

Evaluating the effectiveness of the Home Interaction Program for Parents and Youngsters (HIPPY)

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There is now a substantial body of evidence that highlights the importance of the early/preschool years in predicting a child's developmental trajectory and later-life outcomes. In the early years the architecture of the child's brain is being formed and is extremely sensitive to inputs from the caretaking environment. Developmental gaps open up early, are predictive of future life outcomes and are more difficult and costly to close later in life (Hart & Risley, 1995; Heckman & Lochner, 2000; Heckman, 2008). Some challenging later-life outcomes that have their roots in early childhood include poor literacy, aggressive and antisocial behaviour, mental health problems, family violence, welfare dependency, crime, obesity and substance abuse (Oberklaid, 2007). The cost to society in terms of lost productivity and attempts to ameliorate these problems is greater than the cost of early childhood intervention. Investment in early years programs that target developmentally vulnerable children and their parents or caretaker(s) is realistically estimated to return a benefit to society of as much as $4 for every $1 spent (Duncan, Lugwig, & Magnuson, 2007; Heckman & Masterov, 2007). Thus, human capital investment in the early years has been described as a 'win–win' policy, with no social or economic trade-off. It is described as a macro-policy that simultaneously enhances both economic competitiveness and social cohesion (Esping-Andersen, 2009; Heckman & Masterov, 2007).

It is in part this growing body of evidence about the importance and value of the early years that has led many governments throughout the world to increase their investment in early years programs (Lynch, Law, Brinkman, Chittleborough, & Sawyer, 2010). Throughout Europe during the period 2001 to 2008, twice as many countries increased expenditure on preschool education and care as decreased expenditure.

Government expenditure on preschool education and care is predominantly allocated to centre-based programs (e.g., kindergartens or child care centres). However, comprehensive early childhood policy also includes a focus on

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parenting and the home learning environment, particularly for children who are at risk of developmental delay due to the adverse effects of poverty or socio-economic disadvantage (Field, 2010; Marmot, 2010). Parenting style and the home learning environment are important because they have been shown to account for around half the effect of disadvantage on a child's early learning and development (Brooks-Gunn & Duncan, 2000; Marmot, 2010) and are highly predictive of the child's early school success and later-life outcomes (Foster, Lambert, Abbott-Shim, McCarty, & Franze, 2005; Heckman & Masterov, 2007; Tudge, Odero, Hogan, & Etz, 2003). Waldfogel (2004, cited in Green & Mostafa, 2011), who reviewed recent international research on early cognitive development, found that there were multiple influences on development in the early years, and classified them into three types: child endowments, centre-based preschool education and care, and parenting and the home learning environment. Heckman and Masterov (2007) have called for preschool centres to be coupled with home visitation programs to reach those who are vulnerable and in greater need of support. More recently, Marmot (2010) has argued similarly for what he calls an early childhood policy of "proportionate universalism"—a policy under which all parents/caregivers and their children have access to quality preschool education and care, but also under which those who need more get more.

Home-based early childhood development programs target the child as well as the parent's knowledge and skills, seeking particularly to build the capacity of the parent/caregiver to be more engaged in facilitating their child's development and provide enriched learning opportunities (Miller, Maguire, & Macdonald, 2012). Home visitors are the primary mechanism through which programs are delivered to the parent, and it is through changes in the parent's attitude and behaviour that changes in child outcomes are achieved (Miller et al., 2012).

HIPPY

The Home Interaction Program for Parents and Youngsters (HIPPY) was developed in 1969 at the Hebrew University of Jerusalem in Israel and now operates in approximately 250 communities across ten countries. In 1998 the Brotherhood of St Laurence, a not-for-profit organisation, began running HIPPY in Australia under licence from the Hebrew University. The program commenced at a single site: the inner-city Melbourne suburb of Fitzroy, which had a population that included many vulnerable families. Over the next nine years, the Brotherhood of St Laurence expanded the program to nine disadvantaged communities. In 2008 the Australian Government commenced a scaling-up of the program to 50 disadvantaged communities across the country.

HIPPY is a combined home and centre-based early childhood development program that supports parents[1] in their role as their child's first teacher. It targets communities that experience various forms of social disadvantage. Home tutors work with parents as peers over two years during the critical period of the child's transition to full-time school. The home tutors are recruited from the local community and in most cases have been participants in the program as parents. They work as paid paraprofessionals, trained and supported by an appropriately qualified professional coordinator.

The program uses structured materials and activities designed to be integrated into daily life. Home tutors schedule fortnightly visits to work through these resources with the parent in the family's home. Parents then work through the materials with their children for around 15 minutes, five to six days each week. There are eight storybooks and 30 activity packs for parents and children in the first year (when children are aged 4) of HIPPY and seven storybooks and 15 activity packs for the second year (when children are aged 5). In addition to fortnightly home visits, the model includes parent group meetings with tutors, held every alternate fortnight, for the purpose of familiarisation with the materials and "enrichment activities" that focus on parenting skills, child development and links with the community (members and services). HIPPY aims to ensure that children start school on an equal footing with their more advantaged peers, as well as to strengthen communities and the social inclusion of parents and children.

HIPPY has many of the known "active ingredients" of effective early childhood parenting programs:

- the program is intensive;
- it is conducted over a two-year period that traverses the child's transition to school;
- it targets both the child and the parent;
- it has a structured curriculum in which parents practice new skills within the home; and
- it is both home- and centre-based, and makes linkages to other services the family may need (Brooks-Gunn, 2003; Sutton, Utting, & Farrington, 2004).

Evaluations of HIPPY

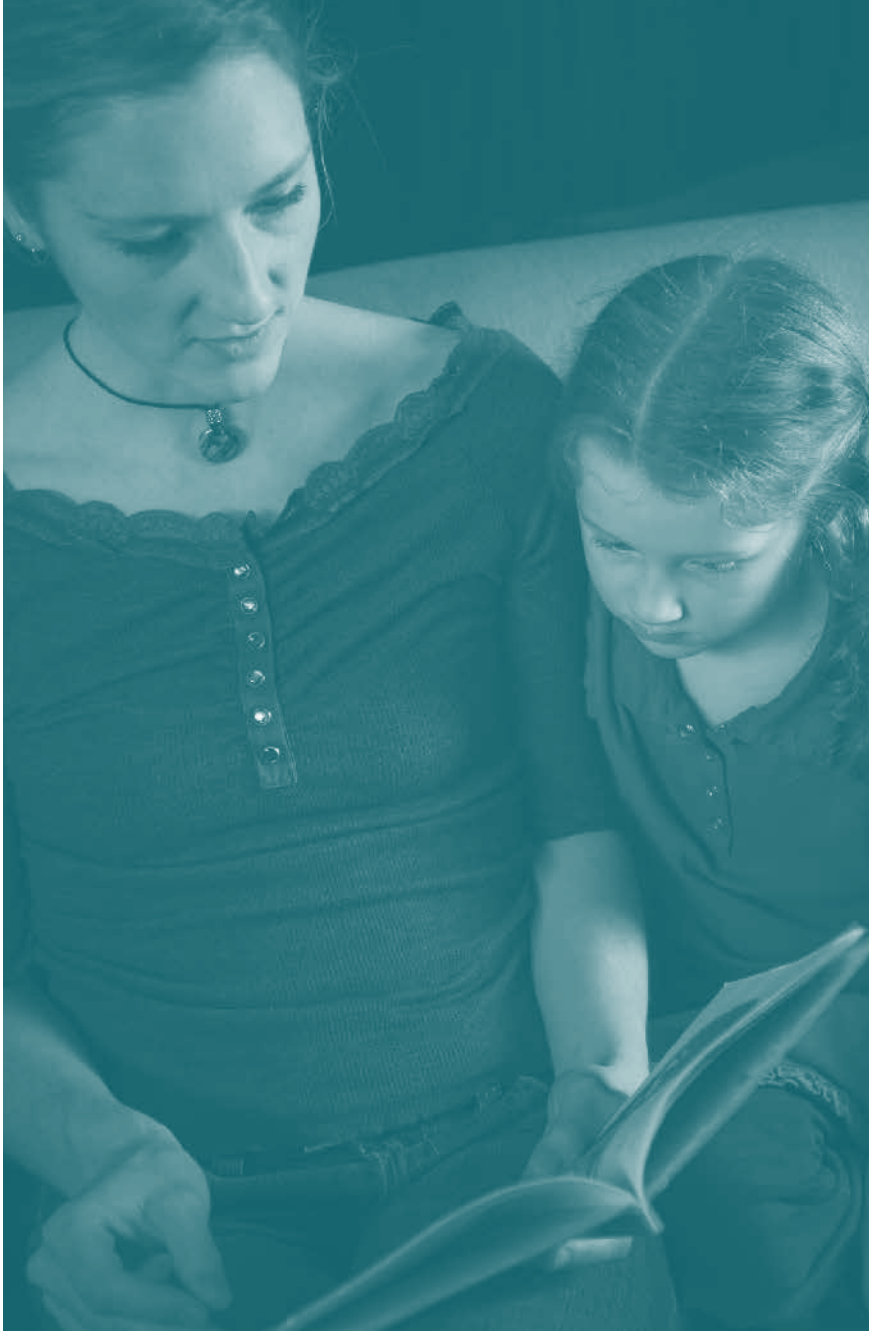
While the design appears to be theoretically sound, research evidence about the effectiveness of the program is limited, there having been only two experimentally designed evaluations in its 43-year history. Kagitcibasi, Sunar and Bekman (1996) randomly assigned 280 low-income mothers and children in Istanbul to either HIPPY or a non-HIPPY control group and measured outcomes after four years. They found positive program effects in child intelligence, social–emotional development, school achievement and parent–child interactions. Baker, Piotrkowski&Brooks-Gunn (1999) randomly assigned 190 low-income, mostly African-American or Latino mothers and children to either a HIPPY or a non-HIPPY control group, and had two experimental cohorts. In one cohort they found positive effects on the child's cognitive skills, and on second grade classroom adaptation and reading achievement scores, but found no effect on standardised maths scores at the end of HIPPY. Moreover, these findings were not replicated in the second cohort, for which no effect of HIPPY was found. Since the authors were not able to explain this, they reported that, based on their trial, the effectiveness of HIPPY was inconclusive.

The national evaluation of HIPPY in Australia was designed as a quasi-experimental study that assessed outcomes for parents, children and home tutors at the beginning and end of the two-year program. It was funded by the Australian Government through the Department of Education, Employment and Workplace Relations (DEEWR) and led by a chief investigator from Monash University with practical assistance provided by the Research and Policy Centre at the Brotherhood of St Laurence. Ethics approval was obtained from the Monash University Human Research Ethics Committee.

The evaluation included a review of five components of the program: effectiveness, cost-effectiveness, appropriateness (how it aligns with current early childhood development policy), appropriateness to Indigenous Australians and governance.[2] This article reports on the effectiveness evaluation and the effects of HIPPY on parents and children.

Method

The most robust and appropriate method for evaluating the effectiveness of a social intervention is the randomised controlled trial (Muir Gray, 2001). While such a trial was logically and ethically possible in this instance, due to a short lead time it was not practically or politically possible. Instead, we used a propensity score matching method to derive a non-HIPPY comparison group from the Longitudinal Study of Australian Children (LSAC).



The Australian Medicare insurance database was used to identify families with four-year-old children for participation in the K cohort of the LSAC. The coverage was very good: 101.5% of Australian Bureau of Statistics (ABS) data (some children were registered on multiple Medicare enrolments). The sampling units were some 2,700 postcodes. Eligible families were sent a letter of invitation by Medicare with an information brochure and opt-out, reply-paid slip. From the mail-out sample of 9,893 families, 4,983 parents and their four-year-old children were interviewed between March and November 2004, and 4,464 were interviewed again between April and December 2006.

HIPPY is a combined home and centre-based early childhood development program that supports parents in their role as their child's first teacher.

Sites for the national rollout of HIPPY were selected by the DEEWR in consultation with HIPPY Australia. To inform selection, the ABS Socio-Economic Indexes for Areas (SEIFA) Index of Relative Socio-economic Disadvantage and the percentage of children under five years of age in each area were considered, along with geographical spread across Australia, capacity of a local service provider and links with other programs determined by an "expression of interest" process. HIPPY sites included in the evaluation comprised all 13 sites selected for the first round (2009) of the five-year national rollout of HIPPY, plus one at La Perouse, an established site in suburban Sydney with mostly Indigenous Australian parents and children.

Parents and children were recruited by the HIPPY coordinator at each site, mostly by outreach and "soft" recruitment techniques such as visiting mothers' groups, schools, health professionals and playgroups. Parents and children were eligible for inclusion in the evaluation if they were enrolled in HIPPY at the time of the research team's first visit to conduct interviews and if they gave their consent to be contacted. Site visits were timed to occur soon after week 1 of the program, between May and July 2009. From 266 eligible families who consented to be contacted about the study, the baseline sample included 197 parent–child pairs for whom full data was able to be obtained. All parents and children who completed at least the first year of HIPPY were interviewed at the end of the two-year program during November and December 2010. Data collected at both the beginning and end of the HIPPY program were then compared to the 2004 and 2006 data of the matched LSAC comparison group.

Propensity score matching

Propensity score matching is a method that can be used when randomisation has not been possible. The objective of the two approaches is the same—that is, to obtain two groups that are comparable on all measured and unmeasured characteristics except for the intervention being tested. In this way, any difference observed between the two groups at follow-up can be attributed to the intervention with a relatively high level of confidence. Randomisation is a superior method because the robustness of the propensity score approach relies upon the number of characteristics available to be measured. and how the mathematical model is specified—that is, which characteristics are included or excluded in the model (Dehejia, 2005). In addition, as the propensity score matching process relies on measured characteristics, it is less likely to achieve a match/balance between the two groups on unmeasured characteristics. Nevertheless, propensity score matching is considered a useful and powerful tool in quasi-experimental research designs that aim to estimate the effectiveness of an intervention. The method was used in the UK National Evaluation of Sure Start in 2007. To our knowledge, the national evaluation of HIPPY represents its first application in Australia for evaluating a social (non-medical) intervention.

Table 1 lists the variables included in the propensity score model. The *p* values indicate

Table 1 Difference between HIPPY and LSAC groups before and after propensity score matching

Included variables	Before propensity score matching	After propensity score matching
SEIFA index score of relative disadvantage	$p < .001$	$p = .030$
% of local population < 5 years of age	$p = .086$	$p = .363$
Location (metropolitan/non-metropolitan; large/small)	$p < .001$	$p = .995$
Who Am I? readiness for school score/classification, grouped according to developmental age	$p < .001$	$p = .202$
% population of Indigenous Australian background	$p < .001$	$p = .734$
Number of people living in the household	$p = .001$	$p = .597$
Whether the parent was born in an English-speaking country	$p < .001$	$p = .470$
Employment status of parent (usually the mother)	$p < .001$	$p = .073$
Financial hardship scale	$p < .001$	$p = .296$
Parent's self-rating of overall health	$p = .001$	$p = .761$
Home activities scale	$p < .001$	$p = .378$
Parent's highest level of education	$p < .001$	$p = .307$
Child's developmental age	$p < .001$	$p = .733$

how significantly different the HIPPY and LSAC groups were before and after the propensity score matching was run. A p value of less than 0.05 is generally regarded as indicating that the two groups are not matched on that specific variable/characteristic. A p value of 1 means that the two groups are perfectly matched.

Running the model resulted in a total of 106 HIPPY participants and 2,473 LSAC controls, giving the study sufficient power to detect a small effect of HIPPY. That is, the study had an 80% chance of detecting an effect size of D = 0.35, and a 68% chance of detecting an effect size of D = 0.30.

In this article we focus on the outcome measures where comparisons could be made between the HIPPY group and the propensity-score-matched, non-HIPPY group drawn from the LSAC. The method of analysis depended on the type of data. For scale data, ANCOVA was used; for binary data, logistic regression was used; and for ordinal data, ordinal logistic regression was used. These cross-sectional analyses at the end of the two-year program (T2) were based on a balanced panel (the same individuals at baseline and T2), and included the propensity score variable and, where possible, the outcome variable at baseline as covariates to control for any variance between the two groups at baseline.

Implementation fidelity

We included an analysis of fidelity. Fidelity is essentially the degree to which a program was implemented/delivered and taken up as planned. Measuring fidelity is not an exact science but endeavouring to do it in experimental research designs is important for two reasons. First, if a program is not found to have an effect, we want to be in a position to make a judgement about whether this result is due to a failure of the program itself, or a failure to implement and take up the program as intended. Second, the degree of fidelity may give us an insight into the acceptability and appropriateness of the program for the target population.

There is no single or established method of measuring fidelity (McLeod, Southam-Gerow, & Weisz, 2009). We adopted the approach developed by Dane and Schneider (1998) and collected data from parents on four aspects of fidelity: adherence, exposure, responsiveness and quality of delivery. We developed an overall fidelity index for each HIPPY parent–child pair. We then divided the total HIPPY group at the median into a HIPPY low-fidelity group (those who essentially did less of HIPPY) and a HIPPY high-fidelity group (those who essentially did more of HIPPY) and re-ran the analysis on program effects/outcomes to see if outcomes were different for each of the two HIPPY fidelity groups. Further information on our approach to measuring fidelity, the analysis of the effect of fidelity on outcomes and limitations to the approach and inference can be found in the full evaluation report.

Child school readiness

Cognitive measures—literacy and numeracy

Five measures were used to assess HIPPY's effects on the child's cognitive abilities:

- teachers' reports on the National Centre for Education Statistics (Washington DC) Academic Rating Scale (ARS) on three measures: language, literacy and mathematical thinking;
- parents' reports on children's progress in reading and maths; and
- the 'Who Am I?', an Australian validated school readiness measure designed to assess young children's cognitive development (Rothman, 2007).

Using these instruments, we found a significant difference only in the parents' reports of their child's progress in maths. HIPPY parents were 1.8 times more likely than LSAC parents to report that they thought their child's maths ability was better than that of the child's classmates (OR = 1.81, p = .04).

Comparison between the HIPPY and LSAC matched groups was possible only with the first four measures, as the LSAC assessment of children at age 6 did not include the 'Who Am I?'. We instead made a comparison with the Australian norm data. This revealed that, at baseline, HIPPY children scored (on average) eight points below the norm on the 'Who Am I?'. However, as Figure 1 (on page 32) shows, after two years of HIPPY, the gap between HIPPY children's numeracy and literacy scores and the Australian norm had been closed. A limitation of this analysis, however, is that the two groups are not the same and other explanations for the closing of the gap cannot be ruled out, meaning that one should be cautious in attributing the result to the effect of the HIPPY program.

Socio-emotional adjustment

Of the five Strengths and Difficulties Questionnaire (SDQ) subscales used to assess HIPPY's effect on the child's school readiness in terms of their socio-emotional development, two subscales revealed significant differences

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between the HIPPY and matched comparison LSAC groups.

HIPPY had significant positive effects on the child's ability to relate to their peers, as reported by the parent. Both the HIPPY and LSAC groups' mean scores on the SDQ peer problems scale were within normal range and at baseline there was no significant difference between the groups. At the end of the program the HIPPY group's mean score was better than that of the LSAC group and a 0.4 standard deviation difference between the groups was observed (p = .003).

On the child problem behaviour subscale, as reported by parents, again both the HIPPY and LSAC matched groups were within the normal range and at baseline there was no significant difference between the groups. At the end of HIPPY, despite a decline in children's difficult behaviour in both groups, we observed a significant difference of .3 of a standard deviation (p = .05), with HIPPY children's mean score being worse than that of the LSAC group. However, our fidelity analysis revealed that the worse score on the child problem behaviour subscale only held true for the HIPPY low fidelity group and not for the high fidelity group.

Further, we observed a significant positive result, compared to the LSAC group, on the child prosocial behaviour subscale for the HIPPY high fidelity group but not for the HIPPY low fidelity group.

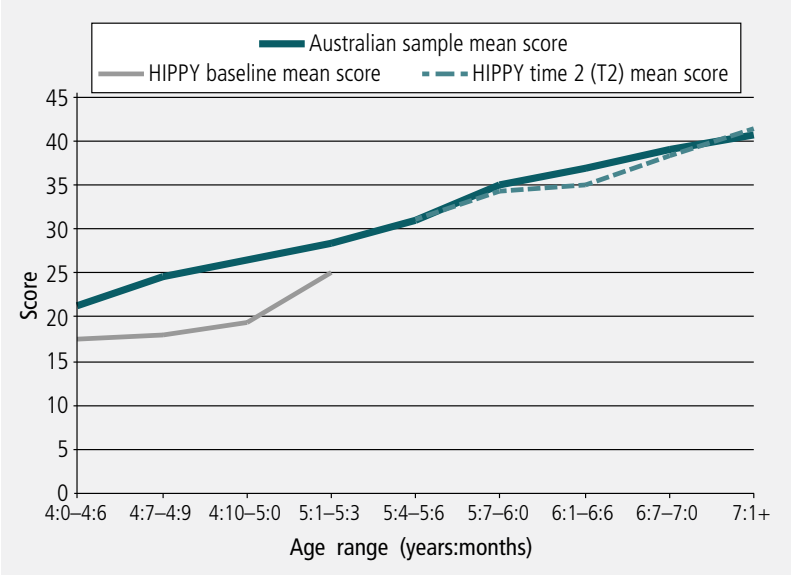


Figure 1 Who Am I? scores of HIPPY participants at baseline and T2, compared with the Australian norm

Language

After controlling for the age of the child, we found no significant difference between the HIPPY and LSAC groups on the child's language and vocabulary skills as measured by the Peabody Picture Vocabulary Test (PPVT) (Dunn & Dunn, 1997). However, at the end of the program, LSAC parents were nearly three times more likely than HIPPY parents to have concerns about the way their child made speech sounds (*OR* = 2.98, p = .34), and nearly seven times more likely to have concerns about their child's ability to understand what they said (*OR* = 6.83, p = .02).

Approach to learning

We found no significant difference between the HIPPY and LSAC matched groups on the Social Skills Rating Scale (SSRS). However, the teachers' reports revealed that, on average, by the end of the program, HIPPY parents as compared to LSAC parents had more contact with their child's school (a difference of .4 of a standard deviation), and were three times more likely to be involved in their child's learning and development (p = .01).

Parent–child relationship and home learning environment

We investigated the effect of HIPPY on the parent–child relationship by examining parenting style and the home learning environment—the two areas that are known to matter most in the early years (Field, 2010).

Effect of HIPPY on parenting style

In the child's early years, three main dimensions of parenting style have been found to have the most significant effect on the child's physical and emotional health and their later-life social and academic outcomes. These are parental warmth, hostile parenting and consistent parenting (Zubrick et al., 2008).

Results showed that HIPPY had a significant effect on reducing the level of hostile parenting. While no significant difference was observed between the HIPPY and LSAC matched groups at baseline, analysis revealed a significant decline in the level of hostile parenting within the HIPPY matched group by the end of the program. Indeed, HIPPY parents scored, on average, .2 of a standard deviation better than their LSAC counterparts (p = .03).

While we observed no significant difference between the HIPPY and LSAC parents on the other two subscales of warmth and consistency, scores on both remained relatively high

and stable throughout the program period. This finding is noteworthy since warm and consistent parenting have been significantly associated with positive developmental outcomes for children (Zubrick et al., 2008), and are highly predictive for up to ten years in terms of antisocial behaviour, mental health and substance misuse (Fergusson, Horwood, & Lynskey, 1994).

Effect of HIPPY on the home learning environment

According to Payne, Whitehurst & Angell (1994), the family learning environment includes activities both in the home and outside the home in which children are engaged with family members. A child's level of preparation at the beginning of their schooling greatly depends on the learning opportunities provided to them in the family. Tudge et al. (2003) and Foster et al. (2005) have demonstrated that the type and frequency of shared activities between adults in the family and children are strong contributors to children's academic success.

To measure the effect of HIPPY on the home learning environment, we used three instruments: an in-home activities scale, an out-of-home activities scale and the number of minutes the child enjoyed being read to by a family member.

HIPPY had a positive effect on both in-home and out-of-home activities. While no significant difference was found between the HIPPY and LSAC matched groups on the in-home activities scale at baseline, after two years in the program, children in the HIPPY group scored significantly higher than their matched LSAC counterparts on the scale, creating a gap of 2 standard deviations ($p < .001$). The very large difference was due to a large and significant improvement in the in-home activities within the matched HIPPY group and a simultaneous large and significant decline within the matched LSAC group (see Figure 2).

Similarly, at the start of HIPPY, we found no significant difference between the matched groups on the out-of-home activity scale; but at the end of the program we found a large significant difference between the two groups, with the HIPPY parents scoring an average of .7 of a standard deviation better than their LSAC counterparts on the out-of-home activity scale ($p = .02$). In addition, we found that HIPPY parents were 3.5 times more likely than their LSAC counterparts to report that their child liked being read to for longer in a single sitting.

Thus, the largest effects of HIPPY were found in relation to the home learning environment.

Parent wellbeing and social inclusion

HIPPY aims to increase parental social inclusion. We examined social inclusion using the framework of Levitas et al. (2007). The framework has three domains—resources, participation and quality of life—which are further divided into nine themes. The three domains form the structure of this section.

Resources

The resources domain includes three themes: material or economic resources, access to private or public services, and social resources. Participation in HIPPY could not reasonably be considered to have a direct effect on HIPPY parents' or their family's access to material or economic resources. However, access to public services and social resources are potentially affected by HIPPY.

Parents were asked the degree to which they agreed with the following statement: "If you need information about local services, you know where to find that information". The majority of respondents agreed with this statement. After controlling for baseline differences, we found that HIPPY parents were 1.6 times more likely than the matched LSAC group to agree that they knew where to find information about local services. However, this result was only significant at the $p = .12$ level.

In terms of social networks, there were no significant differences between the HIPPY and LSAC parents' contact with their own parents, friends or neighbours at either time.

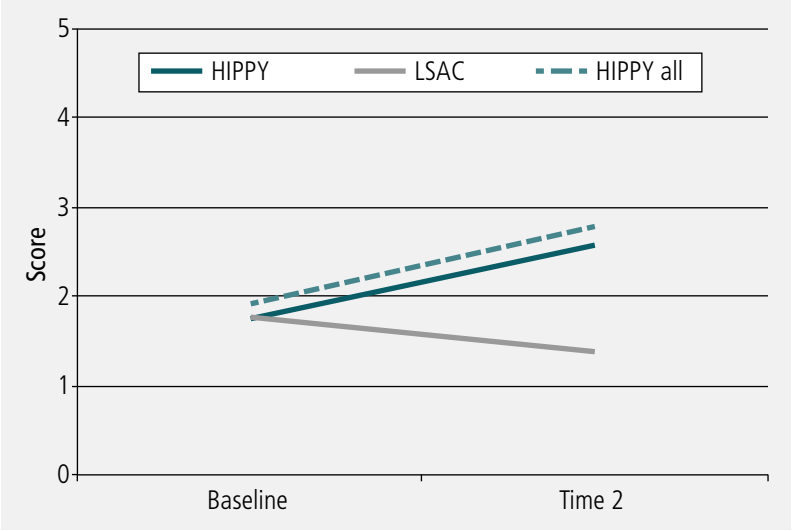


Figure 2 In-home activities mean scores at Baseline and T2 for the matched HIPPY and LSAC groups, and all HIPPY participants

HIPPY had significant positive effects on the child's ability to relate to their peers, as reported by the parent.

In terms of support in raising their children, at the end of the program, HIPPY parents were two and three times more likely to report higher levels of support from "other family members" (*OR* = 2.28, $p < .001$) and "friends" (*OR* = 2.94, $p < .001$), respectively, than their LSAC counterparts. There was no significant difference between the two groups in support from a partner, grandparents or neighbours.

Parents were also asked how often they felt they needed support but could not get it, rated on a four-item Likert scale from "very often" to "never". After controlling for baseline differences, we found that by the end of the program the HIPPY parents were more than two times less likely than the LSAC parents to report that they could not access support when they needed it (*OR* = 2.22, $p = .02$).

Participation

The Levitas framework includes four participation themes: employment; education and training; social; and political and civic engagement.

While there was no significant difference between the HIPPY and LSAC groups on employment status at the end of the program, both groups had significantly increased their level of employment since the start of the program. However, the size of the shift into paid employment during this period was greater in the HIPPY group; and an analysis of the spread of data revealed a much larger proportion of HIPPY parents than of LSAC parents whose self-reported status had changed from being "not in the labour force" to being "unemployed and looking for work".



HIPPY participants undertake an important social role as parents of their children. HIPPY and LSAC parents were asked to rate themselves on a five-point scale from "not a very good parent" to "a very good parent". HIPPY parents were 82% more likely than LSAC parents to give themselves a better rating as a parent (*OR* = 1.82, $p = .04$). The fidelity analysis further revealed that the significant difference between the LSAC and HIPPY groups (low and high fidelity) only held true for the HIPPY high fidelity group. We also observed a significant increase in HIPPY parents' confidence in their role as their child's first teacher between the start and the end of the program ($z = -3.37$, $p < .001$, $D = 0.49$). Unfortunately this was not measured in the LSAC, so a comparison with LSAC could not be made.

In terms of culture, education and skills, we observed no significant difference in engagement in formal education and training between the HIPPY and LSAC groups.

Two aspects of political and civic participation were examined: parents' involvement in community activities and their belief that they could influence local decisions. While there was no significant difference in participation in community activities between the HIPPY and LSAC groups, we observed a significant increase between the start and end of the program in HIPPY parents' beliefs that they could influence decisions affecting their local area ($z = -3.38$, $p < .01$, $D = 0.36$). However, as this too was not asked in the LSAC, a comparison between the groups could not be made.

Quality of life

Two themes within the quality of life domain of the social inclusion framework could be influenced by parents' involvement in HIPPY: health and wellbeing, and perceptions about their neighbourhood as a place to live.

No significant differences were observed between the matched parent groups in either their self-ratings of overall health or their self-ratings of mental health on the Kessler 6 (K6) scale of psychological distress.

Two variables were used to examine the effect of HIPPY on parents' perceptions about their neighbourhood as a place to live. The first was a composite measure of belonging, which comprises knowledge of local services,

being informed about local affairs, sense of identification with the neighbourhood and view of whether most people in the neighbourhood can be trusted. There was no significant difference between the LSAC and HIPPY groups at the start of the program. However, by the end of the program, the HIPPY group's mean score on the neighbourhood belonging scale was higher (better) than that of the LSAC group. The difference was small but significant ($F(1,1587) = 3.65$, $p = .05$, $D = 0.3$) (see Figure 3).

The second variable was the parents' rating of the neighbourhood as a place to bring up children. There was no significant difference in the ratings at baseline but, at the end of the program, LSAC parents were 1.7 times more likely than the HIPPY parents to rate their neighbourhood as a "good" place to bring up their child ($OR = 1.7$, $p = .04$). We consider this as an aspirational finding in that HIPPY parents are not immune to knowing that they live in a disadvantaged area and that other less disadvantaged areas would be better places to raise their children.

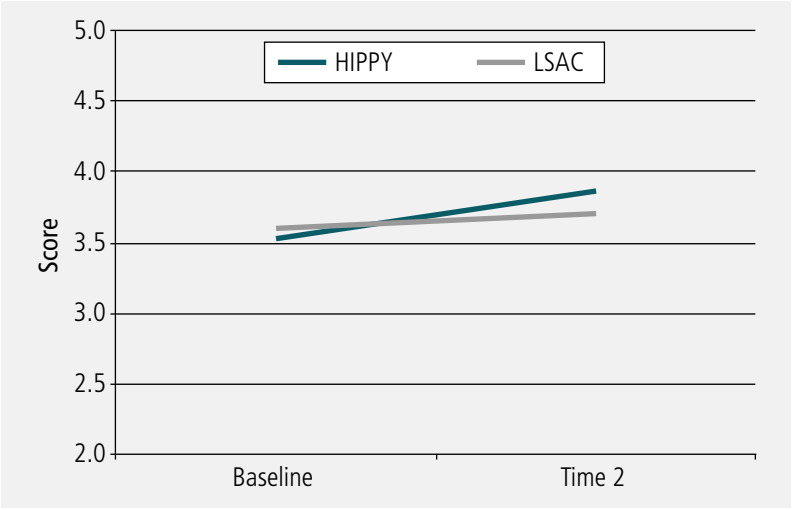


Figure 3 Parents' sense of neighbourhood belonging at Baseline and T2

Discussion and conclusion

This article has focused on the results where comparisons could be made between the HIPPY group and the propensity-score-matched non-HIPPY group drawn from the LSAC, or the Australian norm data in the case of the child's early numeracy and early literacy skills. The largest number and largest size of effects were found clustered around the parent (involvement in child's learning and development, home activities, reading with child, feeling supported in raising their child, able to access services when needed and parenting self-efficacy)—and this is perhaps not surprising given that HIPPY is essentially a parenting program. The positive findings with respect to the parenting style and home learning environment are important because these factors have been shown to account for around half the effect of disadvantage on a child's early learning and development, and are highly predictive of the child's early school success and later-life outcomes (Brooks-Gunn, 2003). Although reduced levels of hostile parenting were most highly correlated with child social-emotional wellbeing, both in this study and in others (Zubrick et al., 2008), the finding of the positive effect of HIPPY on parenting style would have been more meaningful if effects had also been found on the parental warmth and consistency scales. The other strong and important effect of HIPPY was found in the parents' confidence as their child's first teacher, and parental self-efficacy. As Giallo, Kienhuis, Treyvaud and Matthews (2008, p. 46) found:

> Parental self-efficacy to manage transition and their children's academic and social adjustment to school are significantly related, affirming the need to support both parents and children through the transition period, and provide parents with adequate information, resources and support.

This evaluation strengthens the evidence base about the effectiveness of HIPPY, complementing its strong theoretical base. However, the results have been obtained from a non-randomised study design that is largely contingent on the way in which the propensity score matching model was specified. The study would benefit from sensitivity analysis of this propensity score matching model, and the evidence base more generally about the effectiveness of HIPPY would be enhanced by a suitably powered randomised controlled trial and the inclusion of more objective measures of outcomes. Such an evaluation would also eliminate a limitation of this analysis in terms of any possible time of measurement effect, given that the two groups in this study were interviewed approximately 4.5 years apart and spanned a period that included the onset of the global financial crisis and resulting government stimulus package to households and communities.

But even if this evaluation contributes to the evidence base of the effectiveness of HIPPY, what does this mean for early childhood policy and practice generally? Home-based early childhood development programs for children from disadvantaged families, such as HIPPY,

Home-based early childhood development programs for children from disadvantaged families, such as HIPPY, have an important place within early childhood public policy aimed at reducing inequalities.



have an important place within early childhood public policy aimed at reducing inequalities. The challenge of reducing inequalities has, in recent years, risen to international prominence. The OECD (2011) reports that inequality stifles social mobility, breeds social resentment and is also bad for the economy. The first task of the UK Marmot Review (2010) was: "For the health inequalities challenge facing England, identify the evidence most relevant to underpinning future policy and action'". The review then recommended increasing the proportion of overall expenditure allocated to the early years in order to give every child the best start in life. Indeed, in the years 2001 to 2008, most European countries, but not the UK, had increased the proportion of their total expenditure on education spent on the early years. Among 26 developed economies, the average annual increase in the proportion allocated to pre-primary spending was 1% (European Commission, 2012).

The problem, however, is that increasing overall expenditure on the early years or, specifically, preschool early education and care, does not reduce the social gaps, but rather increases educational performance of all socio-economic groups by similar amounts (Green & Mostafa, 2011). Instead, as both Marmot (2010) and Green and Mostafa (2011) suggest, expenditure on early years development should be focused progressively across the social gradient so that those who need more receive either more or better quality preschool education and care. Indeed, as Marmot (2010, p. 15) states: "To reduce the steepness of the social gradient in health, actions must be universal, but with a scale and intensity that is proportionate to the level of disadvantage".

We suggest that home-based early childhood development programs such as HIPPY, if linked to a universal (as distinct from place-based) platform such as centre-based child care, could be an effective way of reaching the majority of developmentally vulnerable children and their parents, and therefore stand the greatest chance of reducing inequalities in child school readiness at the population level. At the same time, HIPPY could be developed into a multi-level early childhood development intervention, progressing from a universal component—such as a social marketing campaign that promotes generally the importance of parent engagement in their child's early learning and development—to the more intensive full in-home HIPPY program for those parents who need more support and assistance in their important role as their child's first teacher.

Endnotes

1 The term "parents" is used in this report to refer to the parent or the caregiver; in this evaluation 98% of parents were mothers or female caregivers.

2 The full evaluation report, *Investing in Our Future: An Evaluation of the National Rollout of the Home Interaction Program for Parents and Youngsters (HIPPY)*, is available on the Brotherhood of St Laurence website: <www.bsl.org.au>.

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