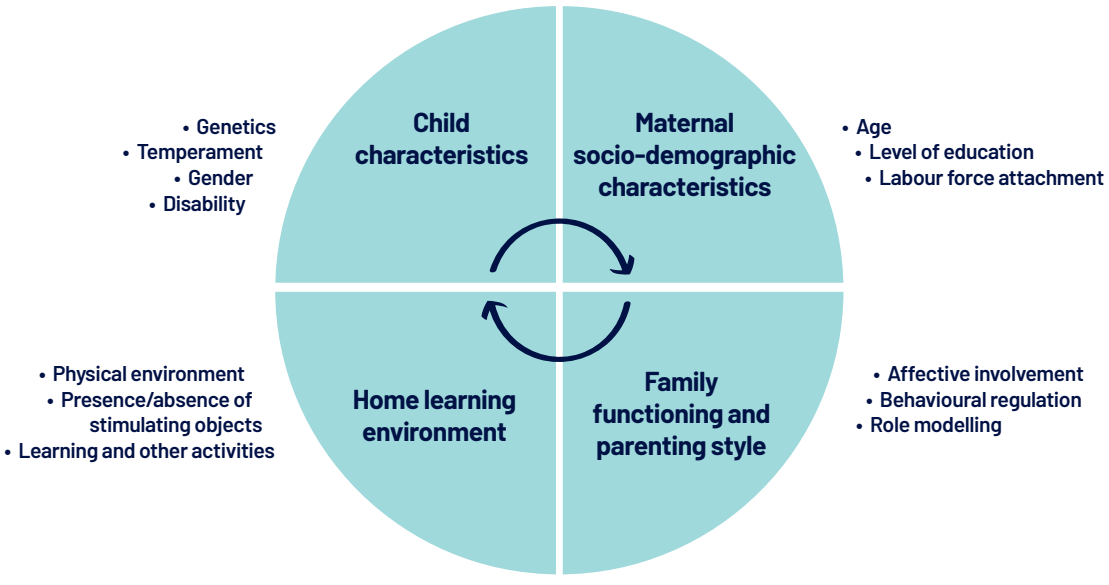
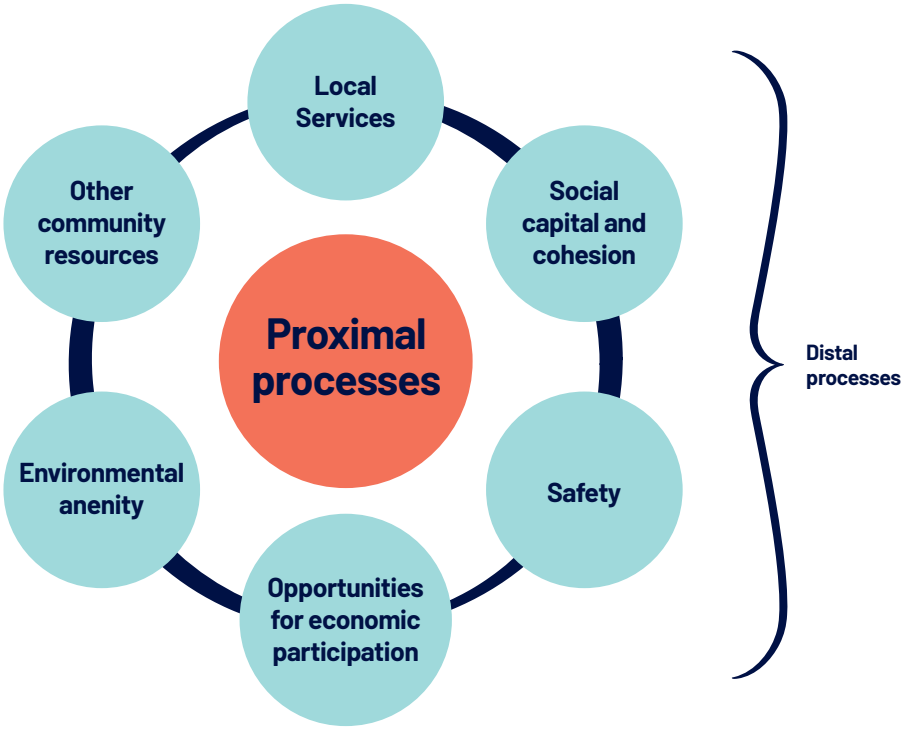


Figure 8 **Neighbourhood effects that give rise to distal processes implicated in the developmental outcomes for children**



While HIPPY aspires to have an impact on neighbourhood dynamics, the components of the program under analysis in the HLS more directly target household factors. In order to explore the factors targeted by HIPPY, however, it is necessary to understand which factors are associated with disadvantage and help us define risk and which can be altered by intervention. This is a subtle, analytical difference of importance to policy and programs. For example, some child characteristics, including gender, and some maternal sociodemographic characteristics, such as maternal age or ethnicity, are associated with poorer outcomes for children once socioeconomic status (SES) is taken into account. In an Australian sample derived from LSAC, male gender is associated with poorer school readiness (see Edwards et al. 2009). Such statistical correlations help to establish the analytical importance of the risk factors. But they do not tell us what to change to mitigate any negative impact.

Studies that focus on factors amenable to alteration are potentially more productive. Several studies have found that variations in the home learning environment are associated with SES (Burris, Phillips & Lonigan 2019; Hartas 2012; Sylva et al. 2004).

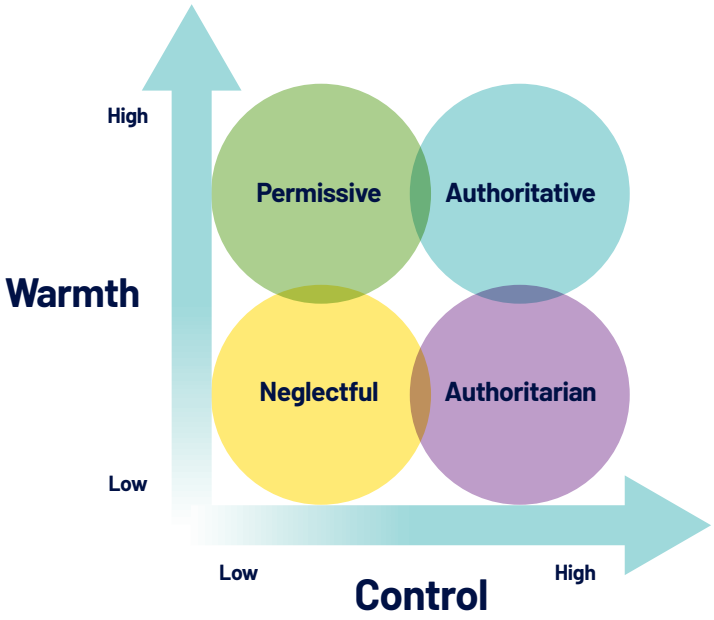
Likewise parenting style and family functioning differ by SES (O'Connor & Scott 2007; Cobb-Clark, Salamanca & Zhu 2016). These factors, however, are not simple variables like age or gender or ethnicity, but internally complex theoretical constructs.

Parenting style and family functioning

There is some overlap between these two conceptual constructs. Both exert an important effect on child development. It is likely that they interact in important ways. Nonetheless, they remain distinct. Parenting style refers specifically to the dyadic relationship between parent and child, with parents evincing different styles that may reflect their distinctive personality and beliefs. Family functioning considers the family unit as a whole.

Interest in different types of parenting dates from the mid-1960s, when Diana Baumrind developed a theory of parenting style that explored levels of parental warmth and control along a high–low scale. When combined, as illustrated in Figure 9, these produce a typology of four parenting styles (Cobb-Clark, Salamanca & Zhu 2016).

Figure 9 Baumrind's parenting styles



Subsequent research has refined this classification and explored its cultural specificity (Neckoway, Brownlee & Castellan 2007). More recent theories of parenting have moved away from static descriptions of ideal types, recognising a variety of parenting behaviours and activities, which cluster on particular dimensions, including warmth and control (Zubrick et al. 2014). Warmth has been supplemented by consistent parenting, self-efficacy and the use of reasoning in discipline and boundary setting; considerations of control have been extended to include hostility and over-protectiveness. Nonetheless parenting style retains its analytical usefulness. Substantial research demonstrates clear correlations between different parenting styles and behaviour from childhood through adolescence and adulthood (O'Connor & Scott 2007). Generally, children do better when exposed to parenting styles that are associated with warmth, self-efficacy and consistency (Zubrick et al. 2014). With respect to cognitive outcomes of pre-school children, it has been estimated that the effects of parenting style are a third to a half larger than the effect of pre-school child care (Melhuish et al. 2008).

Family systems theory tends to be more triadic than dyadic in its analysis. The McMasters model of family functioning was developed in the 1970s to aid the assessment and treatment of dysfunctional familial relationships and patterns of behaviour (Dai & Wang 2015). It is a process-oriented account of the family unit, which argues that all parts of the family are interrelated and cannot be understood in isolation from each other; both family structure and transactional patterns actively shape the behaviour of members. In this model, the key functions of the family include addressing basic needs, supporting individual development and keeping members safe. Dimensions of analysis include the family's capacity to communicate and solve problems, strategies for behaviour control and roles or recurrent patterns of behaviour, as well as levels of affective involvement and affective responsiveness (Miller et al. 2000).

Located in family systems theory, the model yields three patterns of family relationships. Harmonious families tend to be cohesive. Disengaged families have rigid boundaries and less warmth. Enmeshment describes families with entangled relationships. Research into the impact of family functioning looks to patterns that emerge over time, and finds implications for child socio-emotional development, including that poor family functioning can impede successful transitions to school (Sturge-Apple, Davies & Cummings 2010).

The home learning environment

The home learning environment is a more recent theoretical construct, with academic interest dating from the 1990s (Lehrl, Evangelou & Sammons 2020). One particularly influential longitudinal study followed 2857 children from 141 preschool centres in the United Kingdom, investigating the effects of both the centre

composition and the home learning environment on children's literacy and numeracy, reading and mathematics outcomes from 3 to 11 years of age (Sylva et al. 2004). The methodological innovations employed in this EPPE study included a 14-item scale of activities that took place outside of formal ECEC contexts: seven items pertained to social activities and seven to learning activities in the home. The latter grouping was used to form an HLE index, which proved to be predictive of later academic performance. The authors concluded that the home learning environment had more explanatory capacity to account for children's higher literacy and numeracy scores than SES: 'the influence of the HLE was over and above that of the standard proxy measures for parental education and SES' (Melhuish et al. 2008, p. 106). The study also examined the effects of centre composition on children's outcomes. But its findings regarding the HLE have been most influential both on British policy and in the OECD, with the findings about HLE influence on learning outcomes quoted extensively (National Literacy Trust 2018; OECD 2017).

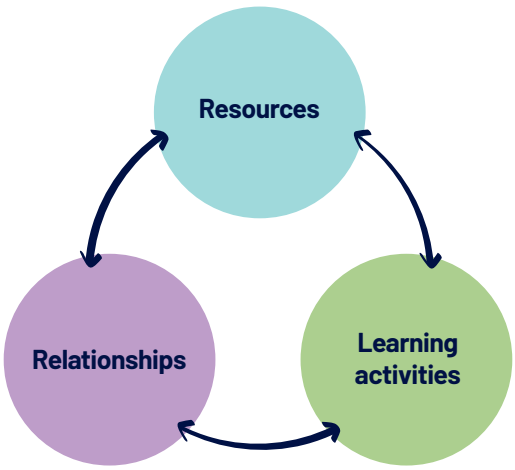
This approach to assessing the HLE has been used in subsequent Australian studies, including LSAC (Yu & Daraganova 2015). In a recent special edition of the journal *School Effectiveness and School Improvement* devoted to the HLE, it was defined according to three dimensions: resources, activities and relationships—that is, the number of books and stimulating toys in the home, the structure of learning activities and the parent-child relationship (Lehrl, Evangelou & Sammons 2020). Other studies expand the definition of resources, to include the quality of the physical infrastructure of the home (Burris, Phillips & Lonigan 2019; National Literacy Trust 2018). Depending on the definition, the HLE may or may not explicitly incorporate dimensions of parenting style and family functioning. While there has been little research linking parenting style and family functioning to the home learning environment, constructs are clearly important in how the HLE functions and thus its efficacy in promoting child outcomes. In the associated literature, there are points of overlap in the discussion of relationships in the HLE and parenting style.

Parental investment and family stress

There are three theories that look to explain how parenting style, family functioning and the HLE interact with financial disadvantage to affect child outcomes: parental investment, family stress and role model theories (Edwards et al. 2009; Warren 2017). The investment model argues that families with fewer resources are less able to invest in time, objects and activities that stimulate learning. The family stress model contends that emotional pressure associated with financial difficulties impedes providing such opportunities and negatively affects relationships within the household.

Both are plausible explanations of how relative disadvantage impacts the factors which in turn mediate child outcomes. Increasingly studies incorporate the explanatory power of both (Sosu & Schmidt 2017; Warren 2017). There have also been

Figure 10 Constituents of the home learning environment



attempts to combine these into a single explanatory model—for example by treating parenting style as an investment decision (Cobb-Clark, Salamanca & Zhu 2016). Even in these latter combinatory analyses, the additive approach fails to provide a *complete* explanation of discrepancies in childhood outcomes that are correlated with SES.

The third, role model theory is more controversial, suggesting that cultural norms may help to reproduce conditions that are conducive to impoverishment. Versions of this account are evident in discussions of the intergenerational transmission of welfare dependence. There is, however, less robust evidence for this proposition (Harkness, Gregg & Macmillan 2012).

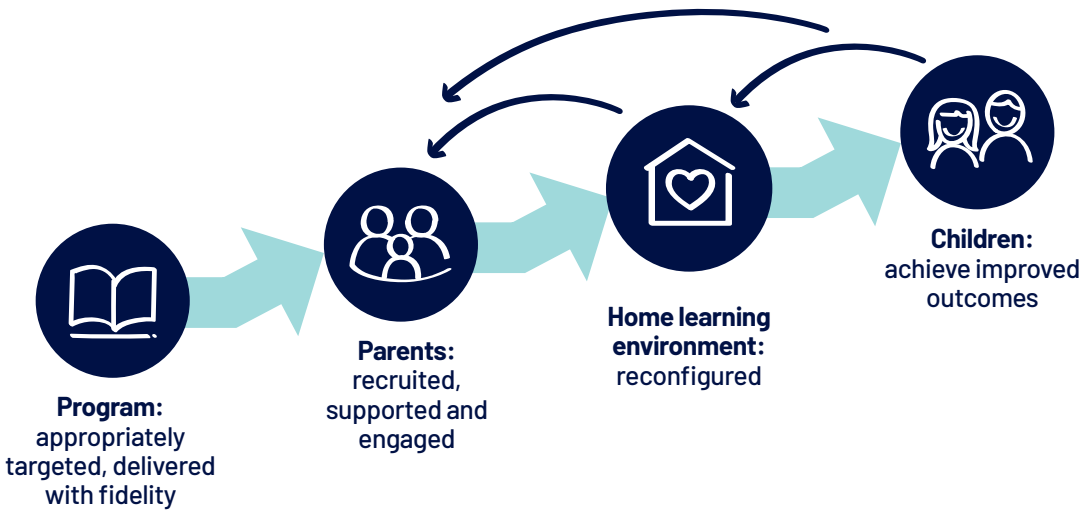
As discussed, for the purposes of policy development and program design, the discrete variables correlated with poorer child outcomes are indicative of risk factors which suggest where to target interventions. The contribution of theorising the process through which the more complex constructs influence these same outcomes is different. Rather than risk factors these may be defined as protective factors and it makes sense that policy and programs look to strengthen these. This is not to suggest that poverty reduction is not warranted, but that even in circumstances of financial hardship it is possible to make a difference to child outcomes by addressing those aspects of parenting style, family functioning and the home learning environment which can promote child development.

A modified theory of change for the parenting support and early learning components of the HIPPY model

HIPPY is a program with a clear intent, to improve child outcomes. The foregoing discussion supplies that basis for developing a theory of change that explains how the parenting support and early learning components of HIPPY influence child outcomes.

The logic of this simplified theory of change can be described as a multi-step syllogism: *if* the program is well designed and delivered with fidelity in appropriately chosen sites, *then* parents will be engaged and their self-efficacy as child's first teacher increased; *if* parents are engaged and confident, *then* they will be able to undertake the developmentally appropriate learning activities suggested by HIPPY with their children, *thereby* reconfiguring the home learning environment; *if* this occurs, *then* child outcomes, particularly school readiness, will improve. Outcomes at each stage build on each other to promote child school readiness, and there are likely to be important feedback loops, represented by the curved arrows in Figure 11.

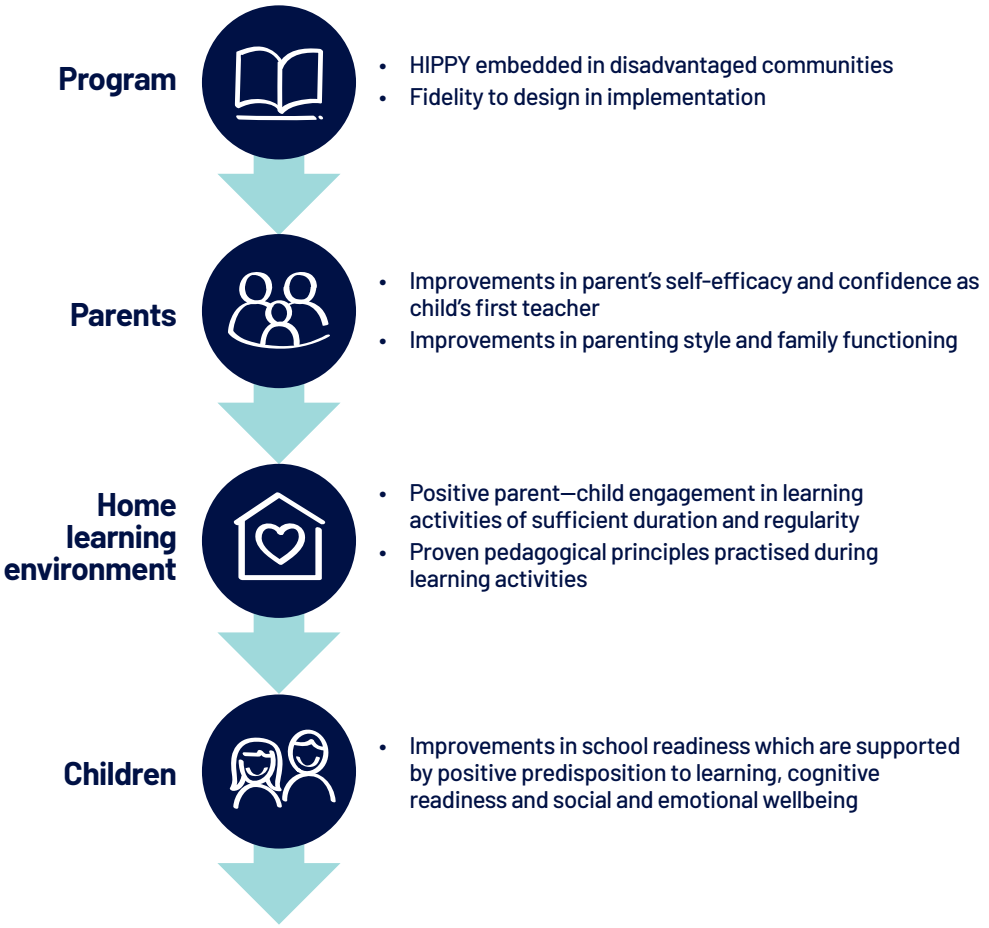
Figure 11 Theory of change for the parental support and early learning component of HIPPY



As theorised by the literature, multiple mechanisms are likely to be activated at each level in the theory of change. Bringing together the insights of Bandura and Bronfenbrenner regarding the factors that promote child development, with the family investment and stress models which explain how parenting, family function and the structure of the home learning environment can moderate the impact of financial disadvantage on children, we can further refine the theory of change to include specific outcomes at each level.

The Theory of Change developed for the HLS was informed by human development theories and empirical analyses of the factors which can modulate the impact of poverty on school readiness.

Figure 12 Mechanisms activated by program activities in Theory of Change explained



3 Research in highly disadvantaged communities: designing the HLS

Design of the HLS builds on decades of research into HIPPY

Developing the evidence base regarding program efficacy has been a central aim of HIPPY International: a recent meta-analysis discovered 60 research papers that investigated the impact of HIPPY across the globe (Goldstein 2017). International studies of HIPPY generally find positive and sustained outcomes on children's cognitive development (for example, Brown & Lee 2017; Johnson et al. 2012). Although the aforementioned meta-analysis identified some studies with more neutral results, it nonetheless concluded that HIPPY had a positive, medium-size effect across children's behaviour and cognitive skills in language and mathematics across countries (Goldstein 2017). HIPPY has been recognised by the United States Department of Human and Health Services as an evidence-based model since 2013 (Mathematica 2019).

HIPPY in Australia is no exception to this trend. Since HIPPY was introduced to Australia, BSL has undertaken a suite of research projects and evaluations to assess various aspects of the program's implementation and impact. This research program has been through three distinct phases:

- First, from 1998 to 2007, BSL formed a research partnership with the School of Psychology at Victoria University and supported qualitative assessments of program design and model fidelity, paying particular attention to implementation in a multicultural context.
- Second, and during the first wave of expansion following Australian Government funding, two evaluations led by Max Liddell (2010, 2011) examined the cost effectiveness and efficacy of HIPPY, paying close attention to emergent governance and administrative arrangements. The second evaluation, with a baseline sample of 216 parent-child dyads, also examined children's performance on Who Am I (WAI) test at program commencement and completion, finding that on average children scored 8 points below Australian norms at enrolment and the gap had been closed by the conclusion of HIPPY (Liddell et al. 2011).
- The current phase of research was jointly commissioned by DSS and HIPPY Australia following the further expansion of HIPPY in 2014. Prior to the HLS, BSL's Research and Policy Centre (RPC) undertook a recruitment and retention study (Roost et al. 2014) and an examination of the HIPPY prime-provider model (Bryant 2015 unpub.). A study of HIPPY tutors is also near completion. In this final period, the Australian Government has sponsored additional research, including the evaluation recently completed by ACIL Allen Consulting.

In addition to the improvements in cognitive outcomes noted above, Australian research into the implementation and impact of HIPPY has found the following:

- **Cost:** HIPPY is a cost-effective intervention (Liddell et al. 2011; ACIL Allen Consulting 2018).
- **Fidelity:** Although some local adaptation has been noted, general fidelity to the model has been high (Liddell et al. 2011; ACIL Allen Consulting 2018).
- **Satisfaction:** Parents consistently rate participation as highly satisfactory, with positive effects on their confidence (Gilley 2003; Liddell et al. 2011).

- **Cultural appropriateness:** HIPPY is a culturally appropriate intervention in culturally and linguistically diverse (CALD) communities (Liddell et al. 2011; ACIL Allen Consulting 2018; Gilley 2003). In 2011, and on the basis of case studies of five sites with a high proportion of Aboriginal parents and children, Liddell also concluded that HIPPY shows 'significant promise as an appropriate and acceptable program with Indigenous Australians' (p. 108).
- **Group meetings:** Poor attendance at group meetings has also been noted (Roost et al. 2014; Liddell et al. 2011).
- **Social and emotional development:** Evidence that HIPPY impacts the socio-emotional development of children has been somewhat equivocal (Liddell et al. 2011).

The HLS was designed to extend our understanding of the implementation and impact of HIPPY now that it is operating at scale in Australia. We sought to assess whether Liddell's 2011 findings regarding child's developmental outcomes would be replicated in a larger sample; and whether we could ascertain which factors contribute to any such outcomes. The RPC's distinctive approach to research and evaluation situates knowledge creation at the nexus of practice, policy and systems change. We understand that the findings of research and evaluation are only ever relevant to informing systems change if the policy problem and context have been clarified; and only relevant to practice development if the logics that underpin program design are likewise explicated. For this reason, the RPC examines program outcomes to interrogate the causal influences and the efficacy of mechanisms activated by program design. This approach to research and evaluation informed the design and methodology of the HLS, which is discussed below.

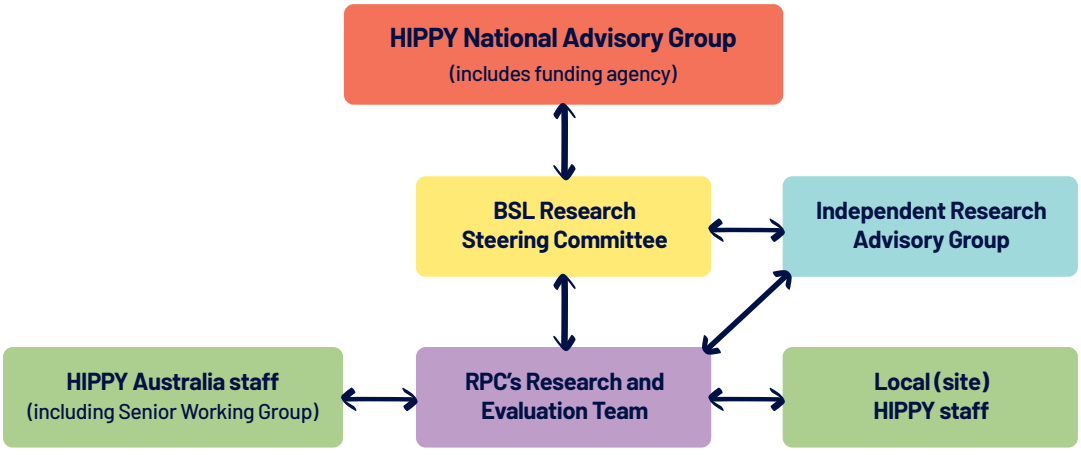
Research design

Many people have been involved in the completion of the HLS. The study was designed by Dr Eric Dommers in consultation with the Australian Research Council (ARC) Centre for Excellence for Children and Families over the Life Course. Advice was received from Professors Sharon Goldfeld, Stephen Zubrick, Janeen Baxter and Guyonne Kalb. For the first two years, the project was managed by Dr Anita Kochanoff, who supervised site selection, participant recruitment and the initial waves of data collection. The second two years of data collection were managed by Dr Tim Gilley. Professor Shelley Mallett, Director RPC, and an Independent Research Advisory Group (IRAG) provided continuity supervision and direction throughout the project. Governance arrangements for the HLS are illustrated in Figure 13 and members of the IRAG are listed in Appendix A.

Ethics

DSS approved funding for the research in 2014. Ethics approval was sought from the University of Melbourne Human Research Ethics Committee in November 2015, with the hope to commence data collection in early 2016. Approval, however, was delayed by administrative hurdles, with implications for sampling that are discussed below. The study was thereafter referred to BSL's own Human Research Ethics Committee

Figure 13 HLS governance



(HREC). Dr Janet Cohen, now Chair of BSL HREC, was recruited to address any possible conflicts of interest, prior to her appointment to that role. Provisional ethics approval was granted on 23 May 2016, with final approval granted in August. An amendment to allow future data matching with AEDC and NAPLAN sources was approved by BSL HREC in 2018. Ethics procedures to foster informed consent and ensure confidentiality and the anonymity of participants were included. Because data collection took place through face-to-face interviews, research protocols also included strategies to ensure the safety of researchers. The RPC developed a buddy system between field researchers, and the research coordinator debriefed research assistants on their return. Parents were remunerated for their participation with gift vouchers, children received gifts and HIPPY sites were paid an incentive during the first two waves of data collection.

Sample and site selection

Initially the HLS was designed to recruit 320 parent-child dyads across 30 sites. The delay in obtaining ethics approval meant that this total was not reached in the first wave of data collection and a second cohort was included the following year (2017), which resulted in a sample of 569 dyads from 45 sites. This was consistent with research objectives which included to assess HIPPY at scale. A list of sites included in the final sample is included in Appendix B, along with the timetable for data collection. The following criteria guided site selection:

- **site location:** to ensure the inclusion of both urban and regional sites in all states
- **site diversity:** to ensure the inclusion of Aboriginal and Torres Strait Islander and culturally and linguistically diverse (CALD) families
- **site maturity:** to ensure that participating sites were not in the early stage of establishment
- **site performance:** to ensure the inclusion of both high and low performing sites.

Participation in the study was voluntary. Individual HIPPY sites were consulted to assess whether they had the capacity to commit to participation over several years and some of the more recently established sites declined to participate.

The HLS was designed to acquire information about the following topics:

- **family circumstances:** including economic wellbeing, participation in formal ECEC and use of other services
- **model fidelity:** including parents' participation in and assessment of HIPPY's distinctive delivery mode and pedagogies
- **parents' expectations and satisfaction** about the impact of HIPPY on their child's development and school readiness
- **parental confidence and self-efficacy:** including parents' assessment of their relationship with their child, parenting styles and family functioning
- **the home learning environment:** both activities and resources
- **child outcomes:** cognitive and social and emotional development.

The first three research topics included traditional process evaluation questions to ensure that the program reached the targeted population group, was delivered consistent with the program logic and successfully engaged participants, meeting their hopes and expectations. The latter three topics extended the analysis to allow an assessment of not only whether there where specific outcomes for parents, the HLE and children, but also how these outcomes might interact and the factors which might predispose HIPPY success. Thus, they allowed us to explore the causal pathways along which HIPPY may operate and whether the theory of change accurately describes the impact of the program.

A single survey was designed to capture this information. The survey was administered by research assistants in face-to-face interviews, which afforded them the opportunity to explain terms with participants and respond to clarifying questions. In order to address the above research topics, the survey included demographic questions, questions designed to elicit information about parents' experience of HIPPY and a suite of validated measures, including the following scales:

- **general family functioning scale (GFFS):** adapted from the Family Environment Scale (Lanz & Maino 2014) and the McMaster Model of Family Functioning (Epstein, Bishop & Baldwin 1982)
- **parenting style:** including scales designed to examine parental warmth and hostility, consistent parenting and inductive reasoning, derived from measures used in the LSAC (see Zubrick et al. 2014 for a discussion)

- **home learning environment:** questions to assess the frequency with which parents undertook home-based learning activities with the child; the regularity with which children participated in selected out-of-home activities; as well as the availability of home learning resources that could enrich the HLE. These questions were based on the questions employed by LSAC (see Yu & Daraganova 2015 for a description).
- **child social and emotional development:** using the Strengths and Difficulties Questionnaire (Goodman 1997).
- **the Who Am I?** a pre-literacy cognitive test used to assess the processes that underlie literacy and numeracy development in children prior to starting school.

Data analysis was completed in stages:

- **Detailed demographic analysis of participants:** First, Dr Kochanoff compared sample characteristics with HIPPY administrative data, Australian trends and the Australian population of mothers with a child under 6 years to consider the relative socioeconomic disadvantage of the sample.
- **Exploration of data frequencies against demographic characteristics:** Second, Dr Gilley investigated data frequencies by variations in family structure and resources. This analysis explored whether any observed behaviours or outcomes were associated with key demographic characteristics and measures of relative poverty, including income levels and Health Care Card status, level of maternal education, ATSI identity and lack of spoken English fluency. Data analysis using SPSS software included simple cross-tabulation of variables and the use of either Chi squared statistic or One-Way Anova.
- **Factor analysis and latent growth curve modelling:** Finally, Dr Goldstein completed a factor analysis of the key scales: WAI, SDQ, family functioning and parenting style. The results isolated differences in our sample from the general population (LSAC sample), discussed in a separate technical paper. We were able to isolate questions that did not contribute to consistent scales and redefine the factors accordingly, which facilitated testing for group differences. The resulting factors with more than acceptable internal consistency were assessed longitudinally through latent growth curve models (LGC) to test our theory of change that improvement in parenting styles and family functioning over the course of HIPPY participation will impact child achievements.

Analysis of the HLS sample

The sample included 569 unique parent-child dyads from 45 HIPPY sites across all Australian states and the Australian Capital Territory[1]. These were recruited in two cohorts. The first commenced HIPPY in 2016 and the second in 2017. The following analysis refers to the combined cohort, since the 2016 and 2017 samples were sufficiently similar to allow aggregation. We analysed the HLS sample to assess whether it was representative of the broader HIPPY population, and whether it could be classified as disadvantaged by comparison with Australian norms. The comparisons used HIPPY administrative data and data from either the 2015 Household Income and Labour Dynamics Australia (HILDA) survey (Wilkins 2016) or the Australian Bureau of Statistics (ABS 2008). Analysis confirms both that the sample shares similar characteristics with HIPPY participants more broadly and that the sample experiences more disadvantage than most Australians. Unless specified the following analysis is based on baseline data.

Sample loss

The study sample at Wave 1, which provided baseline data, represented almost 10% of the total HIPPY enrolments in Australia. There was some sample loss across the next two waves of data collection. Wave 3 included 441 parent-child dyads. However, the proportional decrease in HLS participants is similar to that of families who exit the program over the two years (see Table 1). Fieldwork staff identified very few families who withdrew from the research but not the program.

Table 1 HLS sample

Wave of data collection	Sample size	HIPPY Australia enrolments No.	Sample as percentage of HIPPY enrolments
Wave 1–2	569	5752	9.9%
Wave 3 (Complete two years of program)	441	3509	12.5%

1 HIPPY sites in the Northern Territory were unable commit to the study

There were 128 parent-child dyads that participated in the first two waves of data collection but did not complete the second year of the program. A closer examination of the characteristics of families who left the program found that withdrawal by Aboriginal and Torres Strait Islander families was statistically significant. While income level does not appear to be an explanatory factor, the completion of lower levels of formal education, up to a trade qualification, was also statistically significant. Despite the loss, sample size at Wave 3 remains sufficient to generate findings that are generalisable to other participants in HIPPY Australia. Moreover, analysis indicates that improvements in average performance on WAI are not explained by sample loss.

Sample characteristics and diversity

Parent characteristics

Of the adults participating in the study, 96% were mothers. Gender aside, the sample was quite diverse on multiple measures. As discussed in the previous chapter, certain maternal sociodemographic characteristics are found to be predictive of poorer child outcomes when combined with income poverty. HLS sample participants were younger than most mothers in Australia and were more likely to be single parents. Although over half had completed a post-secondary qualification, fewer had obtained a university degree than the Australian average for women with a child under 6 years of age. The sample included a greater portion of Aboriginal and Torres Strait Islander and CALD families than in the broader Australian population.

- **Age range:** Three-quarters of the sample were aged between 21 and 35 years, with the largest group (30%) between 26 and 30 years. The average age was 28 years. If we assume that the participating child was born in 2012, the average age of mothers would have been 24 years. In that year, 2012, the average age of women giving birth in Australia was 30.1 years (Hilder et al. 2014, p. 9). A recent Australian study found that child developmental vulnerability decreased with maternal age from 15 to 30 years, with the children of younger mothers at greater risk of vulnerability. Socioeconomic disadvantage explained approximately half the risk associated with younger motherhood (Falster et al. 2018).
- **Relationship status:** Just over a fifth of the sample (22%) were lone parents. This was twice the proportion of single-parent households in Australia. It is estimated that a third of Australia's single parented families live in poverty (Davidson et al. 2018, p. 43).
- **Household size:** Most participants had more than one child, with 40.7% living in a four-person household.
- **Maternal education:** Of the sample, 56.7% had a post-secondary qualification (34.1% had completed a diploma, certificate or trade qualification and 22.6% a degree). These figures are similar for HIPPY nationwide: 53.5% of HIPPY parents had a post-secondary qualification. Of Australian women with a child under 6 years, however, 67.9% have a post-secondary qualification, including a much higher 38.7% with a university degree.
- **Aboriginal and Torres Strait Islander:** Of participating families, 16% included a parent or child that identified as Aboriginal and/or Torres Strait Islander. According to administrative data, 29.3% of HIPPY children overall were from an Indigenous background. The discrepancy reflects that fact that the sample did not include the newest 25 sites, including those in the Northern Territory. Nonetheless, this is more than three times the proportion of ATSI children in the Australian population under 6 years.
- **Culturally and linguistically diverse (CALD):** Of participating parents, 40.3% were born overseas, compared with 33% of HIPPY parents and 31.7% of mothers in Australia in 2016. A total of 58 languages other than English were spoken to children at home as the main language, involving almost a quarter of the sample (160 children). Indo-Iranian languages were the largest grouping (6.8%), followed by Vietnamese (3%) and Chinese (2.8%). About 12% of participating parents indicated that they were not very fluent in English or did not speak English.

Economic wellbeing

From 2009, the Australian Government has used criteria pertaining to socioeconomic disadvantage to select the sites where HIPPY is to be offered. The first 50 sites were selected based on data obtained via the Socio-Economic Index for Areas (SEIFA) 2006 scale, census information and the 2009 Australian Early Development Index (AEDI) results. The key selection criterion for the second 50 sites was that the catchment area included at least 100 ATSI children aged under 4 years. Both the recruitment and retention of disadvantaged families has been a continuing focus of Australian research into HIPPY (Roost et al. 2014). Recently HIPPY Australia has introduced

priority access criteria to help sites identify and recruit families likely to benefit from participation. These were not available when the HLS sample was constructed. Nonetheless, the HLS survey contained multiple questions which allowed us to assess economic wellbeing. The data suggest a highly disadvantaged cohort with high levels of dependence on government transfers and assistance, and low levels of maternal employment.

- **Source of income:** The rate of dependence on government benefits as the primary source of income among HLS participants was 2.5 times higher than among families in the Australian population: 36.5% of the HLS sample reported that they relied on a government benefit, pension or allowance, which was more than twice the 14.4% of Australian households with a child under 6 years reliant on government income support (Wilkins 2016). Households reliant on social security payments are five times more likely to live in poverty (Davidson et al. 2018, p. 46).
- **Maternal employment:** At program commencement 68% of those who responded indicated that they were not employed, which is similar to HIPPY participants more broadly (61.6%), but more than 20 points higher than the figure (44.9%) for females over 15 years with at least one child under 6 years (Wilkins 2016).
- **Poverty:** We calculated the proportion of families in the sample who were living on an annual income below $61,740 in June 2016, which was equivalent to 120% of the Henderson Poverty Line (HPL) for a couple with two children[2]. For the first two waves of data collection, almost two-thirds of the participants lived below 120% of the relevant HPL; this reduced to 56.4% at Wave 3, which reflects a slight change in the composition of the sample. The remaining families reported income up to $82,320 per annum, which was still less than the annual equivalent of full-time adult average weekly earnings in November 2016. Depending on the measure used, between 17% and 25% of Australian children live in poverty (Davidson et al. 2018). This means that the level of child poverty in the HLS sample is between two and three times greater than the Australian average.
- **Financial distress:** Of the participating parents, 38.3% reported that they had experienced one or more types of financial difficulties in the six months preceding the survey. This included nearly a quarter who could not pay utility bills, which is 10 points higher than indicated by the more representative national HILDA survey sample (Wilkins 2016).
- Health Care Card status: Across all three waves of data collection, just over half of the sample held a Health Care Card, over 85% of recipients eligible on low-income grounds.

Child characteristics

Parents were asked to rate their child's health, to identify any developmental concerns and service use, and to indicate whether the participating child attended formal ECEC programs, including kindergarten, and/or the preparatory year of school. Parents also completed the Strengths and Difficulties Questionnaire (SDQ) to assess the child's social and emotional development. Together this data provides a snapshot of the wellbeing of the children in the sample. While there is no indication that the physical wellbeing of HIPPY children is an issue, the SDQ indicates above-average difficulties with emotional symptoms, conduct problems and peer relationships. A recent analysis of LSAC data found that neighbourhood disadvantage and lower income levels were associated with higher SDQ scores at age 4 (Christensen et al. 2017, p. 10)[3].

- **Gender:** Of the children in the HLS sample, 51.4% were female.
- **Child's physical health:** Most—and an increasing percentage of—parents rated their child's health as excellent (62.1% at program commencement and 82.9% at the conclusion), with a corresponding decrease in those who indicated this was poor or fair (down to 2.4% at Wave 3). Similarly, the percentage of parents who indicated a lot of concern about their child's behaviour or development decreased from 9% at baseline to 6.7% at Wave 3. Over the same period, however, parents' use of behavioural and mental health services increased from 5.8% to 9.2%.
- **Enrolment in ECEC:** At baseline 93% of children participated in some form of ECEC, including 26.9% of children who attended a playgroup. Attendance varied, with parents reporting between 2 and 10

2 HPL figures based on quarterly publication of the Melbourne Institute of Economic and Social Research https://melbourneinstitute.unimelb.edu.au/publications/poverty-lines

3 Other factors including maternal mental health and child gender—on average boys had higher scores—also contributed to the observed differences in SDQ scores in this study.

days a fortnight. In the second year nearly 80% of children had commenced the preparatory year of school, with the remainder in kindergarten.

- **Social and emotional difficulties:** At baseline, three times as many HIPPY children in the sample had abnormal levels of social and emotional difficulties as in a nationally representative sample of children (Tayler 2016).

Strengths and limitations of design, methodology and sample

Although it is contested, in evaluation research there is a strong preference for using experimental designs that feature both control or comparator groups, and treatment groups, with allocation to each randomised. The inclusion of control or comparator groups that are not directly involved in the program or intervention allows the observation of a counterfactual: whether change occurs regardless of whether the intervention takes place. Assuming that the participants in each grouping are alike on other salient features, noted differences can be attributed to the specific program or intervention under analysis. Randomising participation into each group means that such findings are not confounded by other unobserved variables. Based on advice from IRAG and consultation with HIPPY Australia, it was determined that a research design of this sort would not be feasible and could compromise the reputation of HIPPY providers and their recruitment procedures if children were asked to participate in the study but not receive access to the full HIPPY program.

Nonetheless, and to construct a counterfactual—that HIPPY has no impact on child outcomes—we have used extant, consistent research findings that, in the absence of intervention, children from lower socioeconomic backgrounds are less school-ready at 5 years of age. To develop further hypotheses for testing, we also drew on the extensive literature that indicates that depressed performance on academic tests as well as assessments of socio-emotional development in pre-school aged children are mediated and moderated not only by poverty, but by family functioning, parenting style and the HLE. In other words, the extant literature somewhat substitutes for the inclusion of a comparator group of socioeconomically disadvantaged children who were not exposed to the program within the time period of the HLS. For this reason, we are confident that any observations regarding improvements in the cognitive development of participating children can be partially attributed to HIPPY.

Instead of randomisation, we employed the statistical techniques described above to undertake a within-sample analysis of the data generated to explore the impact of HIPPY on participants over time—to examine the causal pathways which can account for observed effects—and triangulate this with self-reports of parents regarding their child's school readiness. Nonetheless, and because HIPPY is a voluntary program, we cannot account for the influence of parental motivation. We can assume that HIPPY parents who complete two years of the program are reasonably motivated to invest time and effort into increasing their child's school readiness. We cannot draw conclusions about the impact of HIPPY on a less motivated cohort.

Because the main part of the data relies on parents' self-reports and assessments there is some possibility of social acceptability biases, particularly about the wellbeing of children which may be considered by parents to reflect on their parenting capacity. Participating parents are likely to be motivated to improve their child's outcomes which could also lead them to overestimate their efficacy. Nonetheless, there are some indications in the data that this is not the case—the high level of developmental vulnerabilities noted by parents, for example. Even if there is some bias, parents are best situated to observe their children's development over time. As program participants, they are uniquely positioned to assess program implementation and its impact upon themselves. In program evaluation, participant voice is also ethically important.

Although the sample is reasonably representative of HIPPY participants, it is not clear that the findings apply to sites in the Northern Territory, which were not included in the sample. We need to treat the findings about the impact on Aboriginal and Torres Strait Islander children and families with care. Findings for this cohort are likely to be indicative and further analysis of the impact of HIPPY in Indigenous communities is warranted. Despite these limitations, we are confident that the sample is robust and large enough to generate findings of relevance to HIPPY Australia more broadly.

4 How HIPPY works: HLS findings

HIPPY works

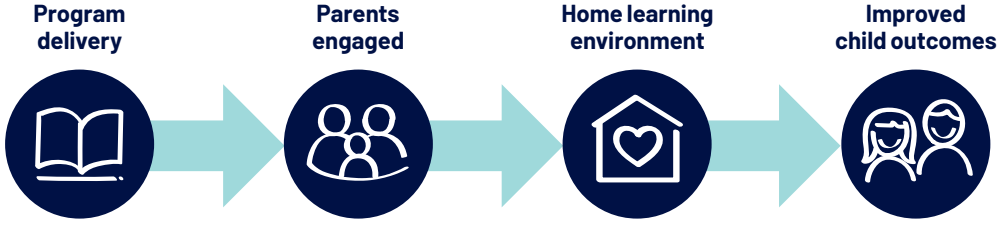
The HLS confirms that children who participate in HIPPY achieve improved scores on the Who Am I? test at the conclusion of the first and second year of the program. In part this is to be expected: children mature, and the majority have also completed the preparatory year of school by the completion of HIPPY. Nonetheless, the test scores reveal that on average HIPPY children perform below the Australian mean close to commencement of HIPPY and exceed it by program's end. What we observe is not a linear improvement, but a changed trajectory.

As was established in the last chapter, the sample of HIPPY children in the HLS are almost three times more likely to live in poverty than the average Australian child. And an extensive evidence base suggests that children from families that experience socioeconomic deprivation are consistently less school-ready on a range of criteria, both cognitive and socio-emotional. For these reasons, the HLS suggests that participation in HIPPY narrows the noted achievement gap, which evidence also suggests would otherwise persist during the school transition.

This finding is not entirely surprising; it is consistent with both the analysis of smaller studies of HIPPY in Australia (see Liddell et al. 2011) and the international research into HIPPY (Goldstein 2017). But now that HIPPY is operating at scale in Australia, replication is important. The extensive data captured by the HLS facilitates additional analysis, namely of how HIPPY performs at each stage in the modified theory of change, reproduced below in adapted form.

The following analysis first reviews the evidence pertaining to each step, to ascertain whether intermediate outcomes are achieved at each hypothesised stage. This analysis comprises mostly descriptive data, except for the analysis of parenting styles, and is largely based on parents' assessment of their experience of HIPPY. This is then supplemented by further interrogation of the children's WAI scores, to assess whether the factors identified in the literature review—parenting style, family functioning and the structure of the home learning environment—influence the scores. Finally, we examine the outcomes for Aboriginal and Torres Strait Islander families and children that differ from those of their non-Indigenous peers. This three-pronged approach provides a basis for examining the causal pathways through which HIPPY achieves its effect on children's cognitive development.

Figure 14 Summary of theory of change for the integrated parenting and early learning components of the HIPPY model



Findings against the modified theory of change

Program delivery

The first step in the theory of change suggests that HIPPY will be efficacious if program delivery is well targeted to disadvantaged families and is faithful to design principles. Recall that the literature review provided a firm theoretical foundation for key elements of program design and the sample analysis indicates that HIPPY is delivered to families experiencing high levels of socioeconomic disadvantage.

Table 2 Program delivery findings

Step in theory of change	Summary of key findings
Program delivery	HIPPY delivery is consistent with program design, although low levels of participation in group meetings indicate that only a minority of parents receive a full HIPPY dose: • Close to 80% of parents were comfortable or very comfortable with home tutors and approximately the same number were comfortable or very comfortable with role-play. • Across the two years of data collection, less than 5% found participating in HIPPY either hard or very hard. • Attendance at group meetings was variable and declined in the second year, with less than half of parents attending regularly. For nearly 50% of parents who did not attend, time pressures were the nominated explanation.

Home visiting

Most parents were very comfortable with home visiting and developed a consistent relationship with a single home tutor (Figure 15 and Figure 16). It is likely that such a relationship increases comfort with home visiting. A small group of parents did not receive home visits, but met with tutors in a variety of locations—cafes, libraries, workplaces—which appeared to be convenient locations for them. This is an indication of flexibility in program delivery. These figures are important given the centrality of home visiting to the structure of HIPPY.

Figure 15 Level of comfort with home visiting

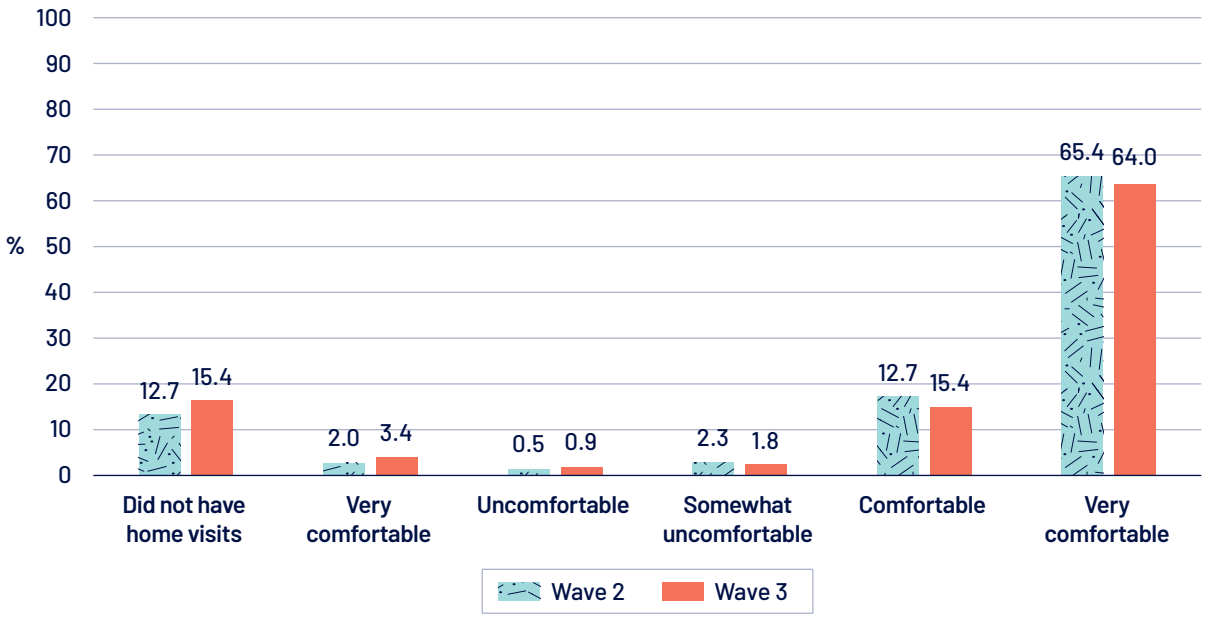
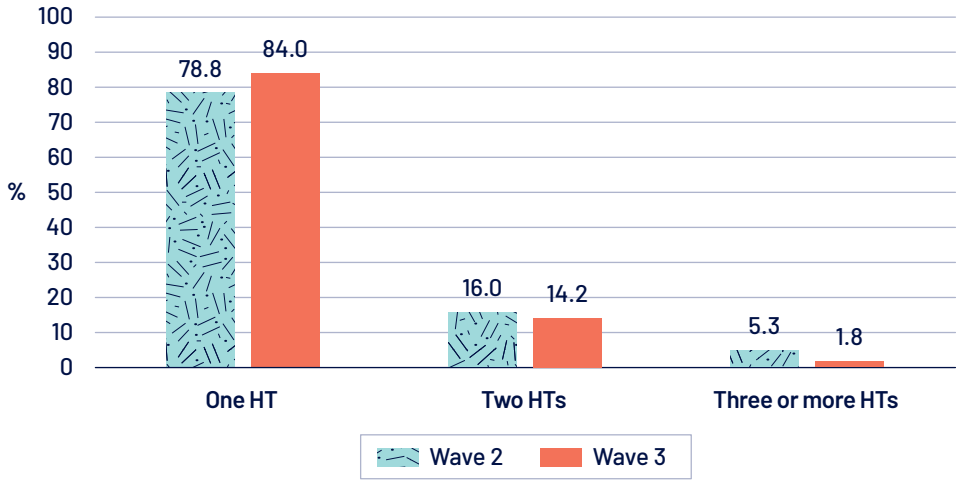


Figure 16 Number of home tutors that visited each family, by %



Role-play

During home visits, the peer tutor role-plays learning activities with the participating parent to prepare them for undertaking the same activities with their child. Nearly 7 out of 10 parents reported that they regularly (often or almost always) engaged in role-play with home tutors, which suggests again that adaptations were made for some parents (Figure 17). The minority who did not engage in role-play with tutors did not share any specific characteristics as measured by the HLS. Of those parents who did, fewer than 10% were uncomfortable with the practice and almost 80% were comfortable or very comfortable (Figure 18), which confirms that role-play is an engaging and accessible technique for the vast majority of HIPPY parents.

Figure 17 Frequency of role-play during home visits

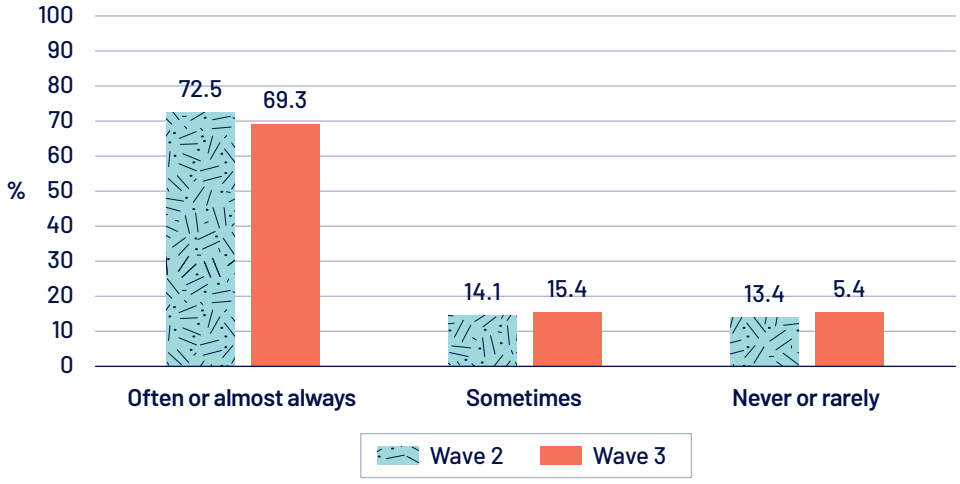
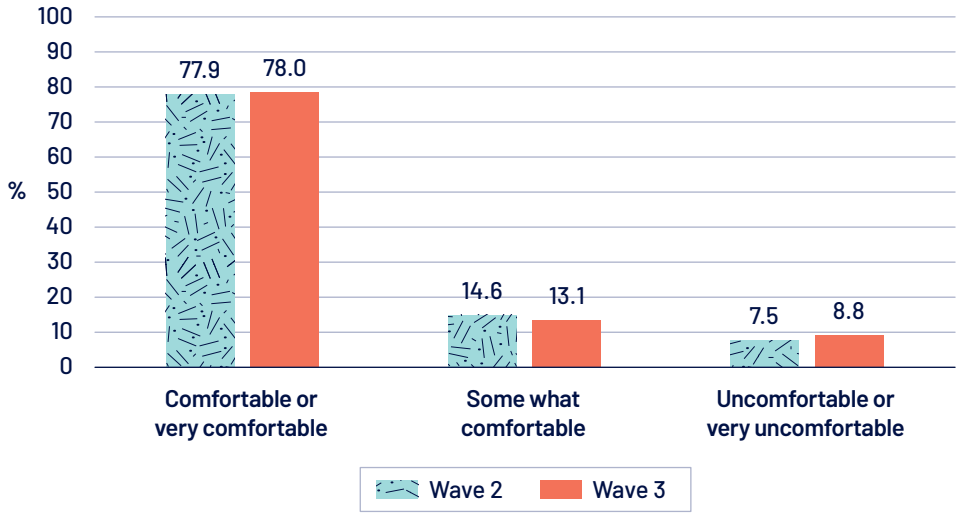
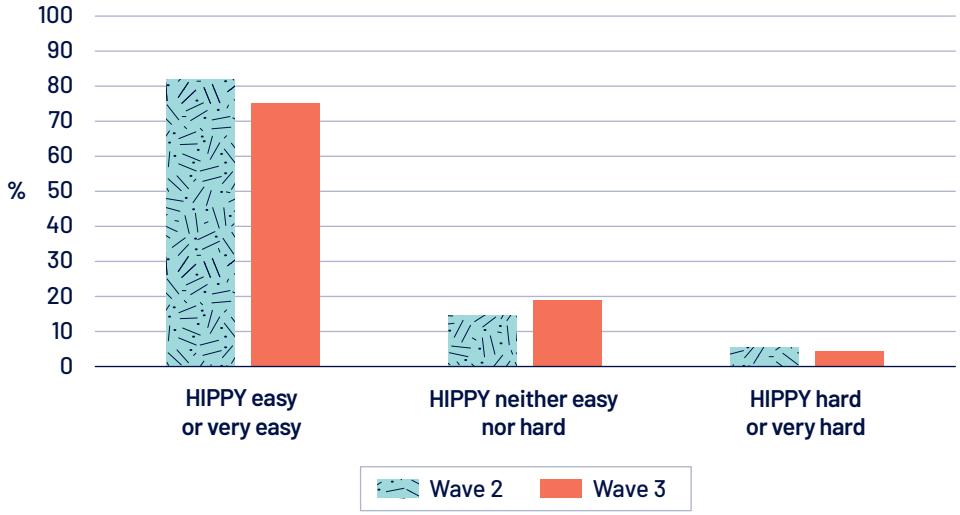


Figure 18 Degree of comfort with role-play



Most HIPPY parents found HIPPY easy or very easy (Figure 19). Those who found HIPPY difficult were more likely to have lower educational attainment (up to a post-secondary trade certificate) or identify as Aboriginal and Torres Strait Islander.

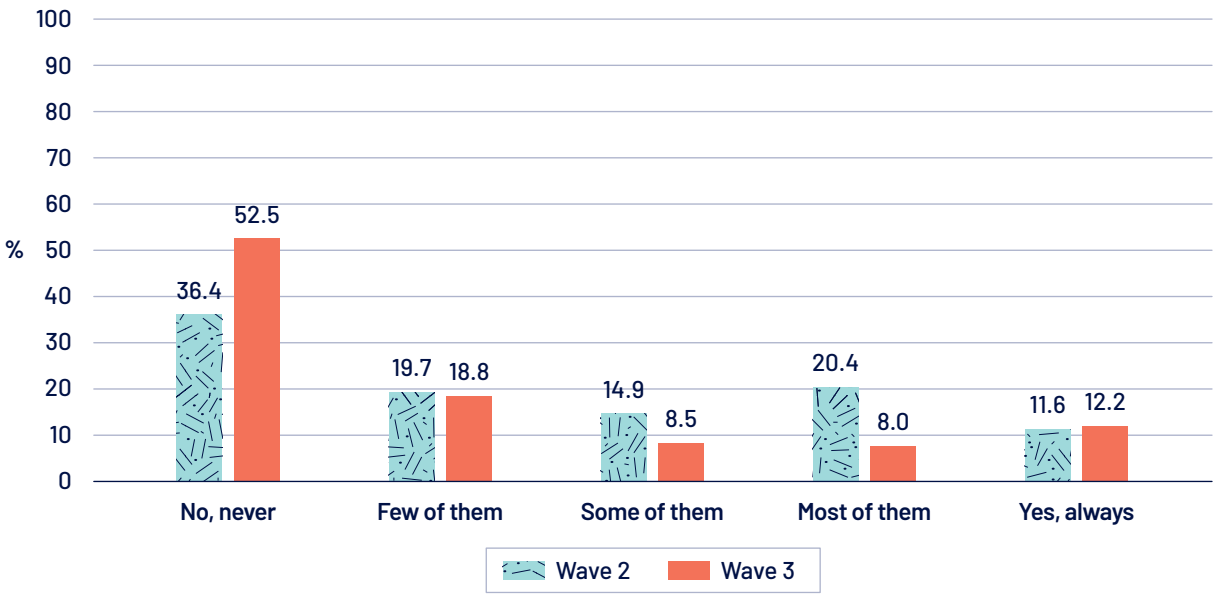
Figure 19 Parents' assessment of the difficulty of HIPPY activities



Group meetings

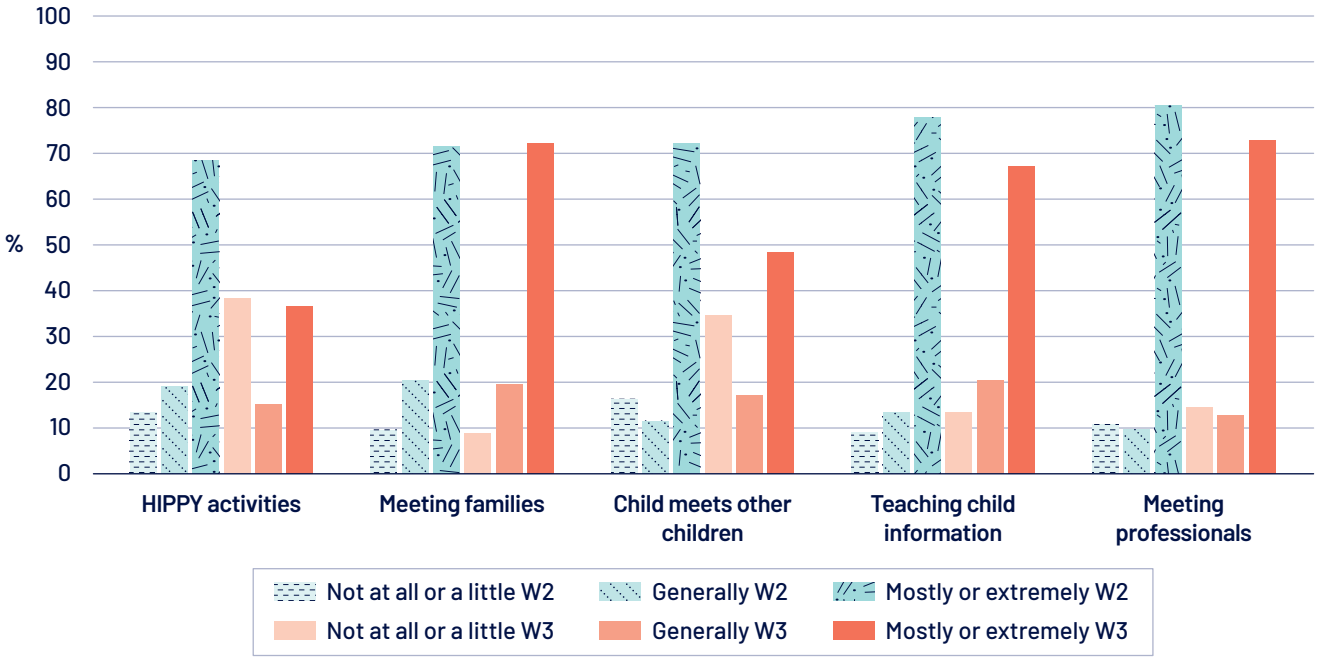
Attendance at group meetings was low, with only a minority attending regularly. In the first year of the program, over 60% attended at least one group meeting, but in the second year less than half did so (Figure 20). Those with low levels of English fluency were more likely to attend group meetings; however, mothers from an Aboriginal and Torres Strait Islander background were less likely to attend, as were lone parents.

Figure 20 Attendance at group meetings



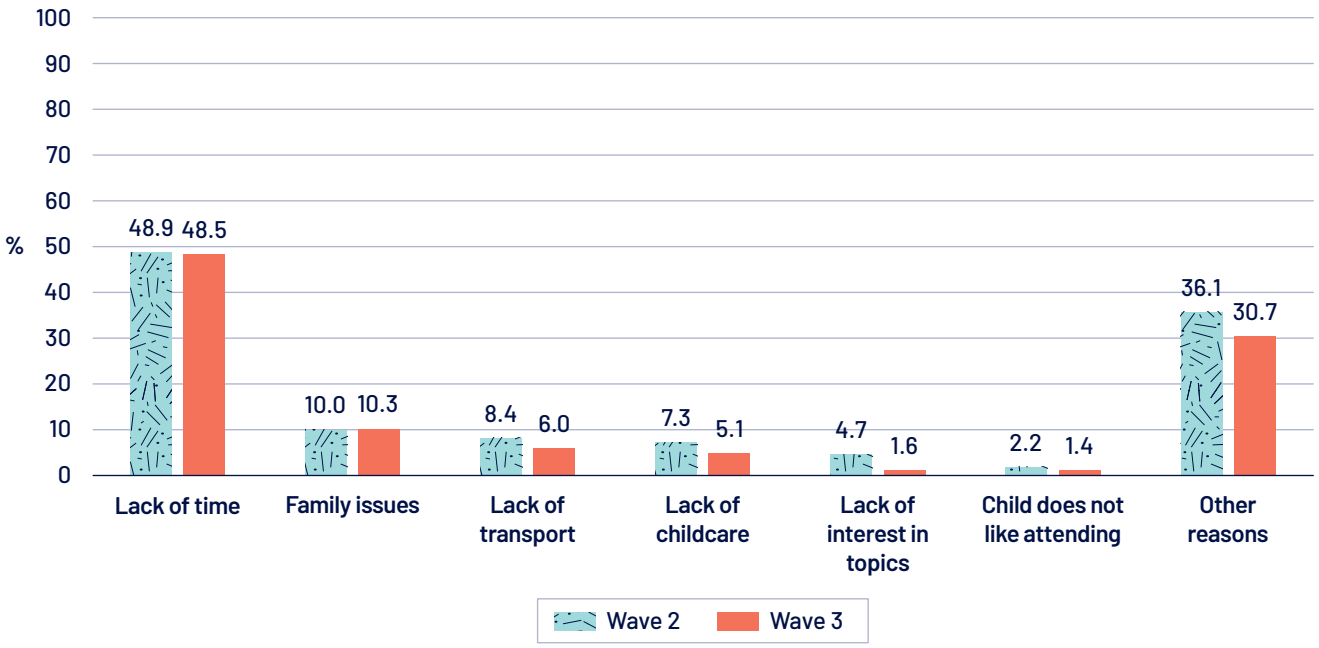
Those who did attend rated various aspects of these meetings highly (Figure 21), although this does not seem to be a sufficiently motivating factor to improve attendance. The largest difference in these meeting ratings between the two years of the program, remembering that fewer families participated in the second year, is that the proportion who mostly or extremely enjoyed learning about how to do HIPPY activities at group meetings almost halved from 68% to 36%. Anecdotal evidence from the research assistants who undertook fieldwork indicates considerable variability in approach to group meetings between sites, including topics covered.

Figure 21 Parents' enjoyment of different aspects of group meetings



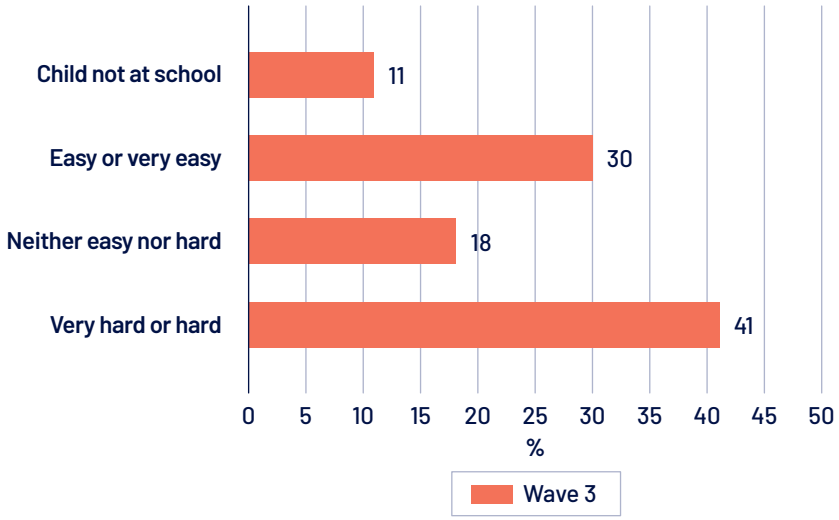
Parents were also asked why they did not attend group meetings. The most commonly selected reason was lack of time (Figure 22). This could explain why lone parents, who we can reasonably expect face additional time pressures, were less likely to attend. However, over a third chose 'other reasons'. Given that Aboriginal families and parents were less likely to attend, it is possible that these unspecified reasons pertain to cultural accessibility—a reason of this sort was not an option on the survey. But this interpretation needs to be balanced with the fact that families with low levels of English fluency were *more* likely to attend.

Figure 22 Reasons for not attending group meetings



The importance of time constraints for families, when children start school, was further assessed in Wave 3, with 41% of parents indicating that it was either hard or very hard to balance HIPPY with school and other extracurricular activities (Figure 23). This helps explain why nearly half of the parents indicated that attendance at group meetings was difficult in the second year. But it does not advance our understanding of the time pressures that operate in the first year of the program.

Figure 23 Challenges of balancing HIPPY with school and other extracurricular activities in the second year



Parental engagement

The HLS included a series of nuanced questions to gauge parents' satisfaction with reference to their assessment of the impact of HIPPY on themselves and their children, and their aspirations for participating in the program. According to the theory of change, whether parents are engaged by HIPPY should be reflected in improvements in parents' self-efficacy and confidence as their child's first teacher, and improvements in parenting style and family functioning.

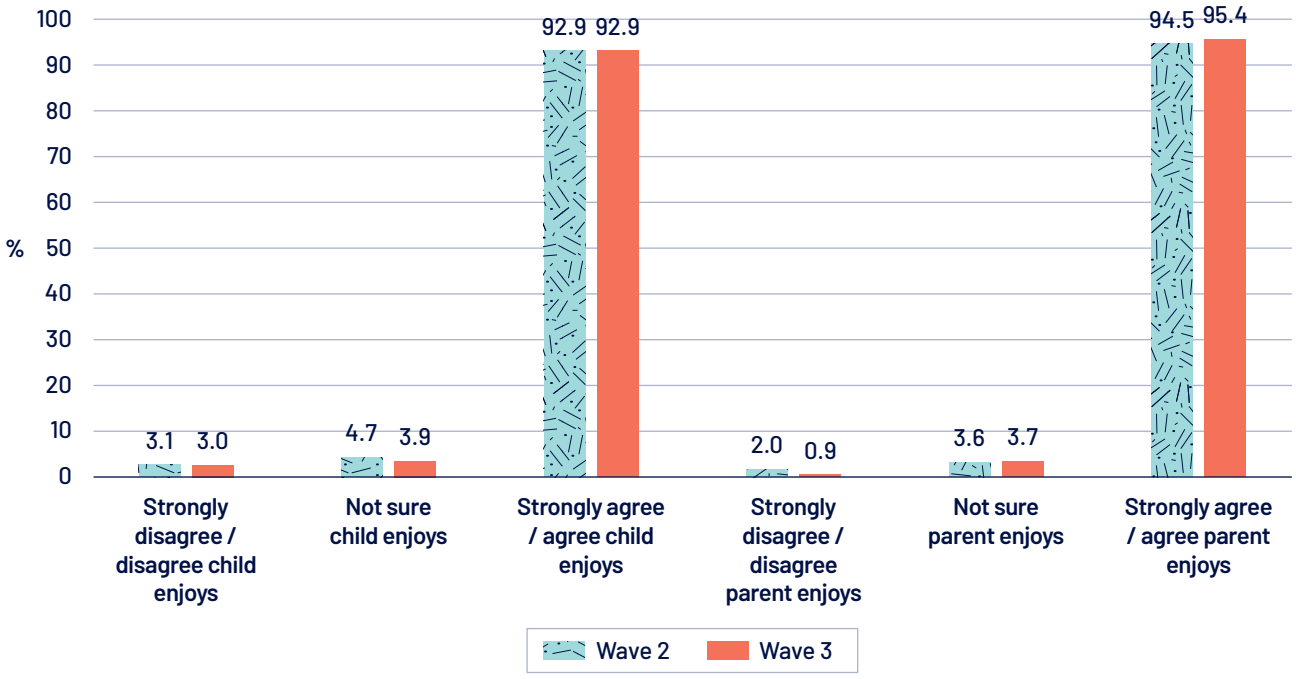
Table 3 Parental engagement findings

Step in theory of change	Summary of key findings
Parents recruited, supported and engaged	HIPPY builds parental confidence and capacity, and consistently exceeds parents' expectations: • At the conclusion of each program year, over 90% of parents agreed or strongly agreed that their children enjoyed HIPPY and approximately 95% agreed or strongly agreed that they enjoyed HIPPY. • The percentage of parents indicating confidence with their parenting and associated activities increased during the intervention. • Most parents reported that HIPPY helped them spend more quality time with their child and learn how to become their child's first teacher. • Nonetheless, for some parents the transition to school coincided with a reduced sense of personal efficacy and enjoyment in the parenting role. • Participation in HIPPY had a significant and positive impact on parental warmth and this is associated with increasing use of inductive reasoning with their children.

Parental satisfaction with participation and impact

Parents reported high levels of satisfaction with HIPPY. At the conclusion of each year, over 90% of parents indicated that they had enjoyed undertaking HIPPY activities. They believed that their children had also, which suggests that undertaking HIPPY activities occasioned opportunities for pleasurably engaging around learning.

Figure 24 Parents' assessment of whether they and their children enjoyed HIPPY

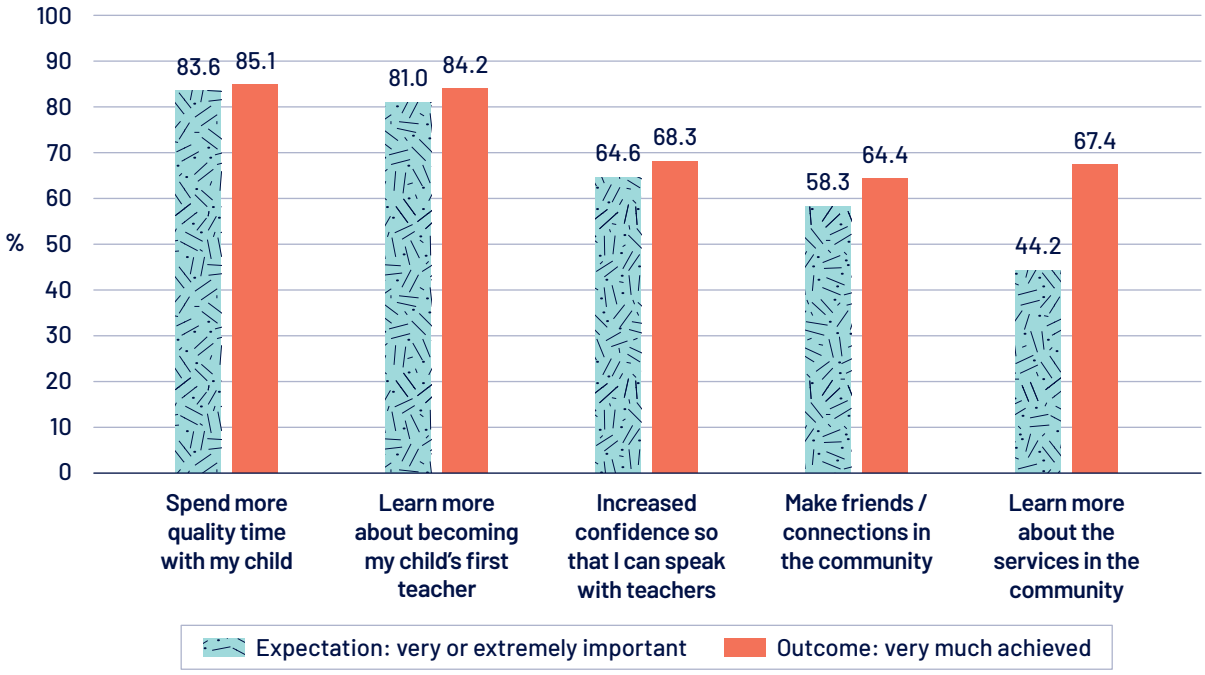


Parents also rated HIPPY's performance highly against their expectations. Close to commencement of the program parents were asked to nominate the outcomes they wanted to achieve. The two mostly highly rated were:

- to spend more quality time with my child
- to learn more about becoming my child's first teacher.

Over 80% of parents agreed that they had very much achieved these outcomes. Outcomes rated as less important by parents at Wave 1 included making friends and connections in the community and learning more about services in the community. Nonetheless close to half rated each as very or extremely important, and more than half considered that these were very much achieved by the conclusion of the program.

Figure 25 Parental expectations of HIPPY measured at Wave 1 and their assessment of whether these were met at the conclusion of the program

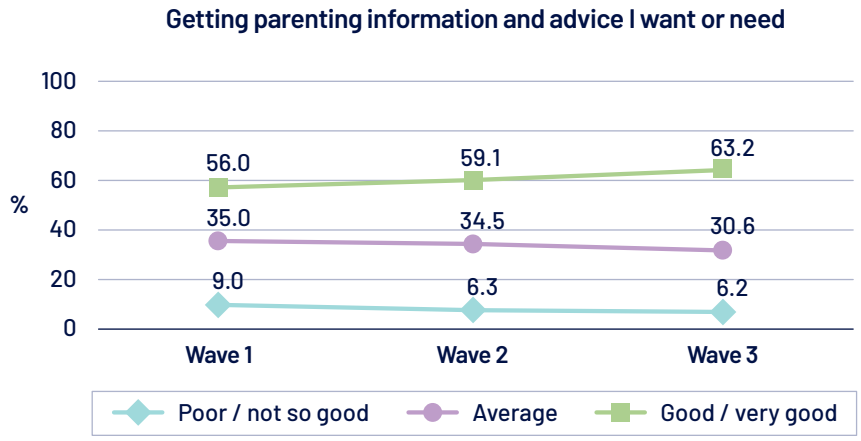


Parental confidence and self-efficacy

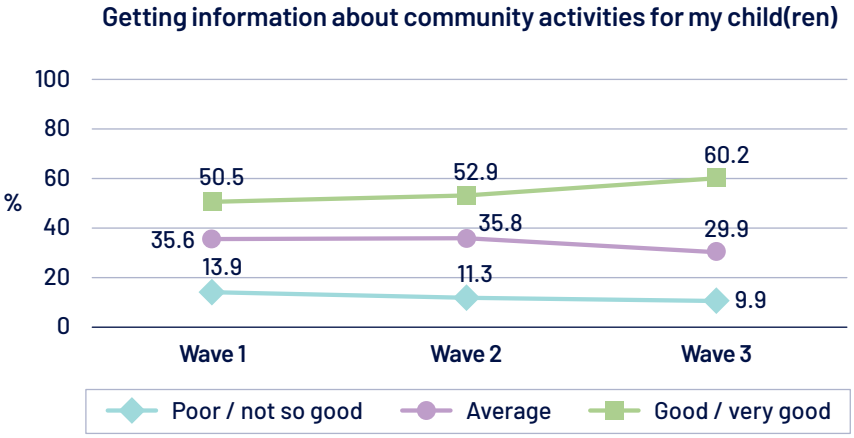
Figure 26 (a to c) illustrates that in response to questions designed to assess parental self-efficacy, between 5% and 10% indicated that their confidence to obtain information increased. This corresponded with a decline of about 3 points in the percentage of parents who believed themselves poor at undertaking such activities. It should be noted that more than half of the parents had assessed themselves as competent on each of these activities at the outset of the program.

Figure 26 Parents' confidence about obtaining information

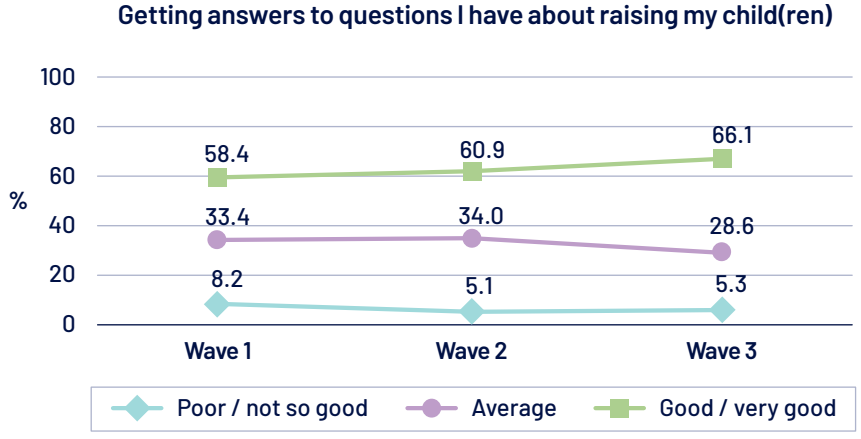
26a



26b



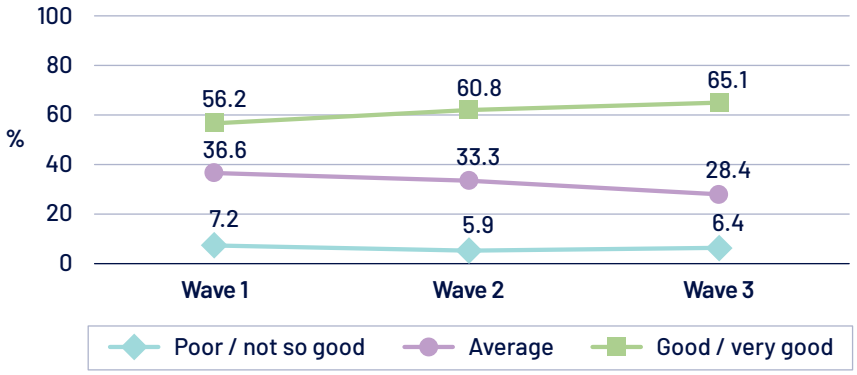
26c



Importantly, most parents believed that they could provide children with activities that help their children learn, and this belief increased across the length of the program (Figure 27). Again, almost half of the parents surveyed believed that they were capable in this regard when surveyed shortly after they commenced HIPPY, which could reflect that they believed that enrolling in the program was itself indicative of their commitment to supporting their child's learning. Nonetheless, the percentage of parents indicating lower levels of confidence increased, marginally, in the second year, after an initial decline. Given the very high levels of satisfaction with HIPPY, and

the centrality of this function to program design, we could have expected this response to be improved. Further context for this answer is provided in the discussion below.

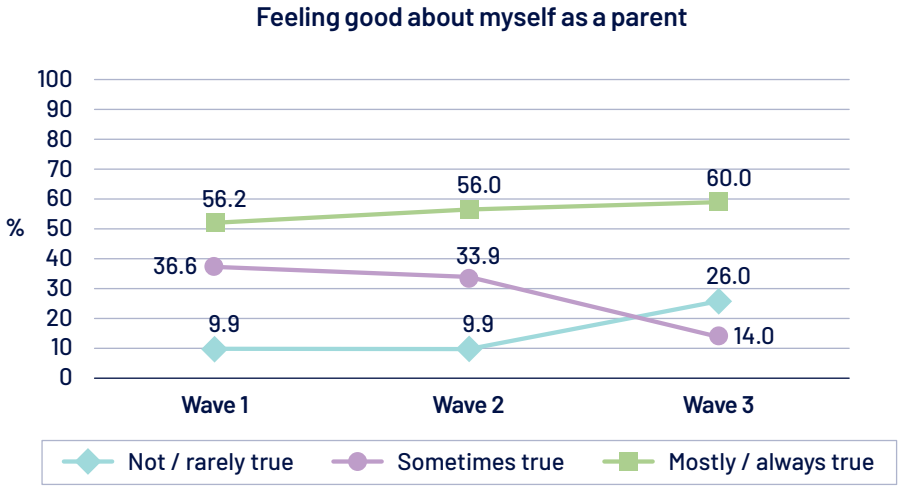
Figure 27 Parents' confidence about providing activities that help children learn



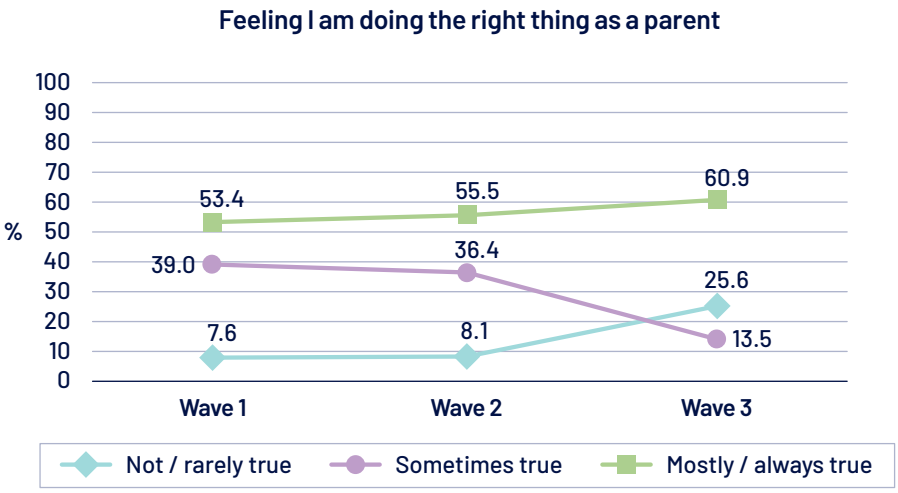
The HLS found that there was a group of parents whose self-efficacy declined in the second year, when 80% children are enrolled in the preparatory year of school. Parents were asked how they felt about their parenting, and their relationship with their child (see Figures 28a to 28e). The percentage who responded positively to these statements indicated a positive affect increased over the program. Nonetheless, there was also a considerable jump in the percentage of parents who indicated that they rarely or never felt confident in their capacity to parent or derived enjoyment from this role. Indeed, the proportion of parents who indicated they rarely felt this kind of pleasure jumped from around 2% to almost a quarter.

Figure 28 Parents' feelings of self-efficacy and enjoyment

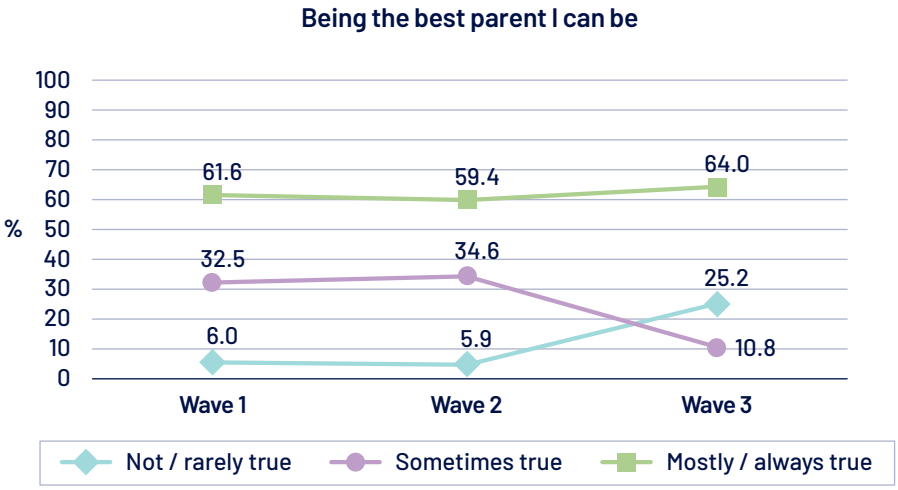
28a



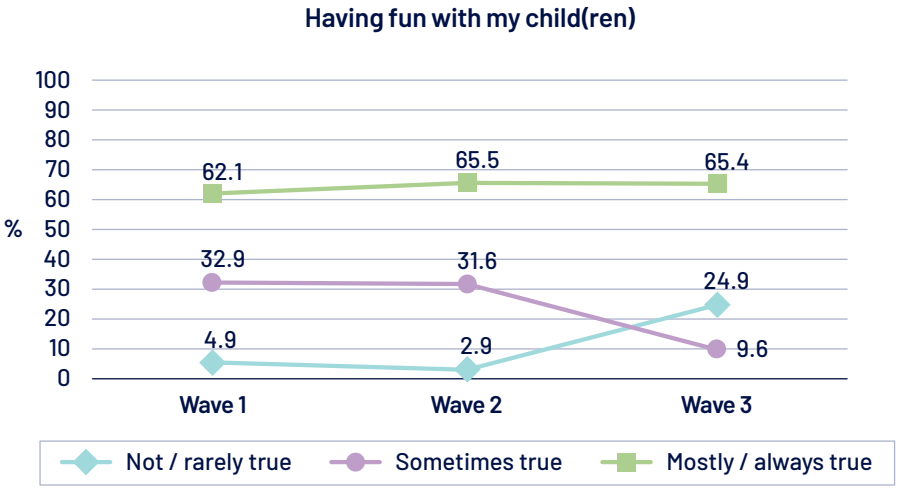
28b


Feeling I am doing the right thing as a parent
100
90
80
70
60
50
40
30
20
10
0
%
53.4
55.5
60.9
39.0
36.4
25.6
7.6
8.1
13.5
Wave 1
Wave 2
Wave 3
Not / rarely true
Sometimes true
Mostly / always true

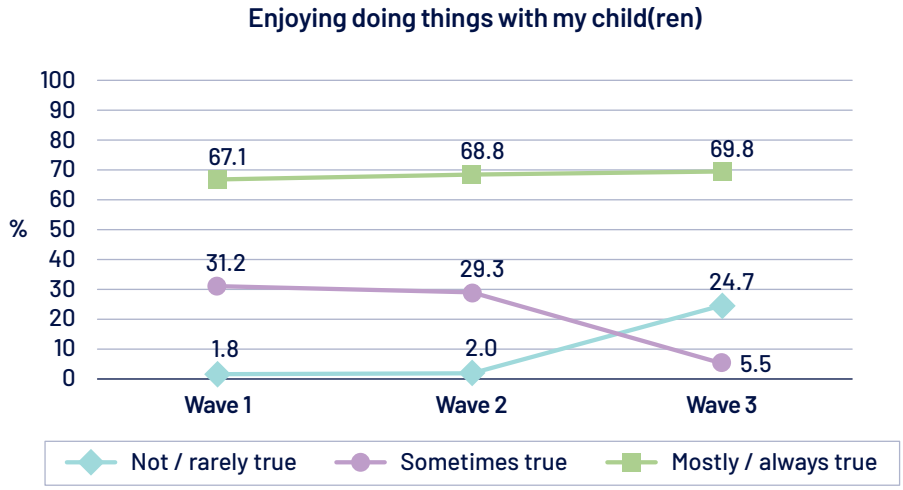
28c


Being the best parent I can be
100
90
80
70
60
50
40
30
20
10
0
%
61.6
59.4
64.0
32.5
34.6
25.2
6.0
5.9
10.8
Wave 1
Wave 2
Wave 3
Not / rarely true
Sometimes true
Mostly / always true

28d


Having fun with my child(ren)
100
90
80
70
60
50
40
30
20
10
0
%
62.1
65.5
65.4
32.9
31.6
24.9
4.9
2.9
9.6
Wave 1
Wave 2
Wave 3
Not / rarely true
Sometimes true
Mostly / always true

28e



Parenting style

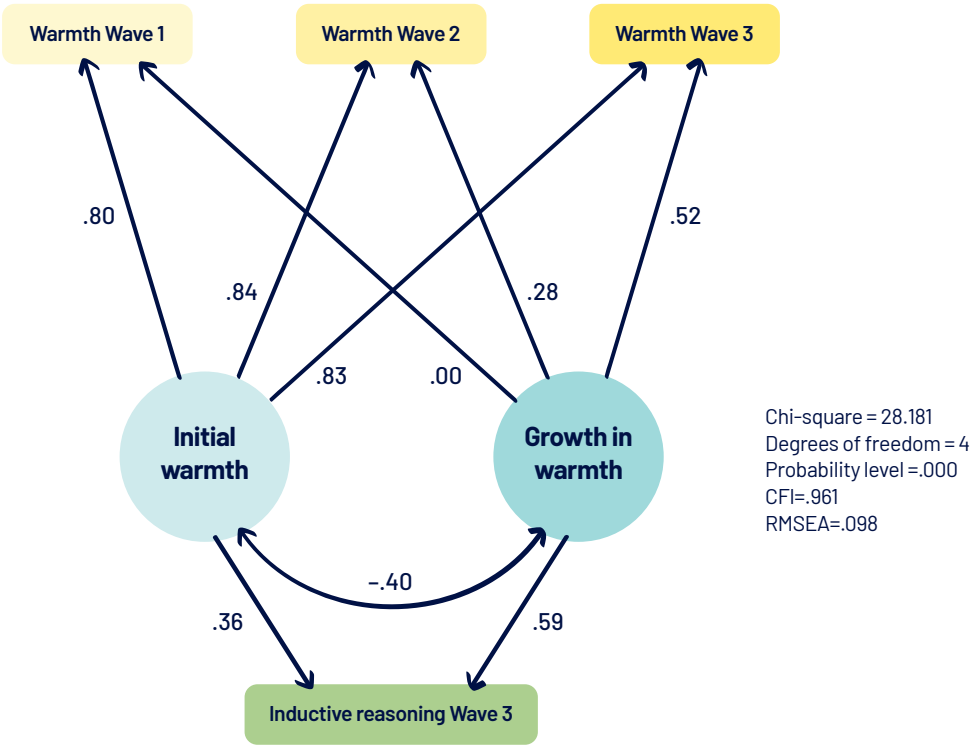
The HLS survey included measures for four aspects of parenting style: warmth, inductive reasoning, consistency and hostility. Each measure was calculated on responses to five or six questions, with an overall score generated for each style. The sets of questions for each style were derived from the measures used by LSAC. We used factor analysis to determine whether the responses to each set of questions were highly correlated[4]. We found that the measures for only two parenting styles, parental warmth and inductive reasoning, were good factors at each wave. Sufficiently robust, that is, to allow further interrogation.

There was a small increase in the mean scores for parental warmth and inductive reasoning across the waves. Analysing the growth in parental warmth using a latent growth curve (LGC) model indicated that initial parental warmth does not wholly explain the observed growth in warmth. In other words, there is likely to be another reason for the noted increase. It is possible to account for some of the increase by hypothesising that participation in HIPPY has an impact. When the model is run with this assumption, impact of HIPPY is significant (p=.03).

The analysis is summarised in Figure 29. The results shown here have more than ideal error (RMSEA should be under.08). This is due to the size of the sample and the simplicity of the model. Nonetheless, the model indicates that for those parents who score less on the measure of parental warmth at the beginning of the program, HIPPY is likely to play a role in improving this. Additionally, improvements in parental warmth predict improvements in the use of inductive reasoning.

4 Factor analysis is part of a separate technical paper.

Figure 29 The impact of HIPPY on parental warmth and the resulting increase in parental use of inductive reasoning at Wave 3



Home learning environments

To assess whether participation in HIPPY led to reconfiguration of the home learning environment, parents were asked questions about undertaking learning activities at home, whether they had incorporated HIPPY's distinctive pedagogical strategies into home learning activities, and whether the number of resources that support learning in the home environment had increased.

Table 4 Home learning environment findings

Step in theory of change	Summary of key findings
Home learning environment reconfigured	The HLS clearly demonstrates the positive impact HIPPY has on the HLE: • On average, parents in the second cohort who completed two years of the program indicated that they undertook HIPPY activities with their child for 98 minutes in any given week—that is about 20 minutes a day over a five-day week. • Parents indicated that the child enjoyed being read to for longer periods, with an increasing number of parents reading to their child 5–7 days of the week. The percentage of parents who practised counting, the alphabet, colours and shapes with their child on 5-7 days trebled, from 12.6% to 36.2% at the conclusion of the program. • Parents reported that they frequently used HIPPY's distinctive pedagogical techniques: both everywhere learning and the 3Cs. By the end of the second year, over 65.2% of parents with other children always or often used HIPPY techniques with these children as well. • The average number of books in the home increased.

HLE activities

Parents in the second cohort[5] who completed the second year of the program indicated that on average they undertook HIPPY activities for 98 minutes each week, which is equivalent to 20 minutes a day for five days—five minutes more than recommended by HIPPY. Variations in the amount of time spend on HIPPY activities were not associated with family characteristics or circumstances.

Table 5 Time spend doing HIPPY each week, second cohort at Wave 2 (n=324)

Time per week	No.	%
Less than one hour	70	21.6
One hour	117	36.1
More than one hour	137	42.3

From Wave 1 to Wave 3, parents reported increasing regularity in both reading to their children and undertaking other learning activities, which included practising counting, learning the alphabet, and recognising colours and shapes (Figure 30 and Figure 31). By the end of the program just over half the sample read to their children at least five days of the week, a 17 per cent increase. The differences over time were more pronounced for the other learning activities, with the numbers practising these with their children on 5 to 7 days trebling.

Figure 30 Regularity of reading with the child

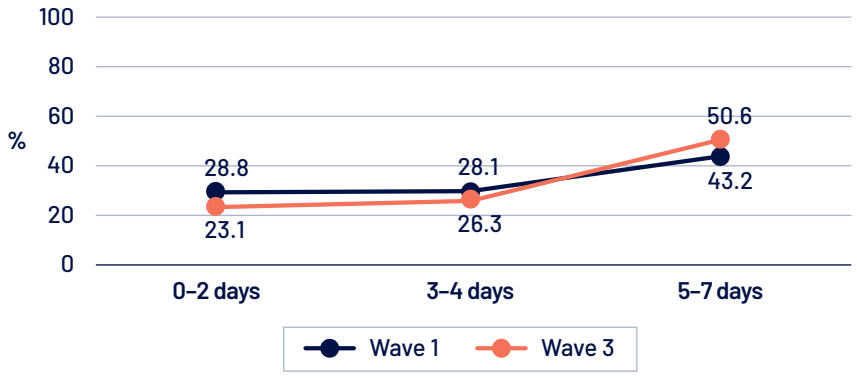
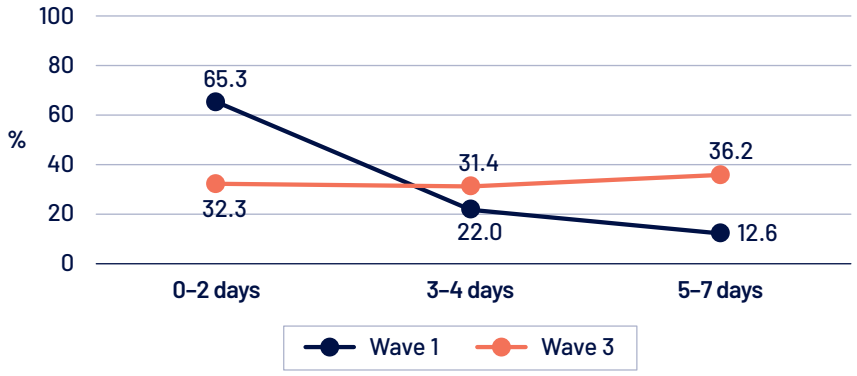


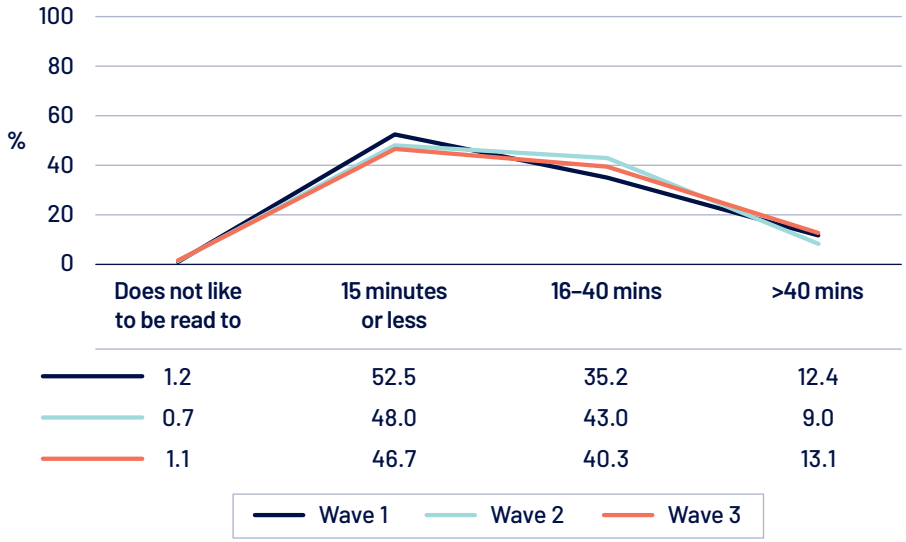
Figure 31 Regularity of practising counting, the alphabet, colours and shapes



5 The question was not asked of the first cohort.

Parents also reported small increases in the amount of time their children enjoyed being read to (Figure 32).

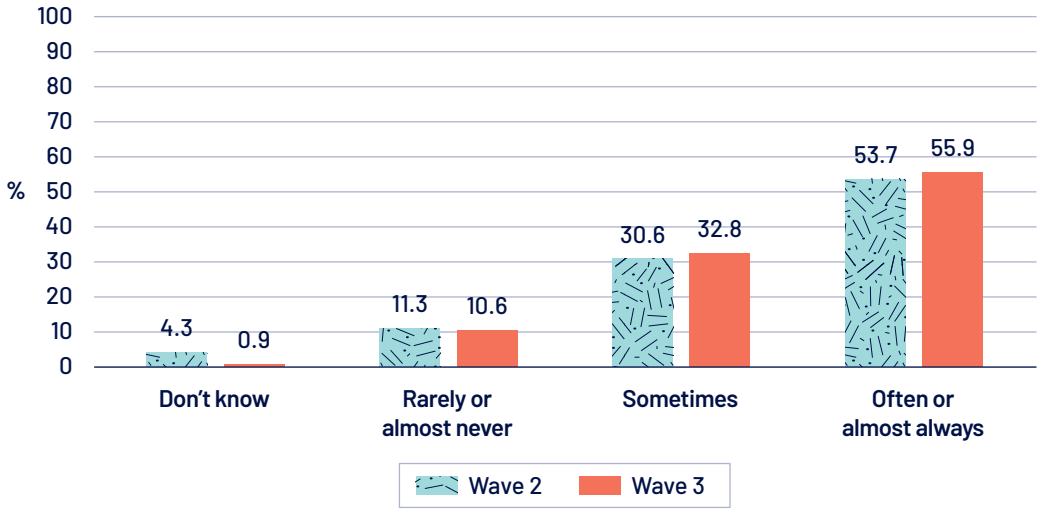
Figure 32 Length of time child enjoys being read to



HLE strategies

Parents reported using the distinctive HIPPY pedagogical techniques. More than 80% used the 3Cs with their children some of the time by the conclusion of the program and close to 100% engaged with everywhere learning[6] (Figure 33 and Figure 34). Some 65% of parents with other children reported using HIPPY techniques with them (Figure 35).

Figure 33 Use of 3Cs strategy



6 As discussed earlier, the 3Cs is a strategy to correct a child's response without providing negative feedback and everywhere learning attempts to demystify learning by integrating opportunities for learning in daily life.

Figure 34 Use of everywhere learning

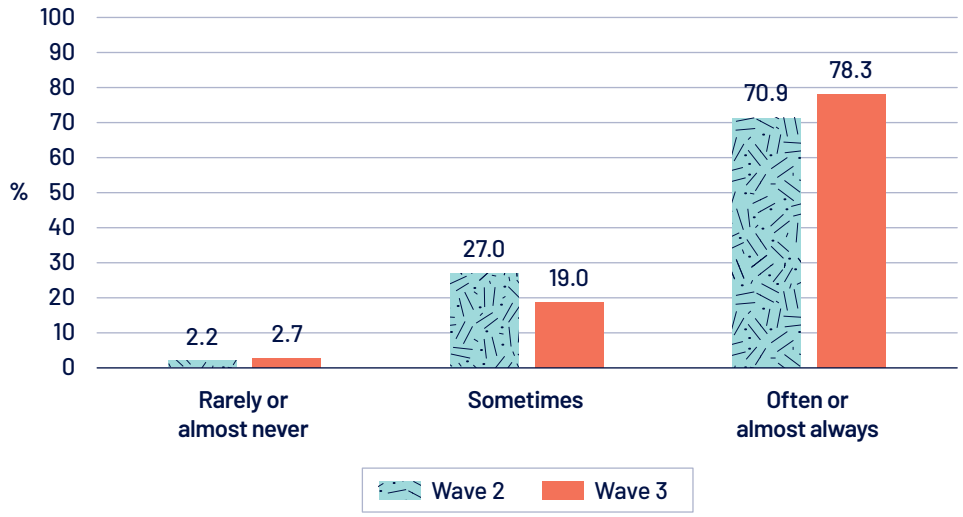
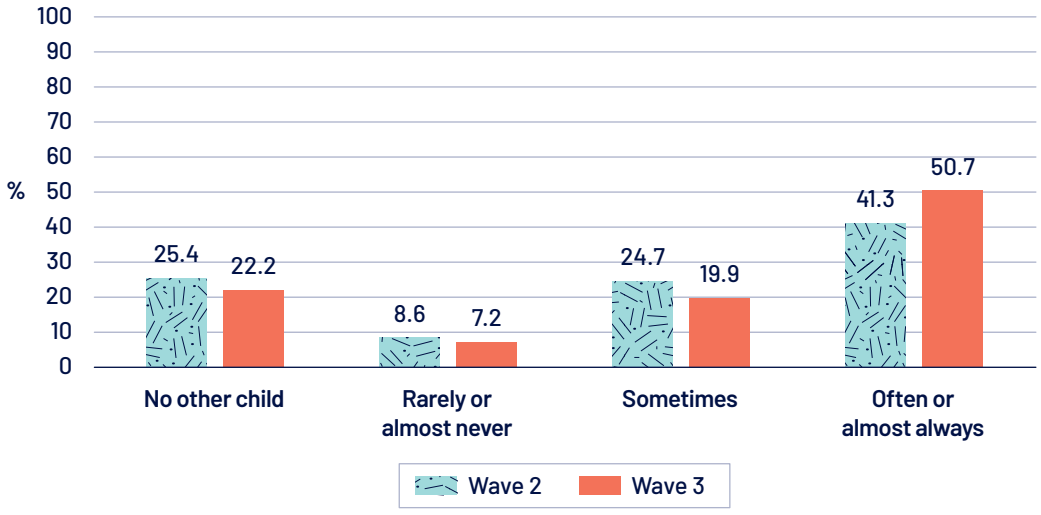


Figure 35 Use of HIPPY techniques with other children



HLE resources

Few parents reported an increase in the number of toys in the household, but the number of children's books increased: 13.9% of parents said they had fewer than 11 children's books in the home at commencement but only 9.2% by the end. The average number of children's books in the home jumped from 66 to 87. The HLS also asked parents about other weekly activities with their child, and other regular family activities and extracurricular activities; no specific changes in these activity levels were evident.

Child outcomes

If the modified theory of change is correct, we should observe changes in child school readiness, which is usually measured on both cognitive and social and emotional indicators.

Table 6 Child outcome findings

Step in theory of change	Summary of key findings
Child achieves improved outcomes	The HLS demonstrates the following effects of HIPPY on child school readiness: • 90% of parents indicated that HIPPY either very much or somewhat increased their child's school readiness on both cognitive and socio-emotional indicators. • HIPPY children's average performance on the WAI (test to assess cognitive readiness to acquire literacy and numeracy skills) improved from below the Australian mean at the beginning of HIPPY to above the Australian mean at the end of the second year. • The SDQ reveals that the percentage of children with abnormal levels of social and emotional difficulties fell by approximately 5 points at the end of the second year. This reduction, however, is only slight; a sizeable minority of HIPPY children are developmentally vulnerable in this regard throughout the program.

Parental satisfaction with HIPPY's impact on their children

Parents were asked whether they considered HIPPY had had an impact on their child's cognitive and socio-emotional development, both of which are indicative of school readiness. Their assessments are consistently positive, with greater improvements noted in cognition and concentration. Around 90% of parents indicated that HIPPY had either very much or somewhat achieved improvements on all the dimensions of analysis. This suggests high levels of parental satisfaction with the impact of HIPPY.

Figure 36 Parents' assessment of participating child's school readiness: cognitive indicators

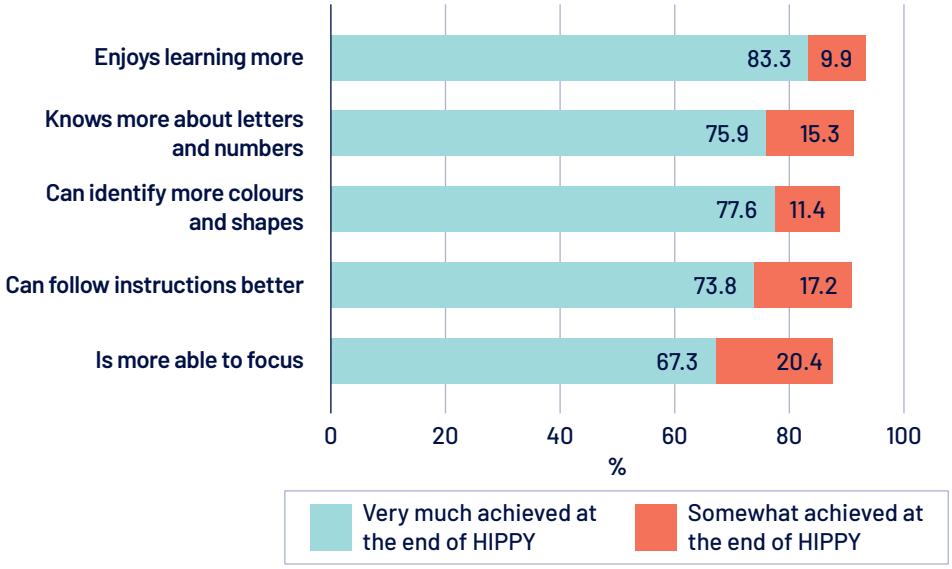
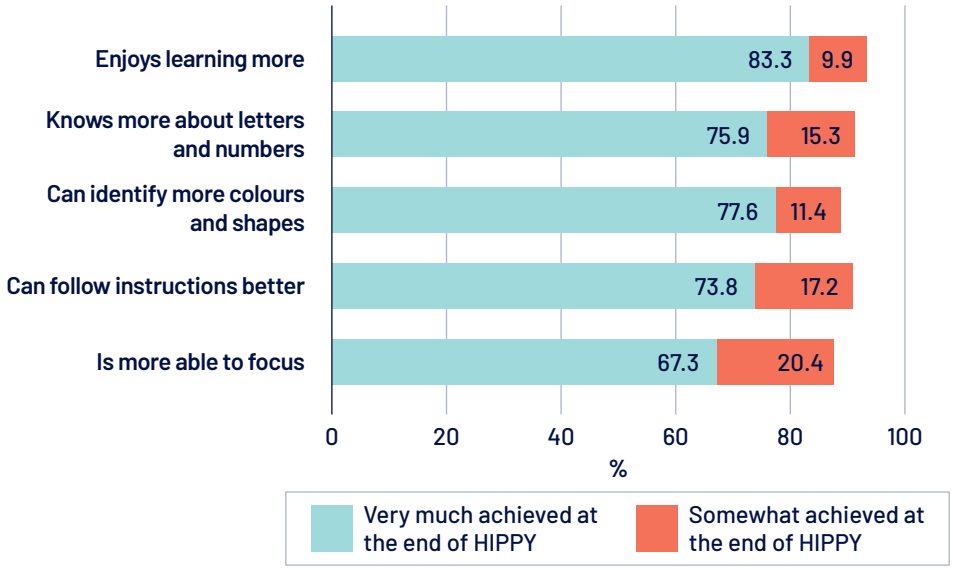


Figure 37 Parents' assessment of participating child's school readiness: social-emotional indicators



These findings suggest that parents believe that HIPPY had a more profound influence on their child's cognitive development than on their social-emotional development. Their analysis is consistent with findings from the WAI and parents' responses on the SDQ, which are discussed further below.

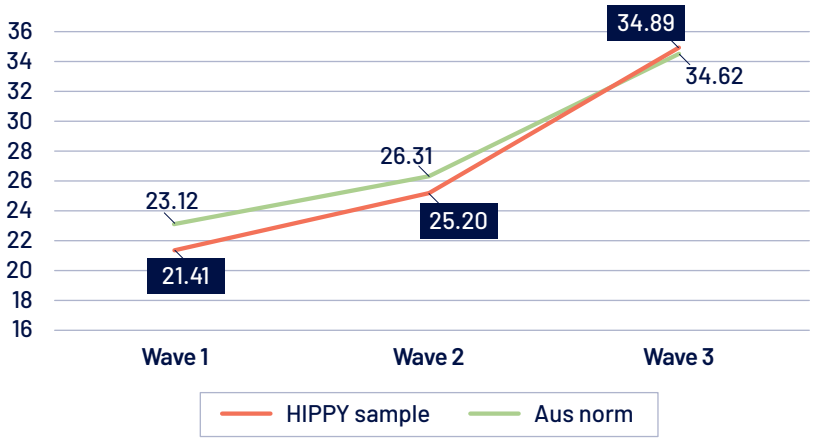
WAI scores

Who am I? (WAI) was developed in Australia to measures young children's pre-literacy and pre-numeracy skills. It has been described as a 'manageable, child friendly and reliable assessment of young children's (four to seven years) developmental level' (de Lemos & Doig 1999, p. 5). The assessment involves children in 11 discrete activities, including writing their own name, copying five shapes, writing numbers, words, and a sentence, and drawing a self-picture, with each item scored on a 0–4 scale. A total score out of 44 is then calculated.

Children in the HLS sample completed the WAI assessment at each wave of data collection. In Figure 38, the improvements in mean scores are plotted against a more representative sample of Australian children, derived from the LSAC[7]. As to be expected, children's scores improve as they get older. Of note, however, HIPPY children perform below Australian norms at commencement of the program. The deviation is statistically significant at Wave 1 ($P<0.001$) and Wave 2 ($P=0.001$). This is consistent with the literature which finds that the deleterious effect of SES on children's academic performance is already evident before school. But the difference between the two groups collapses by Wave 3, at which point the average score (34.89) slightly exceeds the Australian norm (34.62), indicating a changed trajectory for children participating in HIPPY.

7 In this analysis, the norms for each age group were weighted for the age distribution at each wave, because WAI is closely related to age and the age distribution changes at each wave. This weighting is important to ensure that the norms are comparable. HIPPY children aged under 4 years were excluded from all calculations, because an equivalent Australian norm was not available for this age range.

Figure 38 Improvements in WAI: HLS sample scores compared to Australian norms



Principal components analysis of the individual taks included in the WAI assessment indicated that it was possible to distinguish the set of abstract, pre-numeracy skills (including circle, cross, square) from literacy skills (letters, words, sentence). Below we have used these categorisations to explore the variance in scores across the waves. At Wave 1 children earned higher marks on the abstract pre-numeracy skills. While there is improvement in both skill sets, the increase in literacy skills explains most of the improvement in average scores. On abstract skills, 79% of the children scored above 50% at Wave 1 and this increased to 98% by Wave 3. But there is tremendous improvement in literacy skills over time. At Wave 1 only 2% of the children scored over 50% on the literacy skills; by Wave 3 this increased to 73%.

Table 7 Percentage of children with scores over 50% on literacy and abstract skills at each wave

Skill type	Wave 1	Wave 2	Wave 3
Literacy skills	2%	10%	73%
Abstract skills	79%	92%	98%

Further analysis of the impact of parenting style and child temperament on both abstract and literacy skills is examined in subsequent sections.

Social and emotional wellbeing

Social and emotional wellbeing and development are intrinsically important for children and have been identified as contributing to school readiness and correlated with cognitive development (Edwards et al. 2009). The Strengths and Difficulties Questionnaire (SDQ) used in this study is a valid and reliable measure of children's emotional and behavioural problems and has been used in other Australian studies. Parents are asked 25 questions about their children, scored on a 0–2 scale. These scores are combined into five categories with scores in a 0–10 range: emotional problems, conduct disorder, hyperactivity, peer problems and pro-social behaviour. The scores are then assigned to three levels: normal, borderline and abnormal, with those in the abnormal range of most concern.

In the following analysis we have reported the combined total difficulties and pro-social behaviour scores. The HLS finds that there is some improvement on social-emotional indicators between waves of data collection, and by the conclusion of the program there is an almost 5-point reduction in children rated as abnormal across the difficulties measured by the SDQ (Figure 39). Pro-social behaviours also show a very slight improvement at the end of the second year (Figure 40).

Figure 39 HLS children's total social-emotional difficulties measured by SDQ

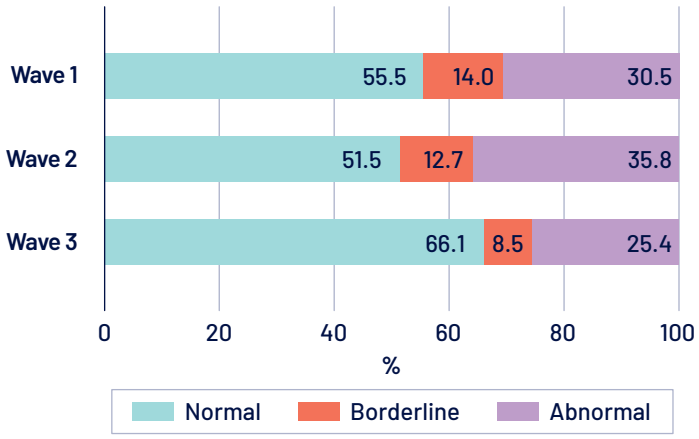
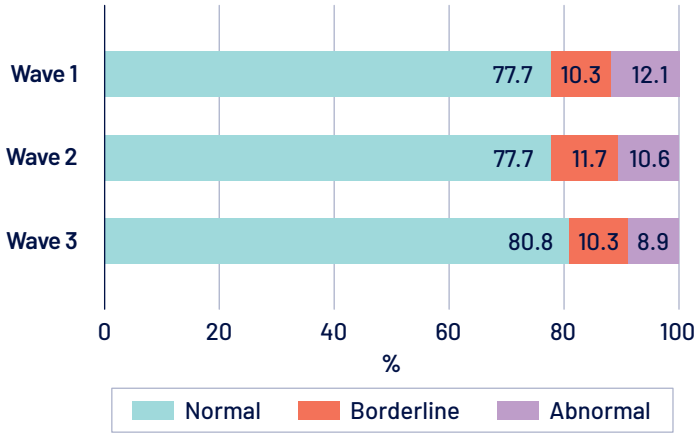


Figure 40 HLS children's pro-social behaviours measured by SDQ



To contextualise the HLS findings, Table 8 compares the baseline SDQ scores for HIPPY children and a more representative sample of Australian children from the E4Kids study (Tayler 2016). Many more children from the HLS sample score in the abnormal range. Although the levels are slightly reduced by the end of the study, children from the HLS sample still have more than twice the level of abnormal difficulties of the E4Kids sample.

Table 8 Comparison of SDQ scores for HLS and E4Kids Study

SDQ categories	Total difficulties	Pro-social behaviours
Normal		
HLS	55.5%	77.7%
E4Kids	79.0%	79.0%
Borderline		
HLS	14.0%	10.3%
E4Kids	9.0%	11.0%
Abnormal		
HLS	30.5%	12.1%
E4Kids	10.0%	6.0%

Exploring causal pathways

The foregoing discussion has examined the results of the HLS against each of the stages in the modified theory of change for the integrated parental support and early learning components of the HIPPY model. There are many positive findings. Child performance on the WAI is the lead indicator that suggests the positive impact of HIPPY for participating children.

Further analysis of the WAI scores allowed us to ascertain whether there was evidence for the casual pathways which were proposed on the basis of the literature review, and which we hypothesised could explain the how HIPPY has an effect on child outcomes. The analysis revealed that fidelity to program design and improvements in parenting style have clear positive effects on child outcomes. A number of other factors appear to mediate the results; not all of these, however, can be clearly attributed to the intervention.

Table 9 Analysis of child WAI scores findings

Exploration of outcomes	Summary of key findings
Improvement on WAI scores	• **Model fidelity:** Attendance at group meetings, particularly in the first year, which suggests parents have been exposed to a full dose of program activity, is significantly positively correlated with improvements in WAI scores. • **Parental characteristics:** Children whose parents indicated low English fluency show significantly greater improvement on the WAI than other subgroups. • **Parenting style:** Improvement in parental warmth, which can be partially attributed to HIPPY, shows a positive impact on WAI scores at Wave 3. • **Family functioning:** Children in families with marginally less negative family functioning show greater improvement in WAI scores. • **Child temperament:** 'Energetic hyperactivity' is significantly associated with lower WAI scores.

Model fidelity

Children whose parents attended group meetings more regularly scored better on the WAI at both Waves 2 and 3. In fact, regular attendance during the first year was significantly associated with higher scores at the end of both years of the program (Table 10).

Table 10 Mean child WAI scores by regularity of their parent's attendance at group meetings

Attendance at group meetings	Mean WAI scores in first year	Mean WAI scores in second year
None or a few first year	24.4*	33.6**
Some in first year	25.2*	35.3**
Most or always in first year	27.1*	36.2**
None or a few in second year	n.a.	34.5
Some in second year	n.a.	34.8
Most or always in second year	n.a.	36.3

*P < 0.001
** P < 0.003

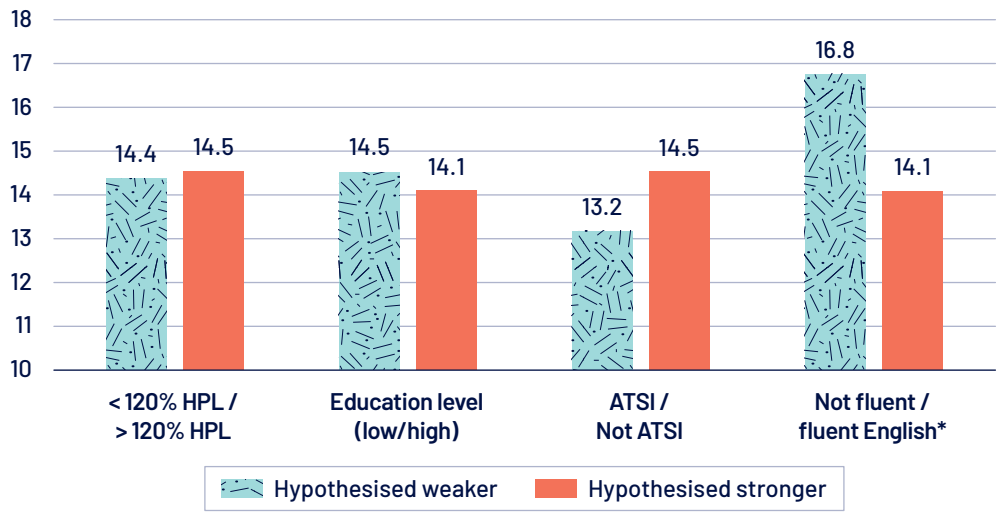
These results suggest that exposure to the full HIPPY dose has an impact. Group meetings are an integral part of the delivery model, reinforcing the curriculum and pedagogies explored during home visits. It is possible that increased attendance reflects parents' motivation, perhaps their willingness to invest greater time and attention in supporting their child's school readiness. However, the fact that single parents and Aboriginal and Torres Strait Islander families are less likely to attend group meetings may mean that this hypothesis needs to be modified: parents who are highly motivated, *and* have fewer time constraints and/or greater confidence that they can participate in group meetings, invest more time in their child's school readiness.

Parental characteristics

As discussed in Chapter 2, when coupled with income poverty certain maternal sociodemographic characteristics are predictive of poorer outcomes for children. We tested whether the children of parents in the sample who might be considered at a slight advantage—remembering that the sample as a whole is highly disadvantaged—performed better on the WAI.

The analysis revealed some slight differences according to relative poverty and parents' level of education, but these were not statistically significant differences. As presented in Figure 41, we discovered that children with parents with limited English literacy show tremendous growth compared to their peers. A more detailed presentation of findings for Aboriginal and Torres Strait Islander identified children is provided in the following section.

Figure 41 Improvement in child's WAI scores (means) by parental demographics

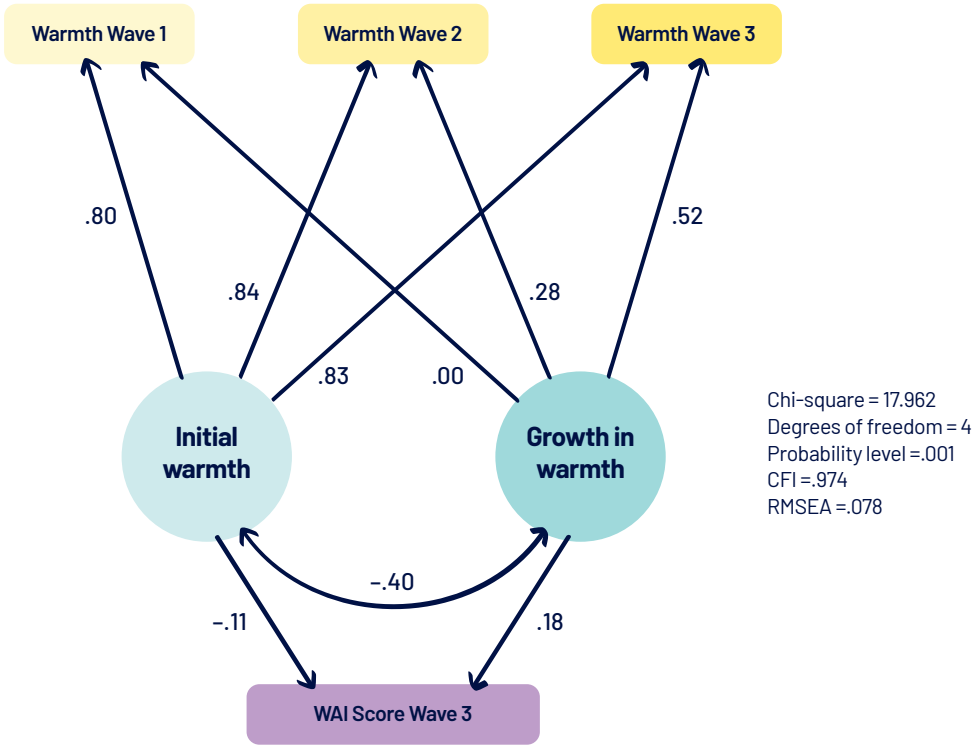


*p<0.05

Parenting style

In Figure 29, we presented an LGC model which analysed how parenting behaviours altered over the duration of HIPPY, and which indicated that parental warmth increased during the study for those parents who reported lower levels of warmth at the outset. The model indicated that participation in HIPPY can account for this increase in parental warmth. Figure 42 shows the impact of this improvement on children's cognitive outcomes as measured by the WAI. The model is robust and shows that the growth in parental warmth has a positive impact on WAI scores (β =.18). There is a negative covariance between initial warmth and growth in warmth (λ = –.40), which indicates that parents with lower warmth at the outset have greater improvement.

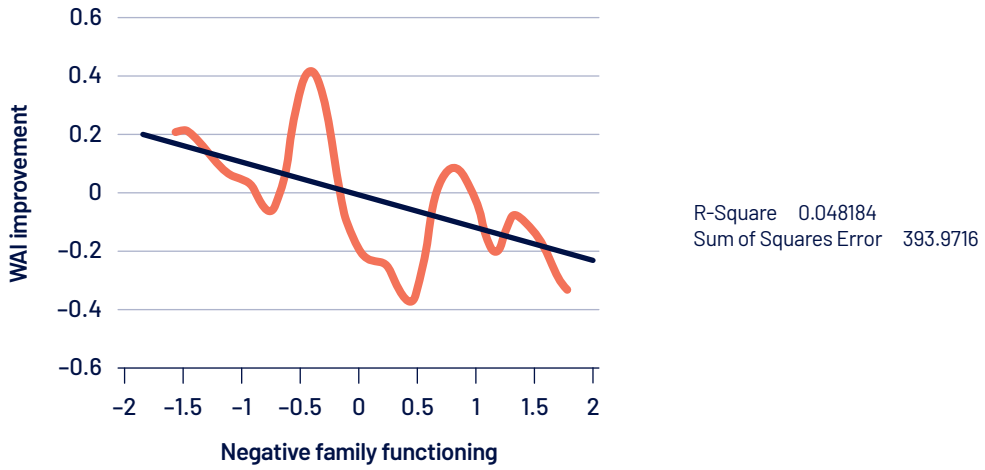
Figure 42 The impact of improved parental warmth on child WAI score at Wave 3



Family functioning

Factor analysis revealed that the measure of family functioning produced two distinct scales: positive and negative. Negative family functioning had the clearest negative impact on children's improvement in the WAI. Families who indicated greater negative family functioning had significantly lower improvement in the WAI by Wave 3 (R=.11, p=.02). Using standardised Z scores, we observe the extent of this impact: cognitive skills improve as negative family functioning reduces (Figure 43). This suggests that negative family functioning creates conditions that limit children's capabilities to improve cognitive outcomes.

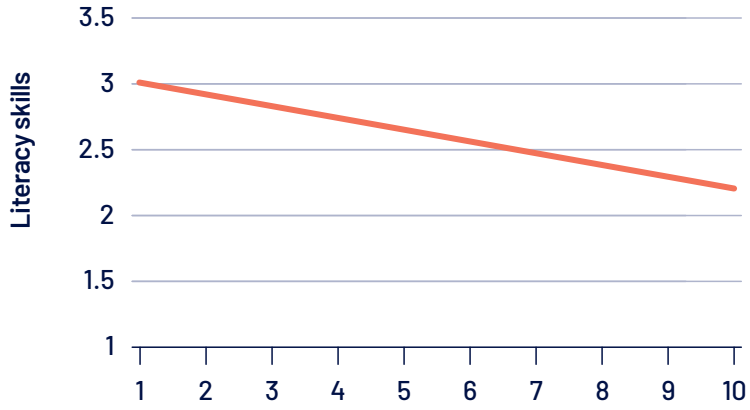
Figure 43 **Linear and spline regression of WAI improvement based on negative family functioning, standardised**



Child temperament

The SDQ Total Difficulties Score is a combined measure of four different scales of emotional problems, conduct problems, peer problems and hyperactivity, each derived from multiple questions. We were able to combine questions from several scales to develop two factors with sufficient internal consistency to allow exploration of any relationship with WAI scores[8]: emotional distress, which includes a combination of items that contribute to measuring emotional problems, peer problems and conduct problems in the SDQ; and energetic hyperactivity, a subset of the items measuring hyperactivity. Levels of energetic hyperactivity predicted significantly lower literacy skills (Figure 44). Regression analysis found that an increase in energetic hyperactivity depresses literacy scores, resulting in poorer performance on the WAI.

Figure 44 **Regression showing the association between energetic hyperactivity and literacy skills**



Term	Estimate	Std Error	t Ratio	Prob>|t|
Intercept	3.11	0.12	26.93	<.0001*
HYPERACT	-0.09	0.02	-3.83	0.0001*
R^2=.036	P<.001	N-395		

8 Further information about the factor analysis is available on request.

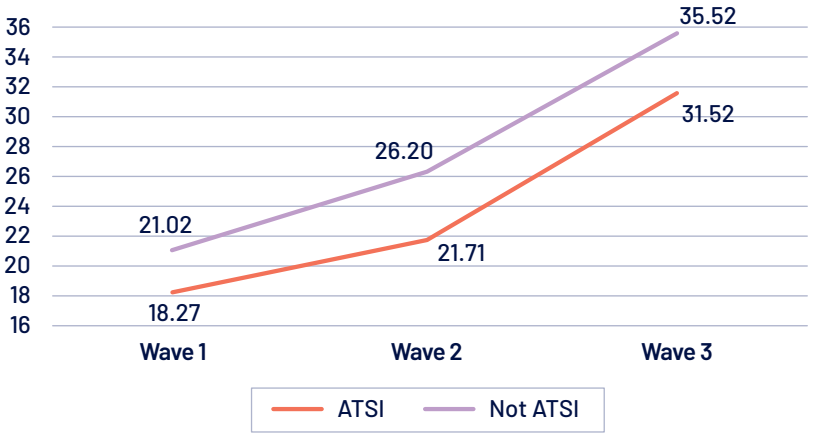
HIPPY's impact on Aboriginal and Torres Strait Islander families

The proportion of Aboriginal and Torres Strait Islander families in the HLS sample was lower than across all HIPPY participants, reflecting the fact that the last Indigenous-focused 25 sites were not included in the HLS. Moreover, by Wave 3 only 54 Aboriginal and Torres Strait Islander families remained. This constituted a significant sample loss of 40 parent-child dyads. For both reasons, the findings for Aboriginal and Torres Strait Islander families must be interpreted with caution. Although it is not possible to generalise the findings for this subgroup, the data reveals three trends of note, regarding child outcomes, child temperaments and parental behaviours. These are of particular interest because in the broader sample, child temperament and parental behaviour have an influence on the child outcomes assessed through the WAI.

Child outcomes

While the WAI scores of Aboriginal and Torres Strait Islander children improved over the two years, at program commencement their scores were lower than the remainder of the sample and remained so (Figure 45). At the conclusion of HIPPY, Aboriginal and Torres Strait Islander children scored below the Australian mean of 34.6 while the non-Indigenous children performed slightly above the Australian mean.

Figure 45 WAI performance, Aboriginal and Torres Strait Islander children and others



The differences between the scores of Aboriginal and Torres Strait Islander children and their non-Indigenous peers on literacy and abstract skills help to explain the divergent performance of these two groups. By Wave 2 the difference in performance between Aboriginal and Torres Strait Islander children and other children in the HLS on the combined literacy measures (sentences and words) was statistically significant and by Wave 3 it was profound, accounting for most of the variance. Differences in child performance on abstract skills (circles squares and crosses) followed a different pattern: statistically significant in the first two waves, they were no longer so by Wave 3. This suggests children from an Aboriginal and Torres Strait Islander background would benefit from additional assistance to develop literacy skills.

Figure 46 WAI literacy skills, Aboriginal and Torres Strait Islander children and others

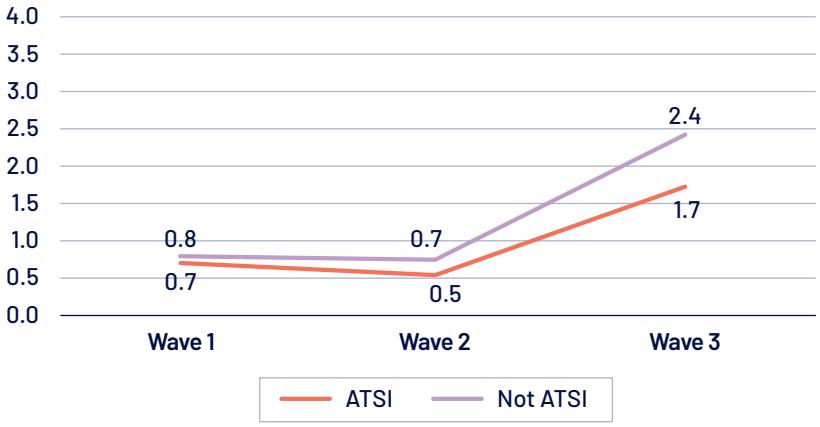
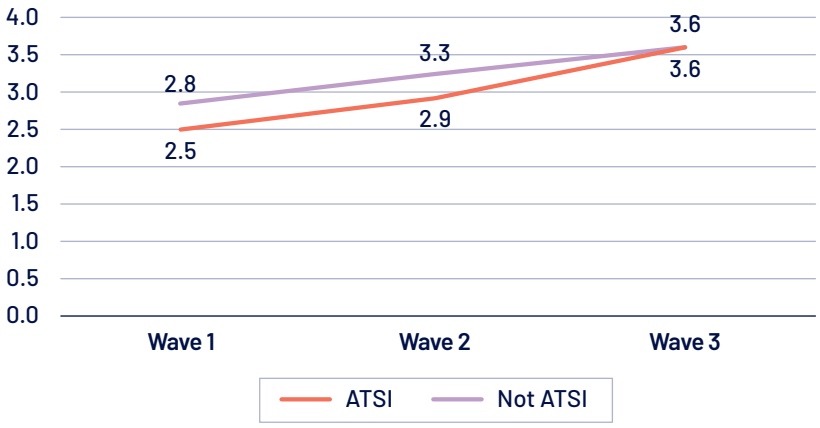


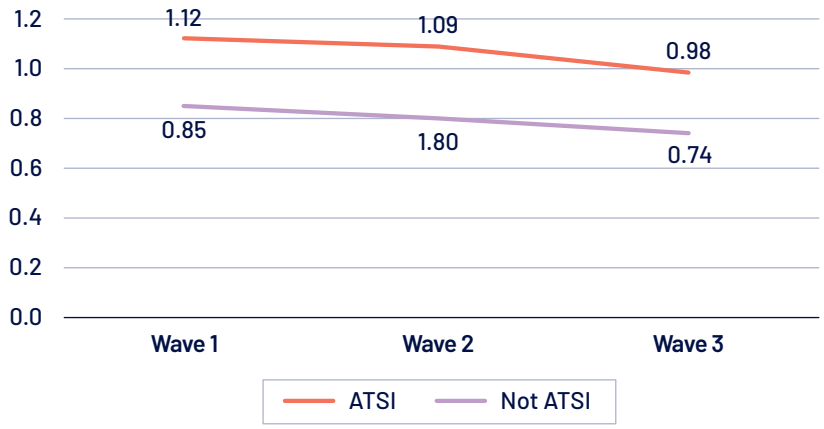
Figure 47 Abstract skills, Aboriginal and Torres Strait Islander children and others



Child temperament

Throughout the study, children from an Aboriginal and Torres Strait Islander background were reported by their parents to experience higher levels of energetic hyperactivity, which predicts lower literacy scores, than the non-Indigenous children in the study (Figure 48). The differences at Waves 2 and 3 were statistically significant ($p<0.01$). Reports of emotional distress were also elevated but this was not statistically significant.

Figure 48 Energetic hyperactivity, Aboriginal and Torres Strait Islander children and others



Parental behaviours

At the baseline and throughout the study, the participating parents of ATSI identified children indicated much higher levels of warmth (Figure 49). The measure of parenting hostility only proved to be a robust factor in the second wave, at which point parenting hostility in ATSI families was markedly reduced compared to non-ATSI families ($T=2.22$, $p<.03$)(Figure 50). Because the factor becomes less clear in Wave 3, it is not possible to ascertain whether this difference persists. Nonetheless, Aboriginal and Torres Strait Islander families indicated lower levels of positive family functioning at the first two waves of data collection. This improved at Wave 3, and levels of positive family functioning are significantly higher for Aboriginal and Torres Strait Islander families than for the rest of the sample ($T=-2.31$, $p<0.2$), but there are far fewer Indigenous families in the sample at this point.

Figure 49 Parenting warmth, Aboriginal and Torres Strait Islander parents and others

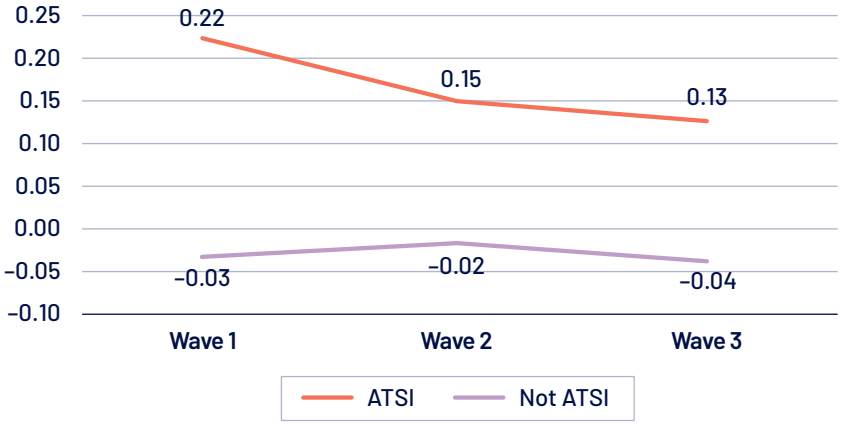


Figure 50 Parental hostility, Aboriginal and Torres Strait Islander parents and others

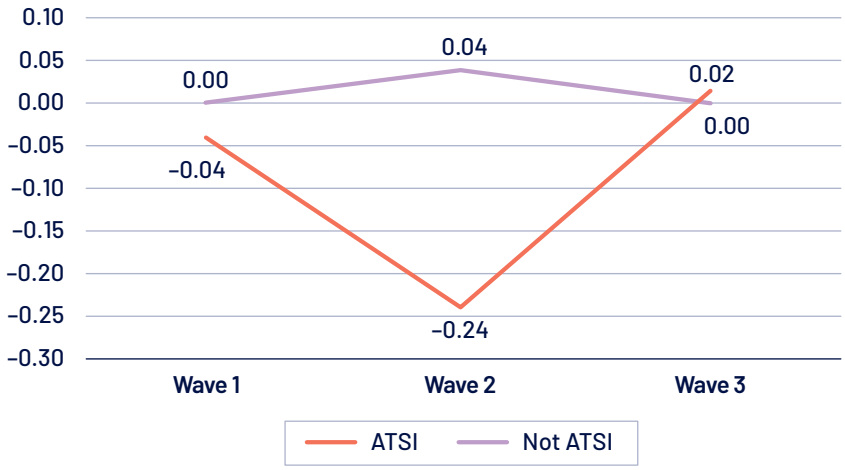
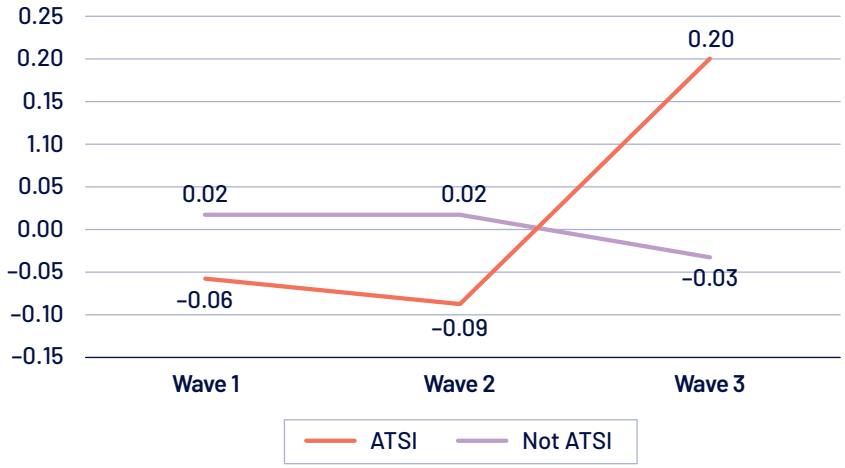


Figure 51 Positive family functioning, Aboriginal and Torres Strait Islander parents and others



Together these figures suggest important differences in parenting style and family functioning between the Aboriginal and Torres Strait Islander families in the study and the non-Indigenous families. Given the small subsample, it is difficult to draw definitive conclusions. To the extent that these findings are indicative, and in light of overall findings that correlate increasing parental warmth and more positive family functioning with improved children's performance, we could have expected greater improvements in Aboriginal and Torres Strait Islander child performance on the WAI than we actually observe. Perhaps the progress of the Aboriginal and Torres Strait Islander children in the sample is impeded by the high rates of emotional distress and energetic hyperactivity noted above, but the outcomes may be influenced by variables that we have not measured. As also noted, Aboriginal and Torres Strait Islander parents were more likely to find the program difficult and less likely to attend group meetings.

How HIPPY works

Overall the findings of the HLS provide us with confidence that the modified theory of change adequately describes the causal pathways through which HIPPY affects children's learning and development. Parents' reports clearly demonstrate that they are engaged by HIPPY and modify the home learning environment in ways consistent with HIPPY philosophy and practice. Not only do parents employ HIPPY's distinctive pedagogical techniques with their children, they spend increasing amounts of time in learning activities with their children. We can conclude that HIPPY provides parents with a structure, and the resources, to engage positively with their children around learning. It is not surprising that this is associated with some improvement in parental warmth and inductive reasoning, as HIPPY provides parents with the skills and techniques to support both attributes.

5 Discussion and recommendations

The HLS provides considerable evidence that HIPPY works. It meets parents' expectations, creates the conditions in which parents and their children can engage in learning activities together, and promotes school readiness. The study's findings also point to the mechanisms that promote and hinder child development in the mostly impoverished households from which the sample was drawn. Parental warmth and time spent in undertaking learning activities with their children are clearly associated with improved outcomes for children. Negative family functioning and lower levels of socio-emotional wellbeing among children can impede development. The initial discussion in this chapter examines how these findings advance our understanding of how to mitigate the impact of financial disadvantage on child development.

The findings of the HLS also have implications for both HIPPY Australia and early childhood policy generally. For HIPPY Australia, it is possible to further refine the intervention to more explicitly activate and reinforce the causal pathways validated by the HLS. For early childhood policy, there are lessons about the efficacy of home visitation as a delivery mechanism for an early learning intervention and the home learning environment as a site for engaging with parental behaviours in impoverished households. Both topics are also addressed in this final chapter.

Interpreting the findings

Every study has its context and limitations. In interpreting the HLS findings, we have considered a number of factors that may explain the results, noting that sample loss did not have a significant effect on outcomes. In particular we have explored three alternative explanations for the results: whether pre-existing levels of parental motivation explain the outcomes; whether the changes in parental behaviour might have occurred without intervention; and whether the fact that children are concurrently enrolled in other, more formal learning environments explains not just the maturational gains in cognitive development but the changed trajectory. We make three observations regarding these:

- HIPPY is a voluntary program; parents who participate are likely to be already motivated to accelerate their child's learning. However, research suggests that motivation is not enough. Families from lower socioeconomic contexts benefit from support to develop a structured approach to child development (see National Literacy Trust 2018), which is precisely what HIPPY provides. The sample of participants may well have formed an intention to invest time in undertaking learning activities with their child prior to enrolment in HIPPY. Nonetheless we are still confident that the program has an impact. HIPPY provides direction, resources and access to peer and professional support for parents to realise their aspirations for their children.
- The HLS does not allow us to conclude definitively that participation in HIPPY produced the noted changes in parenting style and the organisation of learning activities in the home. But these findings are suggestive of HIPPY's impact, particularly when interpreted alongside parents' clear enjoyment of and high levels of satisfaction with the program. Parents' behaviours were clearly influenced by the program's content. This decreases the possibility that noted changes might have taken place anyway as the child develops and demands more stimulation. The HLS also provides evidence that parental self-efficacy is increasingly challenged as the child matures and enters school. The fact that child learning is sustained and increases in the second year provides reason to suspect that HIPPY is a protective factor at this time.
- The majority of children taking part in HIPPY are concurrently enrolled in other ECEC programs during the first year, although mostly on an ad hoc basis, and the majority are in the preparatory year of school in the second year. Undoubtedly these experiences have an impact on child development, including the cognitive skills which support literacy and numeracy. Nonetheless, Australian data provides little evidence that such participation in ECEC or kindergarten actually reduces the impact of financial disadvantage on child development,

which is evident by the start of school and persists through schooling (McLachlan, Gilfillan & Gordon 2013). HIPPY children, however, do not remain on the same development trajectory, which would see them start school at a disadvantage. The narrowing of the gap in average WAI scores suggests that HIPPY children will start year 1 at school with cognitive development comparable to their peers. Again, it is reasonable to conclude that HIPPY is an effective form of early intervention in this regard, although it may be best described as a complementary intervention.

The HLS provides evidence in support of both the family stress and family investment models, which were discussed in detail in Chapter 2. Both models attempt to explain how parenting style and family functioning are affected by financial hardship and how this might have a deleterious impact on child development. The purpose of our study was not to replicate evidence that these models can explain the variance in child outcomes across SES; this is reasonably well established. Instead, the HLS was able to observe how the factors identified as influential and protective in these theories can be intentionally activated to advance children's cognitive development. That is, it allowed us to explore how improvements in parental warmth and how investing time with children, or what has been referred to as 'attentional energy' (Cobb-Clark, Salamanca & Zhu 2016), can improve outcomes for children. The HLS found evidence to support both propositions. Moreover, our findings suggest that HIPPY can catalyse changes in parental behaviour and the home learning environment that support the expression of parental warmth and encourage a greater investment of time in undertaking learning activities with children.

Lessons for HIPPY Australia

The HLS confirms that there is a solid theoretical and evidence base for HIPPY's design and that the program is accessible and engaging. In particular:

- Both the national and the international evidence base provide good reason for the way that HIPPY is targeted in communities that experience disadvantage. The HLS sample indicates high rates of socioeconomic disadvantage among participating families and thus that HIPPY is well targeted.
- The socio-cognitive and bio-ecological models of human development provide a firm theoretical foundation for the structure of HIPPY, which is designed to activate mechanisms that contribute to child development through its approach to learning in the home environment.
- Evidence supports the dual delivery mode. Parents' reports suggest that home visits, in which peer tutors deliver activity packs and role-play learning activities with the participating parent, are appropriate, indicating high comfort levels. Participation in group meetings is associated with improved outcomes for children; however, participation rates are low and decline in the second year.
- Most parents do not find HIPPY difficult. Indeed, they enjoy HIPPY and actively incorporate its pedagogies and learning activities into the home. Although time constraints emerge when children start the preparatory year of school, parents persist in undertaking HIPPY activities with their children on an almost daily basis.

These findings indicate that the core of the HIPPY program is solid, but the HLS also suggests that there is room for improvement.

Areas for improvement

Increasing support for parents and children

The HLS points to an opportunity to build a specific emphasis around broader child wellbeing and a reduction in family stress into the program. In particular it suggests that the following topics require specific attention:

- how to support children to concentrate for longer periods, to mitigate the negative impact of energetic hyperactivity on learning outcomes
- how to support children who seem distressed or worried, to reduce the levels of emotional distress recorded on the SDQ
- family time management, particularly once the child starts school—this emerged as an issue for attending group meetings and more generally
- making decisions about how to solve problems as a family—over two-thirds of valid responses on the General Family Functioning Score (GFFS) indicated that this was a challenge for families, increasing negative family functioning

- the use and explanation of reasoning when a child misbehaves—because the use of inductive reasoning is associated with parental warmth, which in turn promotes child outcomes.

Improving attendance at group meetings

This is not the first study which noted poor attendance at group meetings (see Liddell et al. 2011). Indeed, in previous studies not having enough time was also identified as an explanatory factor. But given the low rates of employment among HIPPY parents this seems like a convenient explanation that may mask other factors. It may be that alterations to venue, timing and topic relevance could have some impact. Nonetheless, the large number of respondents who suggested unspecified 'other reasons' for their non-attendance indicates to us that there are likely to be cultural and site-specific reasons why few families attend regularly, which will require locally differentiated strategies to address.

Improving outcomes for Aboriginal and Torres Strait Islander families

While children from Aboriginal and Torres Strait Islander backgrounds achieve learning outcomes, their scores on the WAI remain below those of their non-Indigenous peers. This group of children also showed significantly higher rates of energetic hyperactivity than their non-Indigenous peers. Nonetheless, their parents indicated higher levels of warmth, decreases in hostility during the first year and improvements in family functioning by the end. These figures need to be interpreted with caution given subsample size and loss. The evidence about the impact of HIPPY on Indigenous families is indicative only. Nonetheless, the evidence suggests that HIPPY Australia could consider engagement strategies to improve attendance at group meetings and literacy learning for program participants from an Aboriginal and Torres Strait Islander background.

Recommendations

The following recommendations contain strategies to address the findings of the HLS, to entrench what works and to address the more obvious challenges for families and program delivery. In developing them, we have recognised that HIPPY is a light-touch and low-cost intervention, which is reliant on a peer workforce as the primary delivery agent. Moreover, it is important not to derogate from the program's core areas of expertise in the delivery of a place-based parenting support and early learning program.

Our recommendations are not to transform HIPPY into a broader family intervention. In part this is because we suspect that the delivery mechanism—activity packs provided through home visits by a peer—is central to the program's impact on parental behaviours. HIPPY neither pathologises nor stigmatises families; rather it connects with their aspirations for their child. For this reason, the recommendations are designed to contribute to HIPPY Australia's continuous improvement and research agenda. Nonetheless, additional funding would increase the speed and scale at which program extensions could be designed and administered.

Stewarding innovation across 100 sites

- **Community of practice:** Establish a national community of practice, in the first instance to improve outcomes for Aboriginal and Torres Strait Islander children enrolled in the program. The National Aboriginal and Torres Strait Islander Community of Practice should meet at least three times each year at identified sites to hear from Aboriginal and Torres Strait Islander participants and staff about their experiences of HIPPY, with the aim of capturing what works to support these families and sharing strategies to engage and retain Indigenous families.
- **Site innovations scheme:** Implement a site innovation incentive scheme that encourages local responsiveness, with two aims: to develop and reward the implementation of strategies that result in increased attendance at group meetings and to expand effective school transitions support.
- **Consultations with families:** Increase the regularity with which HIPPY consultants meet directly with families during site visits to better understand what does and does not engage them in different aspects of the program. Engagement with CALD families should be prioritised.

- **Monitoring and evaluation:** HIPPY already collects comprehensive administrative data on program delivery. Implementing the above recommendations should be complemented by curating an accessible repository of the strategies, that is the adaptations and innovations in program delivery. Inclusion in this repository would require evidence that the strategy had achieved results including increased Aboriginal and Torres Strait Islander engagement and retention, increased participation in group meetings and activities, and more parents reporting improved ease of school transition.

Program adaptations to improve outcomes for parents and children

- The HLS found four sets of issues that could be more intentionally worked on with families to improve learning and school readiness outcomes: improving child concentration; reducing child emotional distress; improving parental warmth; and techniques used by families to resolve conflict, manage time and discipline children.
- These issues affect a sizeable minority of families directly, which suggests a differentiated approach may be required. HIPPY may wish to consider the use of non-intrusive assessments of family functioning and child emotional wellbeing at different points in program delivery to allow sites to select appropriate support materials and consider active and warm referral pathways for families.
- A comprehensive approach to address these issues will:
  - ensure support materials are available at individual sites so that staff have access to information and advice on each topic
  - review tutor training to ensure that home tutors understand the impact of family functioning, parental behaviours and child concentration and emotional wellbeing on learning outcomes
  - review activity packs and group meeting topics to include activities and sessions that address these issues directly
  - create online resources (including an information repository and/or curated access to other sites) for parents, to complement topics canvassed in group meetings.

Conclusion

The most promising finding of the HLS is that families with limited financial resources can reorganise the home learning environment, and with structured support can invest time and attention in supporting children's cognitive development, promoting school readiness. The HLS also confirms that a sizeable minority of families facing financial hardship encounter significant challenges to supporting their children's social and emotional wellbeing and managing school transitions. Our recommendations above have been drafted to assist the program to respond to these findings.

Nonetheless, HIPPY is unique in working to recalibrate the home learning environment in Australia. There is much to be learned from the HLS findings about HIPPY's success with families. First, the absence of a broader emphasis on the home learning environment in Australian policy means that we are missing the opportunity to support families, particularly those facing disadvantage, to reach their child's potential. Second, we have strategies at our fingertips to redress this, and thereby continue to change children's trajectories.

Appendix A: HLS Independent Research Advisory Group

Table 11 Members of the Independent Research Advisory Group

ORGANISATION	NOMINEE
Research and Policy Centre (BSL) **Meeting Chair** Research and Policy Centre (BSL) HIPPY Australia (BSL) HLS coordinator (BSL)	Julie Connolly Francisco Azpitarte Marian Pettit Tim Gilley
Commonwealth Department of Social Services	Craig Flintoff Lisa Jackman
Victorian Department of Education and Training	Mary Walsh
Australian Council for Educational Research (ACER)	Dan Cloney
ARACY	Penny Dakin Sue Liebich
Centre for Community Child Health	Sharon Goldfeld
Goodstart	Kate Lilley
Lady Gowrie	Nicole Pilsworth
Melbourne Institute of Applied Economic & Social Research, University of Melbourne	Guyonne Kalb
Mitchell Institute	Megan Connell
Parenting Research Centre	Jan Matthews

Appendix B: HLS sites

Table 12 Sites involved in HLS by state or territory

Australian Capital Territory	New South Wales	Queensland	South Australia	Victoria	Tasmania	Western Australia
Belconnen	Ashmont Bidwill Broken Hill Cabramatta Claymore Emerton Fairfield Moree Nowra Orange Port Stephens Riverwood Warrawong Wellington	Bundaberg Caboolture Fraser Coast Goodna Mount Morgan Warwick West Ipswich	Elizabeth Onkaparinga Riverland Whyalla	Bendigo Braybrook Dallas Broadmeadows Dandenong East Gippsland Fitzroy Geelong Latrobe North Melbourne Robinvale Surf Coast	Launceston Smithton West Coast	Armadale East Kimberley Girrawheen Geraldton Rockingham

Acronyms

ABS	Australian Bureau of Statistics
ACCO	Aboriginal Controlled Community Organisations
AEDI	Australian Early Development Index
AEYF	Australian Early Years Framework
ATSI	Aboriginal and Torres Strait Islander
BSL	Brotherhood of St. Laurence
CALD	Culturally and linguistically diverse
ECEC	Early Childhood Education and Care
DSS	Department of Social Services
HILDA	Household Income and Labour Dynamics in Australia [survey]
HIPPY	Home Interaction Program for Parents and Youngsters
HLE	Home learning environment
HLS	HIPPY Longitudinal Study
HPL	Henderson Poverty Line
HREC	Human Research Ethics Committee
IRAG	Independent Research Advisory Group
LGC	Latent Growth Curve
LOTE	Language other than English
LSAC	Longitudinal Study of Australian Children
OECD	Organisation for Economic Co-operation and Development
PISA	Programme for International Student Assessment
PPCT	Person-process-context-time
RPC	Research and Policy Centre
SEIFA	Socio-Economic Index for Areas
SES	Socioeconomic status
SDQ	Strengths and Difficulties Questionnaire
WAI	Who Am I? precognitive literacy test

References

ABS 2008, *Family characteristics and transitions, Australia, 2006-07*, Cat. no. 4442.0, ABS, Canberra.

ACIL Allen Consulting 2018, *Evaluation of the Home Interaction Program for Parents and Youngsters: final report*.

Arabena, K, Ritte, R, Panozzo, S, Agerholm, J, Rowley, K, Johnston, L & Yule, J 2016, *First 1,000 Days Australia*, University of Melbourne.

Australian Early Development Census 2014, *The impact of socio-economics and school readiness for life course educational trajectories*, Research snapshot, AEDC.

Bandura, A & Locke, EA 2003, 'Negative self-efficacy and goal effects revisited', *Journal of Applied Psychology*, vol. 88, no. 1, pp. 87–99.

Berger, LM, Paxson, C & Waldfogel, J 2009, 'Income and child development', *Children and Youth Services Review*, vol. 31, no. 9, pp. 978–989.

Blaurock, S & Kluczniok, K 2019, 'Basic care, play, and teaching: the home learning environment and the "developmental gradient" in time use with children', *Early Childhood Development and Care*, vol. 189, no. 13, pp. 2099–2112.

Bradley, RH & Corwyn, RF 2002, 'Socioeconomic status and child development', *Annual Review of Psychology*, vol. 53, pp. 371–399.

Bronfenbrenner, U & Morris, PA 2006,'The bioecological model of human development', in RM Lerner & W Damon (eds), *Handbook of child psychology: theoretical models of human development*, Wiley & Sons Inc., pp. 793–828.

Brown, AL & Lee, J 2017, 'Evaluating the efficacy of children participating in Home Instruction for Parents of Preschool Youngsters and Head Start', *Journal of Early Childhood Research*, vol. 15, no. 1, pp. 61–72.

Burris, PW, Phillips, BM & Lonigan, CJ 2019, 'Examining the relations of the home literacy environments of families of low SES with children's early literacy skills', *Journal of Education for Students Placed at Risk*, vol. 24, no. 2, pp. 154–173.

Bryant, D (2015 unpub.) The prime provider model in practice: examining the roles and functions of HIPPY Australia.

Christensen, D, Fahey, M, Giallo, R & Hancock, K 2017, 'Longitudinal trajectories of mental health in Australian children aged 4–5 to 14–15 years', *PLoS ONE*, vol. 12, no. 11, pp. 1–20.

Cobb-Clark, DA, Salamanca, N, & Zhu, A 2016, '*Parenting style as an investment in human development*', IZA Discussion paper no. 9686, IZA (Institute of Labor Economics), Bonn, Germany.

Cook, K, Corr, L & Breitkreuz, R 2017, 'The framing of Australian childcare policy problems and their solutions', *Critical Social Policy*, vol. 37, no. 1, pp. 42–63.

Cunha, F & Heckman, JJ 2010, 'Investing in our young people', *Childhood programs and practices in the first decade of life: a human capital integration*, Cambridge University Press, pp. 381–414.

Dai, L & Wang, L 2015, 'Review of family functioning', *Open Journal of Social Sciences*, vol. 03, no. 12, pp. 134–141.

Darling, N 2007, 'Ecological systems theory: the person in the center of the circles', *Research in Human Development*, vol. 4, no. 3–4, pp. 203–217.

Davidson, P, Saunders, P, Bradbury, B & Wong, M 2018, *Poverty in Australia, 2018*, ACOSS/UNSW Poverty and Inequality Partnership report no. 2, ACOSS, Sydney.

de Lemos, M & Doig, B 1999, *Who Am I? Developmental assessment manual*, ACER, Melbourne, https://documents.acer.org/ACERPress_who_am_i_supp.pdf

Derksen, T 2010, 'The influence of ecological theory in child and youth care: a review of the literature', *International Journal of Child, Youth and Family Studies*, vol. 1, no. 3/4, pp. 326–339.

Edwards, B, Baxter, J, Smart, D, Sanson, A & Hayes, A 2009, 'Financial disadvantage and children's school readiness', *Family Matters*, vol. 83, no. 83, pp. 23–31.

Epstein, NB, Bishop, DS & Baldwin, LM 1982, 'McMaster model of family functioning: a view of the normal family', in F Walsh (ed.), *Normal family processes*, Guilford family therapy series, Guilford Press, pp. 115–141.

Falster, K, Hanly, M, Banks, E, Lynch, J, Chambers, G, Brownell, M, Eades, S & Jorm, L 2018, 'Maternal age and offspring developmental vulnerability at age five: a population-based cohort study of Australian children', *PLOS Medicine*, vol. 15, no. 4, e1002558.

Feinstein, L 2003, 'Inequality in the early cognitive development of British children in the 1970 cohort', *Economica*, vol. 20, no. 277, pp. 73–97.

Gilley, T 2003, *Early days much promise: an evaluation of HIPPY Australia*, Brotherhood of St. Laurence, Fitzroy, Vic.

Goldfeld, S, O'Connor, M, Chong, S, Gray, S, O'Connor, E, Woolfenden, S, Redmond, G, Williams, K, Mensah, F, Kvalsvig, A & Badland, H 2018, 'The impact of multidimensional disadvantage over childhood on developmental outcomes in Australia', *International Journal of Epidemiology*, vol. 47, no. 5, pp. 1485–1496.

Goldstein, K 2017, *Five decades of HIPPY research: a preliminary global meta-analysis and review of significant outcomes – final report*, HIPPY International.

Goodman, R 1997, 'The Strengths and Difficulties Questionnaire: a research note', *Journal of Child Psychology and Psychiatry*, vol. 38, pp. 581–586.

Grusec, JE 1992, 'Social learning theory and developmental psychology: the legacies of Robert Sears and Albert Bandura', *Developmental Psychology*, vol. 28, no. 5, pp. 776–786.

Harkness, S, Gregg, P & Macmillan, L 2012, *Poverty: the role of institutions, behaviours and culture*, York, UK.

Hartas, D 2012, 'Inequality and the home learning environment: predictions about seven-year-olds' language and literacy', *British Educational Research Journal*, vol. 38, no. 5, pp. 859–879.

Hayes, N & Berthelsen, DC 2020, 'Longitudinal profiles of shared book reading in early childhood and children's academic achievement in Year 3 of school', *School Effectiveness and School Improvement*, vol. 30, no. 1, pp. 31–49.

Hilder, L, Zhichao, Z, Parker, M, Jahan, S & Chambers, G 2014, *Australia's mothers and babies 2012*, Perinatal statistics series no. 30, AIHW, Canberra.

Johnson, U, Martinez-Cantu, V, Jacobson, A & Weir, C 2012, 'The Home Instruction for Parents of Preschool Youngsters Program's relationship with mother and school outcomes', *Early Education and Development*, vol. 23, no. 5, pp. 713–727.

Kuger, S, Marcus, J & Spiess, CK 2019, 'Day care quality and changes in the home learning environment of children', *Education Economics*, vol. 27, no. 3, pp. 265–286.

Lanz, M & Maino, E 2014, 'Family Environment Scale', in AC Michalos (ed.), *Encyclopedia of quality of life and well-being research*, Springer Netherlands, Dordrecht, pp. 2170–2173.

Lehrl, S, Evangelou, M & Sammons, P 2020, 'The home learning environment and its role in shaping children's educational development', *School Effectiveness and School Improvement*, vol. 3453, pp. 1–6.

Liddell, M, Barnett, T, McEachran, J & Roost, F 2010, *HIPPY national evaluation: interim report, prepared for the Department of Education, Employment and Workplace Relations*.

Liddell, M, Barnett, T, Roost, F & McEachran, J 2011, *Investing in our future: an evaluation of the national rollout of the Home Interaction Program for Parents and Youngsters (HIPPY): final report to the Department of Education, Employment and Workplace Relations*.

Mathematica 2019, *Home Visiting Evidence of Effectiveness review: executive summary September 2019 updated December 2019*, Mathematica OPRE Report #2019-93, Princeton, New Jersey, https://homvee.acf.hhs.gov/sites/default/files/2020-02/homevee_effectiveness_executive_summary_dec_2019.pdf

McLachlan, R, Gilfillan G & Gordon, J 2013, *Deep and persistent disadvantage in Australia*, Productivity Commission Staff Working Paper, Productivity Commission, Canberra.

Melhuish, E, Phan, M, Sylva, K, Sammons, P, Siraj-Blatchford, I & Taggart, B 2008, 'Effects of the home learning environment and preschool center experience upon literacy and numeracy development in early primary school', *Journal of Social Issues*, vol. 64, no. 1, pp. 95–114.

Miller, I, Ryan, C, Keitner, G, Bishop, D & Epstein, N 2000, 'The McMaster approach to families: theory, assessment, treatment and research', *Journal of Family Therapy*, vol. 22, no. 2, pp. 168–189.

Minh, A, Muhajarine, N, Janus, M, Brownell, M & Guhn, M 2017, 'A review of neighborhood effects and early child development: How, where, and for whom, do neighborhoods matter?', *Health and Place*, vol. 46, pp. 155–174.

Molloy, C, Goldfeld, S, Harrop, C & Perini, N 2018, *Restacking the odds: reducing intergenerational disadvantage in Australia*, Murdoch Children's Research Institute, Social Ventures Australia & BAIN & Company, [Melbourne], https://www.rch.org.au/uploadedFiles/Main/Content/ccchdev/CCCH-Restacking-the-Odds-info-sheet-FINAL.pdf.

Moore, T, Arefadib, N, Deery, A & West, S 2017, *The first thousand days an evidence paper*, Centre for Community Child Health, Parkville, Vic.

National Literacy Trust 2018, *Improving the home learning environment: a behaviour change approach*, Department for Education, UK, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/756020/Improving_the_home_learning_environment.pdf.

Neckoway, R, Brownlee, K, & Castellan, B 2007, 'Is attachment theory consistent with Aboriginal parenting realities?', *First Peoples Child & Family Review*, vol. 3, no. 1, pp. 65–74.

O'Connor, T & Scott, S 2007, *Parenting and outcomes for children*, Joseph Rowntree Foundation, York, UK.

OECD 2017, *Early learning matters*, OECD Publishing,. https://www.oecd.org/education/school/Early-Learning-Matters-Project-Brochure.pdf

Productivity Commission 2013, *Childcare and early childhood learning*, Issues paper, Productivity Commission, Canberra, https://www.pc.gov.au/inquiries/completed/childcare/issues/childcare-issues.pdf.

Roost, F, McColl Jones, N, Allan, M & Dommers, E 2014, *Recruiting and retaining families in HIPPY: final report*, Brotherhood of St. Laurence, Fitzroy, Vic.

Rosa, EM & Tudge, J 2013, 'Urie Bronfenbrenner's theory of human development: its evolution from ecology to bioecology', *Journal of Family Theory & Review*, vol. 5, no. 4, pp. 243–258.

Schleicher, A 2019, *PISA 2018 insights and interpretations*, OECD Publishing.

Shonkoff, JP 2010, 'Building a new biodevelopmental framework to guide the future of early childhood policy', *Child Development*, vol. 81, no. 1, pp. 357–367.

Sosu, EM & Schmidt, P 2017, 'Economic deprivation and its effects on childhood conduct problems: the mediating role of family stress and investment factors', *Frontiers in Psychology*, vol. 8, no.1580, pp. 1–12.

Spodek, B & Saracho, ON 1999, 'The relationship between theories of child development and the early childhood curriculum', *Early Child Development and Care*, vol. 152, no. 1, pp. 1–15.

Sturge-Apple, MA, Davies, PT & Cummings, EM 2010, 'Typologies of family functioning and children's adjustment during the school years', *Child Development*, vol. 81, no. 4, pp. 1320–1335.

Sylva, K, Melhuish, E, Sammons, P, Siraj-Blatchford, I & Taggart, B 2004, *Final report from the primary phase: pre-school, school and family influences on children's development during Key Stage 2 (7–11)*, Department for Children, Schools and Families, Nottingham, UK.

Tayler, C 2016, *The E4Kids Study: assessing the effectiveness of Australian early childhood education and care programs, Overview of findings at 2016*, final report submitted to the Victorian Department of Education and Training and the Queensland Department of Education and Training, Melbourne Graduate School of Education.

Thomson, S, De Bortoli, L, Underwood, C & Schmid, M 2018, *PISA 2018 PISA in Brief I: student performance*, ACER for the Department of Education.

Toth, K, Sammons, P, Sylva, K, Melhuish, E, Siraj, I & Taggart, B 2020, 'Home learning environment across time: the role of early years HLE and background in predicting HLE at later ages', *School Effectiveness and School Improvement*, vol. 31, no. 1, pp. 7–30.

Warren, D 2017, *Low income and poverty dynamics: implications for child outcomes*, Department of Social Services, Canberra.

Wilkins, R 2016, *The Household, Income and Labour Dynamics in Australia Survey: selected findings from Waves 1 to 14*, Melbourne Institute of Applied Economic and Social Research, University of Melbourne.

Yu, M & Daraganova, G 2015, 'Children's early home learning environment and learning outcomes in the early years of school', in Australian Institute of Family Studies, *The Longitudinal Study of Australian Children: annual statistical report 2014*, AIFS, Melbourne.

Zubrick, S, Lucas, N, Westrupp, E & Nicholson, J 2014, *Parenting measures in the Longitudinal Study of Australian Children: construct validity and measurement quality*, Waves 1 to 4, Department of Social Services, Canberra.

Changing children's trajectories
Results of the HIPPY Longitudinal Study

Julie Connolly & Shelley Mallett
2020

Acknowledgement of Country

The Brotherhood of St. Laurence acknowledges the Traditional Custodians of the land and waterways on which our organisation operates. We pay our respects to Aboriginal and Torres Strait Islander Elders past, present and emerging.

Brotherhood of St Laurence
Working for an Australia free of poverty