The Institute is a statutory authority that originated in the Australian Family Law Act 1975. It was established by the Australian Government in February 1980. The Institute promotes the identification and understanding of factors affecting marital and family stability in Australia by:

- researching and evaluating the social, legal and economic wellbeing of all Australian families;
- informing government and the policy-making process about Institute findings;
- communicating the results of Institute and other family research to organisations concerned with family wellbeing and to the wider general community; and
- promoting improved support for families, including measures that prevent family disruption and enhance marital and family stability.

The objectives of the Institute are essentially practical ones, concerned primarily with learning about real situations through research on Australian families.
Cover
Drawing by Emma, 11 years old, 2010, study child from Growing Up in Australia
"It is my imagination running wild"
From the Growing Up in Australia 2012 calendar
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Aboriginal and Torres Strait Islander peoples are warned that this issue of Family Matters may include photos of deceased persons.
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Accurately tracing the pathways that people take through life requires looking at the same individuals across time—a longitudinal research approach. Such research provides the method of choice for understanding both what stays the same, as well as what changes, over the course of life. Longitudinal studies also serve to highlight the similarities and differences between people and how these relate to background characteristics, social circumstances, and life opportunities and experiences. Australia now has a set of national longitudinal studies that are a very valuable resource for researchers, policy-makers, those who provide services and supports, and the community at large. Importantly, these now include the first major longitudinal study of the development, health and wellbeing of Indigenous children—Footprints in Time: The Longitudinal Study of Indigenous Children (LSIC). Developed and conducted by the Australian Government Department of Families, Housing, Community Services and Indigenous Affairs (FaHCSIA), LSIC is a ground-breaking initiative.

The Institute’s increasing focus on longitudinal research

The Institute is increasingly involved in longitudinal research, including studies evaluating the effects of policies and programs. The flagship study is Growing Up in Australia: The Longitudinal Study of Australian Children (LSAC), which is conducted in partnership with FaHCSIA and the Australian Bureau of Statistics (ABS). LSAC has just completed the fieldwork for Wave 5 data collection from families with children aged 8–9 years and 12–13 years. The papers in this edition of Family Matters have been drawn from the December 2011 combined LSAC/LSIC conference.

Other studies include the Longitudinal Study of Separated Families; Stronger Families in Australia, which focuses on evaluating the effects of place-based initiatives under the Family Support Program; and the Australian Temperament Project, which is conducted collaboratively with colleagues from the University of Melbourne and Deakin University. This last study commenced in 1983 with a sample of 2,443 Victorian infants and their families who have been followed to the present. It is one of Australia’s lighthouse longitudinal studies.

In addition, the Institute is a partner in the New South Wales Government’s project, Pathways of Care: The Longitudinal Study of Children and Young People in Out-of-Home Care in New South Wales. Conducted by the NSW Department of Families and Community Services, this study is following a cohort of all children and young people who entered care for the first time by way of a final Children’s Court order, across an 18-month period from May 2011. The Institute is partnering with the Social Policy Research Centre at the University of New South Wales, the University of Sydney and the University of Adelaide to draft the survey instruments, manage the data and prepare analytical reports. A complementary study, the Longitudinal Study of Leaving Care, is being undertaken by the Institute under contract to the Victorian Department of Human Services. It will provide very valuable data on what happens to young people after they leave care.

The Institute’s latest partnership is with the Australian Government Department of Immigration and Citizenship, to manage Building a New Life in Australia: The Longitudinal Survey of Humanitarian Migrants. The study aims to trace the settlement journey of 1,500 humanitarian migrant families, living in a range of communities around Australia, in order to better understand the factors that influence their settlement processes. The development phase involves consultation with an extensive range of stakeholders and preliminary questionnaire testing with relevant community groups. Fieldwork is expected to commence in October 2013.

Cross-national comparisons

Harmonising longitudinal data sets across countries is gaining prominence. For example,
the Institute has been working with the Organisation for Economic Co-operation and Development (OECD) to promote cross-national comparisons using LSAC data. The first collaboration involved a five-country comparison study of the influence of maternal employment in the first year of a child's life and children's development. The LSAC team is also participating in the OECD's collaborative study, Education and Social Progress, which involves comparative analyses of longitudinal data from ten countries. The project will examine the role of cognitive and non-cognitive skills in fostering wellbeing and social progress in OECD countries, and identify how such skills can be better developed in formal and informal learning environments, including family, school and the community. Data from LSAC will be one of the key bases for these analyses. Finally, the Institute is a partner on a grant to the US National Institute of Child Health and Development to begin a new cohort of the US National Longitudinal Study of Youth. If successful, it will involve consultation about how to best harmonise measures collected in LSAC with this new US initiative.

Cardiovascular and respiratory health at age 11–12

New research will focus on the cardiovascular and respiratory health of 11–12 year old children in LSAC to help understand the complex origins of the common causes of cardiovascular and respiratory diseases in adults, which are among the leading causes of death in Australia. However, disparities in the patterns of development of these aspects of childhood health are not well understood, nor how early-life physical and mental health, or socioeconomic and health care circumstances might explain these disparities. Key evidence gaps relate to there being limited childhood physiological data from population studies that explore antecedents of adult disease. This new work, funded by the National Health and Medical Research Council, will be led by Professor Melissa Wake from the Murdoch Childrens Research Institute. It will also involve contributions from AIFS and FaHCSIA.

Indigenous Justice Programs Evaluation

A project to evaluate four Indigenous youth criminal justice prevention, early intervention and diversion programs, from different parts of Australia, is nearing completion. The study is funded by the Attorney-General's Department. Undertaken in partnership with the Australian Institute of Criminology, the study has involved qualitative data collection and analysis of administrative data. Its purpose is to explore whether and how the programs divert Indigenous youth from entering or re-entering the Australian criminal justice system. Data analysis and interpretation is currently underway, with a final reported expected at the end of 2012.

Other projects

Young Parents and Their Children in Australia

The Institute has commenced a study about young parents and the communities in which they live—Young Parents and Their Children in Australia (YPCA). The purpose of YPCA is to provide baseline data for the Department of Education, Employment and Workplace Relation's Helping Young Parents (HYP) measure. In addition to information on the education and labour market participation of young parents, YPCA also includes information on the psychosocial outcomes of young parents and their children.

Dissemination news

Changing Places: Success, scale and sustainability of place-based intervention

A seminar and a policy forum to raise discussion about overcoming place-based disadvantage were held in Canberra on 1–2 November.

The invitational events were convened by the Institute in partnership with five Australian Government departments: Prime Minister and Cabinet; Employment Education and Workplace Relations (DEEWR); Families, Housing, Community Services and Indigenous Affairs (FaHCSIA); Human Services (DHS); and Regional Australia, Local Government, Arts and Sport (RALGAS).

Speakers at the events included: Professor Mark Greenberg, Director, Prevention Research Centre for the Promotion of Human Development, College of Human Development and Family Studies, Pennsylvania State University; and Professor Shane Houston, Deputy Vice-Chancellor, Indigenous Strategy and Services, University of Sydney

The seminar featured a panel of four departmental secretaries: Glenys Beauchamp PSM (RALGAS), Gill Callister (Victorian Department of Human Services), Kathryn Campbell CSC (DHS), and Finn Pratt PSM (FaHCSIA), who presented their perspectives
on the policy and service priorities related to place-based initiatives.

During the forum, Professor Greenberg, Dr Ben Edwards from AIFS, Brian Bumbarger from the Prevention Research Centre at the Pennsylvania State University, and Dr Lisa O’Brien, CEO of the Smith Family, provided presentations that stimulated discussion of a range of the key challenges and promising solutions to some of the problems of extending the scale and sustaining the benefits of place-based interventions. An edited volume covering the key issues discussed is planned for publication.

The Fifth International Community, Work and Family Conference

Jointly organised by the Centre for Work + Life, Hawke Research Institute, University of South Australia; the Women and Work Research Group, Business School, University of Sydney; and the Institute, this event will take place on 17–19 July 2013 at the University of Sydney. The conference will focus on how the rapid changes and transitions in society present challenges and opportunities for families, communities and organisations, with a special focus on work, families and communities in a globalising world. The past decade has seen significant changes in social policy in Australia and the surrounding region, including universal paid maternity leave in Australia and New Zealand, new rights to request flexibility, and changes in industrial law. Changing patterns of immigration, care and work in the Asian region are also of international interest. The conference will bring together social scientists and practitioners from a wide range of countries and disciplines, including emerging industrial nations of the Asia–Pacific region. Information on the event is available at <www.aomevents.com/CWFC2013>.

Child Family Community Australia (CFCA) information exchange

Use of the CFCA information exchange continues to increase, with more than 1,900 subscribers to its fortnightly e-alert, more than 500 likes/followers on social media channels, and more than 4,500 visitors to CFCA-Connect, its interactive blog.

Australian Centre for the Study of Sexual Assault (ACSSA)

The ACSSA Seminar Series enables stakeholders to participate in discussions about key issues in policy and practice in the sexual assault field. A seminar titled Understanding False Allegations in Sexual Assault: Implications for Practice was presented by Professor Liz Kelly, London Metropolitan University, in September. This often contentious issue was discussed and debated among more than 80 attendees drawn from sexual assault counselling services, police, researchers and crown prosecutors from around Australia.

Closing the Gap Clearinghouse

The Closing the Gap Clearinghouse Seminar Series, starting in December, will focus on the wellbeing of children. The topics will include:

- Promoting accessible early childhood services for Indigenous Australian (presented by Dr Daryl Higgins);
- Effectiveness of parenting and home visiting programs for Indigenous families (presented by Robyn Mildon, Director, Knowledge Exchange and Implementation, Parenting Research Centre); and
- Early learning programs that promote children's development and educational outcomes (presented by Associate Professor Linda Harrison).

Concluding thoughts

As the year draws to a close, the Institute is already well advanced in framing its research programs consistent with the AIFS Directions 2012–15. There is continued growth in the research program with our involvement in new longitudinal studies, a continuing emphasis on program evaluation, and an extension of the range and reach of the Institute’s dissemination activities. Planning is underway for two conferences next year, the Fifth International Community, Work and Family Conference, in July; and the next LSAC/LSIC Conference, in November; as well as the 13th AIFS Conference, in 2014.

Subject to the passage of the National Gambling Reform Bill 2012, planning for the Australian Gambling Research Centre, to be housed within the Institute, will commence soon, with a view to having the centre operational from July next year. This major new venture for AIFS will involve undertaking and commissioning research focused on the effects of problem gambling on individuals, their families and their communities, including identifying measures that may be undertaken to reduce harm, and increasing research capability and capacity in this area. This is indeed an important opportunity to contribute the expertise of the Institute to an area of great social policy priority.
The articles of this edition of *Family Matters* are mainly based on presentations from the *Growing Up in Australia* and Footprints in Time Longitudinal Study of Australian Children (LSAC) and Longitudinal Study of Indigenous Children (LSIC) Conference that took place from 15–16 November 2011 in Melbourne. As such, there are two sections of this edition, the first focuses on papers using data from LSAC and the second on papers focusing on the use of data in LSIC. Both highlight the power of longitudinal data and the potential for the rich information collected to enhance our understanding of children’s development and inform better policy-making for children.

In the LSAC section, Bittman, Rutherford, Brown and Unsworth test whether access to digital technology and new media are more important than watching television and reading books, in terms of the development of children’s vocabulary and language acquisition. They also ask whether parents have a role in providing a context for accessing and mediating children’s “new media” experiences. The authors’ results suggest that a parent’s role in helping their children negotiate new media is important, and that reading is a key element in the development of children’s vocabulary and language skills.

Barnett, Roost and McEachran report on a national evaluation of the Home Interaction Program for Parents and Youngsters (HIPPY), a parenting program targeted at disadvantaged families that supports parents to read to their children. The paper highlights that LSAC is playing an important role in child development research in Australia by providing a set of valid and reliable measures of children’s development. The authors also use some novel methodology in that they employ the LSAC sample as a comparison group to the surveyed sample who received HIPPY. The evaluators used the same measures that were used in LSAC as in their HIPPY sample, and a statistical procedure called propensity score matching to “select” a group from the LSAC sample that were similar to the HIPPY group so that they could evaluate the effectiveness of HIPPY. This study highlights that LSAC can be used in sophisticated ways to “benchmark” the effectiveness of social programs, given that the LSAC sample is large and representative of the general population of children. The evaluators reported promising findings of the effectiveness of HIPPY in improving parenting and the home learning environment.

The next article in the LSAC section dovetails nicely with an evaluation of a program focused on encouraging parents to read to their children. Farrant reviews the literature and reports on several studies he and colleagues have conducted using LSAC data on the role of joint or shared attention when reading books to children and how this enhances
school readiness and subsequent academic achievement. These studies suggest that differences in joint attention and book reading account for differences in the children’s vocabulary by family socioeconomic status (Farrant & Zubrick, 2011).

Taylor and Edwards present some of the first national estimates of the influence of housing on children’s development, using the rich information collected in LSAC on housing characteristics. They find that children residing in public housing have much worse emotional and behavioural problems and a poorer vocabulary. Children who were 4–5 years of age also had significantly worse outcomes when exposed to higher rates of residential mobility.

The section focused on LSIC begins with an overview of the study by Bennetts Kneebone, Christelow, Neuendorf and Skelton. They provide an outline of the study design, including the timing of the survey waves, the method of data collection, the responding sample at each wave and location of the survey sites. Information is provided on how to access the data, some examples of how the data have been used previously and some future developments.

Dodson, Hunter and McKay give a brief history of the LSIC survey and rationale of the data and survey methodology. They analyse the strengths and weaknesses of the survey and identify some useful research questions using the LSIC data. Two of the authors have been heavily involved in the survey—Professor Dodson has been the chair of the LSIC Steering Committee since 2003, and Associate Professor Hunter was a member of the design sub-committee and a Steering Committee member from 2003 to 2011—and as such provide some very nuanced insights into the strengths and limitations of the study.

Very little is understood about post-separation parenting among Indigenous families. Walter and Hewitt use the LSIC data to make a significant contribution to what is a limited evidence base. They describe the demographic characteristics of children who do not reside with both biological parents, the amount and pattern of contact with the parent who lives in another residence and patterns of payment and receipt of child support for children. They find that parental separation is an even greater issue in the Indigenous community than in the general population, with two out of five children in the LSIC study living in households without both biological parents, and doing so when they are under 4 years of age.

Finally, Little, Sanson and Zubrick report on the temperament of Indigenous children; something that has never been undertaken before in any previous study in Australia. Temperament is a relatively stable pattern of behaviour that is evident from birth. Temperament is thought to have biological origins but can be influenced by environmental factors. Given that temperament has been found to play an important role in children’s psychosocial adjustment, it is important to understand the structure of temperament as well as the associations with children’s adjustment. Little and colleagues report that temperament among the LSIC sample has a similar structure to non-Indigenous samples; however, data users should be aware that there are some technical issues with using the temperament data, which they identify and resolve. The three temperamental traits identified have strong associations with children’s emotional and behavioural problems as well as parenting styles.

Reference

Growing Up in Australia: The Longitudinal Study of Australian Children
The first decade of life

Ben Edwards

With the release in August 2011 of the fourth wave of Growing Up in Australia: The Longitudinal Study of Australian Children (LSAC), Australia now has national longitudinal data on children’s development for the first decade of children’s lives. Longitudinal surveys offer opportunities to understand changes in children’s development over time and how their earlier experiences shape that development, not only in the middle school years but late adolescence and into adulthood. These types of data can inform policy-makers about how and when to develop preventative strategies or interventions to achieve the best outcomes for children.

The LSAC study provides an evidence base to inform these decisions for the current generation of Australian children, and because of its broad scope, to investigate the contribution of the children’s social, economic and cultural environments to their adjustment and wellbeing. The study examines multiple facets of development, including physical health, and social, cognitive and emotional development. Factors that predispose children to poorer outcomes and those that are protective can be identified, and how these interact with children’s own characteristics (such as the temperament) and in the broader family, early child care, school and neighbourhood contexts can also be examined.

A set of 11 key research questions guides the study, clustered around the themes of child and family functioning, health, child care, and education (see Sanson et al., 2002, for a detailed discussion):1

1. What factors influence a child’s physical health and development over time? What is the effect of physical health on a child’s overall wellbeing and on other specific outcomes, and how does this influence change over time?

2. What are the nature and impacts of family composition, relationships and dynamics on individual outcomes, and how do these relationships and their effects change over time?
3. What is the influence of parent labour force participation, education and economic status on individual outcomes? How do the patterns and impacts of parent labour force participation, education and economic status change over time?

4. What are the effects of non-parental child care on individual outcomes (particularly those relating to social and cognitive competence, attachment, impulse control, and control of attention)? How do these experiences and influences change over time?

5. What are the experiences that influence children’s school engagement and achievement? How do these impact on individual outcomes and how do these patterns and effects change over time?

6. What are the impacts of children’s use of time on individual outcomes (such as physical fitness and obesity, family relationships, social skills, and learning)? How does the impact of different patterns of time use change over time?

7. What are the impacts of child, parental and community beliefs, attitudes and expectations on outcomes? How do the patterns and effects of these beliefs, attitudes and expectations change over time?

8. What characteristics of children, families and communities help children to develop resilience and cope with transitions or adversity? How do these factors influence individual outcomes and how do these influences change over time?

9. What social connections and support are available to families and children and how do they impact on individual outcomes, and how do the impacts of these social connections and support change over time?

10. What are the impacts of broad neighbourhood characteristics and community connectedness, engagement, trust and violence on individual outcomes, and how do these impacts change over time?

11. What is the impact of intergenerational characteristics on individual outcomes, and how does this impact change over time?

Box 1: Consortium Advisory Group members

The Institute is supported by Professor Ann Sanson as Principal Scientific Advisor, and the Consortium Advisory Group (CAG), which includes members of each of the consortium partners. The CAG is chaired by Professor Stephen Zubrick, and its membership is as follows:

- Dr John Ainley, Principal Research Fellow and former Head of Research at Australian Council for Educational Research, Melbourne
- Dr Peter Azzopardi, Centre for Adolescent Health, Murdoch Childrens Research Institute and Royal Children’s Hospital, Melbourne
- Professor Donna Berthelsen, Faculty of Education, Queensland University of Technology
- Professor Michael Bittman, School of Behavioural, Cognitive and Social Sciences, University of New England
- Dr Bruce Bradbury, Senior Research Fellow, Social Policy Research Centre, University of New South Wales
- Associate Professor Linda Harrison, School of Teacher Education, Charles Sturt University—Bathurst
- Professor Jan Nicholson, Parenting Research Centre, Melbourne
- Professor Bryan Rodgers, Family Health and Wellbeing, Australian Demographic and Social Research Institute, Australian National University
- Professor Ann Sanson, Department of Paediatrics, University of Melbourne
- Professor Michael Sawyer, Research and Evaluation Unit, Women’s and Children’s Hospital, School of Paediatrics and Reproductive Health, University of Adelaide
- Associate Professor Lyndall Strazdins, Fellow, National Centre for Epidemiology and Population Health, Australian National University
- Professor Melissa Wake, Centre for Community Child Health at the Royal Children’s Hospital, Murdoch Childrens Research Institute and University of Melbourne
- Professor Stephen Zubrick, Head, Division of Population Science, Institute for Child Health Research, Perth

The CAG is supported by staff from the LSAC teams at AIFS, FaHCSIA and the ABS.
Study design and sample recruitment

This section provides a brief description of the study’s design and the way in which the initial sample was recruited; more detailed information can be found in discussion and technical papers on the project’s website at <www.aifs.gov.au/growingup>.

The study is using an accelerated cross-sequential design in which two cohorts of children are being followed for 14 years (and possibly longer), starting from when the children were aged 0–1 years and 4–5 years. The 0–1 year old cohort is often described as the B (baby) cohort and the 4–5 year old cohort as the K (kindergarten) cohort (or alternatively they can be identified by the years of their birth: 2003–04 birth cohort and 1999–2000 birth cohort respectively).

Face-to-face interviews are conducted every two years, with the first wave of data collection occurring in 2004. Wave 5 fieldwork was completed in November 2012.

The two-cohort design has enabled information on children’s development over the first 10 or 11 years of life to be collected in 6 years. The two cohorts are also able to be compared at overlapping ages, to gauge the effect of growing up in differing social conditions and policy settings. The overlapping of cohorts first occurred in Wave 3 (at 4–5 and 6–7 years) and continues to occur for each subsequent wave (see Table 1).

As the focus of the study is on children’s development, “the child” was the sampling unit of interest. The sampling frame was the Medicare Australia (formerly the Health Insurance Commission) enrolments database. During 2004, a sample of more than 18,500 children within particular birth dates was taken from the Medicare administrative database. First, a sample of children was drawn via a random selection of 330 postcodes. Next, children and families within these postcodes were randomly selected for invitation into the study. A process of stratification was used to ensure that the numbers of children in each state/territory and within and outside each capital city were proportionate to the population of children in these areas.

A total of 10,090 children and their families participated in Wave 1; approximately half of the children were infants (aged 3–19 months) and half were 4–5 years old. The sample is broadly representative of all Australian children (citizens and permanent residents) in each of two selected age cohorts: children born between March 2003 and February 2004 (B cohort) and children born between March 1999 and February 2000 (K cohort). Children in some remote parts of Australia were excluded because of the extremely high data collection costs in these areas.

Response rates and sample retention

The final Wave 1 sample represented 53% of all families who were sent a letter by Medicare Australia. Refusals were the largest source of sample loss (31% for the B cohort and 35% for the K cohort), followed by “non-contact”. Non-contact occurred when the address details were out-of-date or if only a post office box address was available. The rates of non-contact

Table 1  Age of cohorts, LSAC Waves 1–8

<table>
<thead>
<tr>
<th>Wave 1</th>
<th>Wave 2</th>
<th>Wave 3</th>
<th>Wave 4</th>
<th>Wave 5</th>
<th>Wave 6</th>
<th>Wave 7</th>
<th>Wave 8</th>
</tr>
</thead>
<tbody>
<tr>
<td>B cohort</td>
<td>0–1 years</td>
<td>2–3 years</td>
<td>4–5 years</td>
<td>6–7 years</td>
<td>8–9 years</td>
<td>10–11 years</td>
<td>12–13 years</td>
</tr>
<tr>
<td>K cohort</td>
<td>4–5 years</td>
<td>6–7 years</td>
<td>8–9 years</td>
<td>10–11 years</td>
<td>12–13 years</td>
<td>14–15 years</td>
<td>16–17 years</td>
</tr>
</tbody>
</table>
were 10% for the B cohort and 14% for the K cohort. The response rates achieved if non-contactable families are excluded is 64% for the B cohort and 57% for the K cohort.

The Wave 4 data collection took place in 2010, with 8,405 families completing an interview, yielding a response rate of 83% of the originally recruited sample. Similar numbers of families from each cohort participated (4,606 in the B cohort and 4,464 in the K cohort). Between Waves 3 and 4, 637 families permanently withdrew from the study. A further 204 families elected not to participate in the 2nd wave but to remain members of the study. One hundred and thirty five families were away for the entire fieldwork period. A total of 526 families were not able to be contacted, but these families are still considered to be study members.

This retention rate compares favourably with those achieved by comparable international studies. For example, the Millennium Cohort Study, a United Kingdom longitudinal study of approximately 19,000 families and babies, had a sample retention rate of 72% between its Sweep 1 and Sweep 4 (Waves 1 and 4) (Hansen & Joshi, 2007). The six-year period was similar to the period between Waves 1 and 4 of LSAC. The retention rate for Wave 4 also compares favourably compared to other large-scale Australian surveys. For instance, the Household, Income and Labour Dynamics in Australia (HILDA) survey, a general population household survey that commenced in 2001, reported that the proportion of Wave 1 respondents re-interviewed at Wave 7 (also a six-year period) was 69% and the proportion of Wave 1 respondents re-interviewed at Wave 4 (a three-year period) was 76% (Summerfield et al., 2011).

Families can respond to all or only part of the study (with the exception of the face-to-face interview with the Parent 1, which all families must complete in order to participate in the wave).

Table 2 summarises the response rates from families in later waves, using the Wave 1 sample and “available” sample as the bases for comparisons. Table 3 details the reasons why interviews were not obtained in Waves 2, 3 and 4.

<table>
<thead>
<tr>
<th>Main waves</th>
<th>No.</th>
<th>Response rate of Wave 1 (%)</th>
<th>No.</th>
<th>Response rate of available sample (%)</th>
<th>No.</th>
<th>Response rate of Wave 1 (%)</th>
<th>No.</th>
<th>Response rate of available sample (%)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wave 1 original</td>
<td>5,107</td>
<td>100.0</td>
<td>4,983</td>
<td>100.0</td>
<td>10,090</td>
<td>100.0</td>
<td></td>
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<td>9,960</td>
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<td>91.2</td>
<td>4,464</td>
<td>89.6</td>
<td>90.9</td>
<td>9,070</td>
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<td>87.2</td>
<td>8,405</td>
<td>83.3</td>
<td>86.6</td>
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</table>

Notes:  
a Available sample excludes those who opted out of the study between waves. Some additional families also opted out permanently during the fieldwork process. b Those who had home visit.

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<th>Response status</th>
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<th>Wave 3</th>
<th>Wave 4</th>
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<tr>
<td>Responded</td>
<td>9,070</td>
<td>8,718</td>
<td>8,405</td>
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<tr>
<td>Refused</td>
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<td>436</td>
<td>637</td>
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<td>Non-contact</td>
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<td>552</td>
<td>526</td>
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<tr>
<td>Away for entire enumeration period</td>
<td>61</td>
<td>93</td>
<td>135</td>
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<tr>
<td>Death of study child</td>
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<tr>
<td>Total starting sample</td>
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<td>9,703</td>
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Table 2 Sample size and response rate, by LSAC wave and cohort

Table 3 Reasons for non-response, by LSAC Waves 2, 3 and 4
<table>
<thead>
<tr>
<th>Table 4</th>
<th>Response rates to questionnaire forms and time use diaries, by cohort, LSAC Waves 1, 2, 3 and 4</th>
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</thead>
<tbody>
<tr>
<td></td>
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</tr>
<tr>
<td></td>
<td>% of Wave 1 eligible interview sample</td>
</tr>
<tr>
<td>Wave 1</td>
<td></td>
</tr>
<tr>
<td>Parent 1 leave-behind questionnaire</td>
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<tr>
<td>Parent 2 self-complete questionnaire</td>
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<td>Home-based carer self-complete questionnaire</td>
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<tr>
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<tr>
<td>Wave 2</td>
<td>% of Wave 2 eligible interview sample</td>
</tr>
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<td>Parent 1 during-interview questionnaire</td>
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<tr>
<td>Parent 1 leave-behind questionnaire</td>
<td>100.0</td>
</tr>
<tr>
<td>Parent 2 self-complete questionnaire</td>
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<tr>
<td>PLE self-complete questionnaire</td>
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<tr>
<td>Teacher self-complete questionnaire</td>
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<tr>
<td>Home-based carer self-complete questionnaire</td>
<td>17.2</td>
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<td>Centre-based carer self-complete questionnaire</td>
<td>36.3</td>
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<td>Time use diary</td>
<td>100.0</td>
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<tr>
<td>Wave 3</td>
<td>% of Wave 3 eligible interview sample</td>
</tr>
<tr>
<td>Parent 1 during-interview questionnaire</td>
<td>100.0</td>
</tr>
<tr>
<td>Parent 2 self-complete questionnaire</td>
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<td>PLE self-complete questionnaire</td>
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<td>Teacher self-complete questionnaire</td>
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<td>Time use diary</td>
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<tr>
<td>Wave 4</td>
<td>% of Wave 4 eligible interview sample</td>
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<td>Child self-report</td>
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<td>Teacher self-complete questionnaire</td>
<td>97.7</td>
</tr>
<tr>
<td>Time use diary</td>
<td>–</td>
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</tbody>
</table>

Notes: Response rate columns are the percentage of those eligible to complete the form. *There were five cases where a child interview was completed and the main interview with parents was not. Refer to Wave 4 issue paper for more details.
Table 4 shows the response rates in Waves 1, 2, 3 and 4 for the differing data collection components.

**Between-wave surveys**

As well as the main data collection waves, three between-wave mail surveys have been conducted. The aim of these surveys is to gain an update of the child's progress in specific areas and to maintain the engagement of study families. The first between-wave survey took place in 2005 and included a brief update on the children's health and development, as well as their family, educational and care experiences. Information for the B cohort was also sought on families' service utilisation, parental employment history, maternity and other leave arrangements. In 2007, a second between-wave survey was undertaken that examined work and child care, parental return to work patterns, the child support arrangements of separated or divorced families, and children's media and technology use. The third took place in 2009, with the foci being on education (particularly the transition to school for the B cohort), health (particularly puberty for the K cohort) and children's use of media and technology. No further between-waves surveys have been collected due to declining response rates (in Wave 3.5, only 59% of Wave 1 respondents completed the survey and returned it).

**Methods of data collection**

Reports from multiple informants are sought in order to obtain information about the child’s behaviour across differing contexts and to reduce the effects of respondent bias. Information is being collected from the child (using physical measurement, cognitive testing and interviews, depending upon the age of the child), the parents who live with the child (biological, adoptive or step-parents), home-based and centre-based carers (for preschool children who are regularly in non-parental care), and teachers (for school-aged children). From Wave 2, information has also been sought from parents who live apart from the child but who have contact with them (parent living elsewhere; PLE). See Table 5 for a summary.

In Wave 4, face-to-face computer-assisted interviews (CAIs) were conducted with the child, with the K cohort also completing a self-administered interview on a laptop computer with headphones to provide audio guidance (audio computer-assisted self-interview; ACASI). The primary carer of the child (Parent 1) also completed a computer-assisted interview, as well as being interviewed directly by the ABS. At Wave 4, Parent 1 was the child’s biological mother in 96% of families. The other resident parent (biological, adoptive or step-parent) was also asked to complete a leave-behind questionnaire. If a parent lived elsewhere, then they were invited to participate in a computer-assisted telephone interview (CATI). Consent was sought to send a self-complete questionnaire to home-based carers.

<table>
<thead>
<tr>
<th>Wave 1</th>
<th>Cognitive and/or physical testing</th>
<th>Parent 1 (primary carer)</th>
<th>Parent 2 (if lives with child)</th>
<th>Parent living elsewhere</th>
<th>Home-based carer</th>
<th>Centre-based carer</th>
<th>Teacher</th>
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<td><strong>Cohort</strong></td>
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<td></td>
<td><strong>Interviewer-administered</strong></td>
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<td></td>
<td><strong>Self-complete form(s)</strong></td>
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<td><strong>B</strong></td>
<td><strong>SCP &amp; SCMB</strong></td>
<td><strong>SCMB</strong></td>
<td><strong>SCMB</strong></td>
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<td><strong>K</strong></td>
<td><strong>SCP &amp; SCMB</strong></td>
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<td><strong>SCMB</strong></td>
<td><strong>SCMB</strong></td>
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<td><strong>Time use diary</strong></td>
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<td><strong>SCMB</strong></td>
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<td><strong>SCMB</strong></td>
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Table 5 Sources of information, LSAC Waves 1, 2, 3 and 4
### Table 5  Sources of information, LSAC Waves 1, 2, 3 and 4

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<tr>
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<td>CAI</td>
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<td>Self-complete form(s)</td>
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<td>SCIP &amp; SCMB</td>
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<td>SCMB</td>
<td>SCMB</td>
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### Wave 3

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<tr>
<td>Interviewer-administered</td>
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<tr>
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<td>CAI</td>
<td>CATI</td>
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<td>CATI</td>
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<tr>
<td>Self-complete form(s)</td>
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<td>SCMB</td>
<td>SCMB</td>
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<td>B cohort</td>
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### Wave 4

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<th>Home-based carer</th>
<th>Centre-based carer</th>
<th>Teacher</th>
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<td>CAI</td>
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<tr>
<td>Interviewer-administered</td>
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<tr>
<td>B cohort</td>
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<td>CAI</td>
<td>CATI &amp; CAI</td>
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</tr>
<tr>
<td>K cohort</td>
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<td>ACASI &amp; CAI</td>
<td>CATI &amp; CAI</td>
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<tr>
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<td>SC &amp; CAIK</td>
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</tbody>
</table>

Notes: PAPI: Face-to-face pen-and-paper interview. SCIP: Self-complete questionnaire while interviewer present. SCMB: Leave-behind or mailout self-complete questionnaire. CAI: Face-to-face computer-assisted interview. CATI: Computer-assisted telephone interview. ACASI: Audio computer-assisted self-interview. SC: Self-complete time use diary, with assistance from interviewer. * The time use diary was not necessarily completed by Parent 1.
centre-based carers and teachers. Almost all parents provided consent. In addition, the interviewer recorded some observations about the neighbourhood, family and child.

Several direct assessments of the children’s physical and cognitive development have been taken. The physical assessments include height, weight, girth and head circumference. At Wave 4, body fat was also measured for both cohorts and the blood pressure of children in the K cohort. Cognitive tests have included a measure of general cognitive abilities needed for beginning school (‘Who am I?’; WAI), a measure of language skills (the Peabody Picture Vocabulary Test; PPVT) and a measure of non-verbal intelligence (Matrix Reasoning from the Wechsler Intelligence Scale for Children; MR). The timing of the physical and cognitive testing varies depending on the developmental appropriateness of the particular measure, which can be seen in Table 6.

In Wave 1, interviewers spent an average of 120 minutes in each home. The times in subsequent waves were 75, 95 and 90 minutes for Waves 2, 3 and 4 respectively.

### Topics covered by LSAC

As outlined above, LSAC collects data on a wide range of topics. A summary of the topics covered by LSAC and their scope is provided in Table 7.

A novel feature of LSAC is the use of time use diaries to collect data on a child’s activities throughout two 24-hour periods, divided into 15-minute blocks. For each 15-minute block, options are presented in four categories. These are:

- what the child was doing;
- where the child was;
- who was in the same room, or nearby if outside; and
- whether someone was being paid for this activity to take place (in Wave 2, for the K cohort, this was replaced by whether the activity was part of the child’s homework).

In addition, information is collected on the day and date the diary was completed, who completed the diary, and whether the day was atypical. In Waves 2, 3 and 4, information on daily diet was also collected. In Waves 1, 2 and 3 Parent 1 completed the diary. At Wave 4, the K cohort children completed the diary themselves, with the assistance of an interviewer, for the day prior to the interview.

The time use diary data have been used widely because they are applicable to many different research questions. Figure 1 is from a

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**Table 6 Direct assessments, by LSAC wave**

<table>
<thead>
<tr>
<th>Measure</th>
<th>Wave 1</th>
<th>Wave 2</th>
<th>Wave 3</th>
<th>Wave 4</th>
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</thead>
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<td>Both cohorts</td>
<td>Both cohorts</td>
<td>Both cohorts</td>
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<tr>
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<td>K cohort</td>
<td>–</td>
<td>B cohort</td>
<td>–</td>
</tr>
<tr>
<td>PPVT</td>
<td>K cohort</td>
<td>K cohort</td>
<td>Both cohorts</td>
<td>B cohort</td>
</tr>
<tr>
<td>Matrix reasoning</td>
<td>–</td>
<td>K cohort</td>
<td>K cohort</td>
<td>Both cohorts</td>
</tr>
<tr>
<td>Blood pressure</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>K cohort</td>
</tr>
</tbody>
</table>

**Table 7 Topics covered by LSAC, Waves 1, 2, 3 and 4**

<table>
<thead>
<tr>
<th>Topic</th>
<th>Scope</th>
</tr>
</thead>
<tbody>
<tr>
<td>Family demographics</td>
<td>Demographic information relating to the family, such as education, ethnicity and religion</td>
</tr>
<tr>
<td>Finances</td>
<td>Financial information, such as income and receipt of government benefits</td>
</tr>
<tr>
<td>Health behaviour and risk factors</td>
<td>Behaviours and risk factors that potentially impinge upon or promote the health of the study child or his/her family, including behaviours such as parental smoking and drinking, child physical activity and diet, as well as risk factors such as a parent experiencing diabetes during pregnancy</td>
</tr>
<tr>
<td>Health status</td>
<td>Information about the physical and mental health status of the study child or his/her family, such as body mass index, diagnosis with conditions and number of hospital stays</td>
</tr>
<tr>
<td>Home education environment</td>
<td>Information on factors likely to promote or hinder the child’s learning while at home (such as parental support for education, number of books in the home and TV use) and information on parent interaction with teachers, (such as parent–teacher interviews), with parents’ and teachers’ perspectives being obtained</td>
</tr>
<tr>
<td>Housing</td>
<td>Information on housing, such as number of bedrooms, tenure type and payments</td>
</tr>
<tr>
<td>Learning and cognition outcomes</td>
<td>Information on the child’s development in the areas of learning and cognition, including language, literacy and numeracy</td>
</tr>
<tr>
<td>Learning environment</td>
<td>Characteristics of child care or school environment, such as practices employed by teachers and child care workers in their work, such as time use, use of resources and general philosophies</td>
</tr>
<tr>
<td>Paid work</td>
<td>Information on work status, such as employment type, occupation and work/family interactions</td>
</tr>
<tr>
<td>Parent living elsewhere</td>
<td>Details of the child’s other parent, such as the relationship to study child, interactions with resident parent and child support</td>
</tr>
<tr>
<td>Parenting</td>
<td>Information on parenting styles and other aspects of parenting, such as self-efficacy</td>
</tr>
<tr>
<td>Program characteristics</td>
<td>Characteristics of the school, preschool or child care program, such as type of program, number of days or hours the child attends, and staff satisfaction</td>
</tr>
<tr>
<td>Relationships</td>
<td>Information on the quality of relationships, primarily focused on the relationship between Parent 1 and Parent 2, but also on broader family harmony</td>
</tr>
<tr>
<td>Social and emotional development</td>
<td>Information relevant to the social and emotional development of the child, such as temperament, behaviour, peer interactions and emotional states</td>
</tr>
<tr>
<td>Social capital</td>
<td>Information on social capital, such as interactions with neighbours, neighbourhood characteristics and use of services</td>
</tr>
</tbody>
</table>

Source: AIFS (2007)
paper by Baxter and Hayes (2007) that shows how 4–5 year old children’s activities were distributed over the course of weekdays and weekends when grouped into a number of categories, including sleeping, personal care (e.g., bathing, dressing, hair care, health care, eating, drinking, or being fed, held, cuddled, comforted, soothed), achievement-oriented activities (e.g., colouring in or looking at a book, playing an educational game, reading a story, talking/singing, being talked/sung to, being taught to do chores, writing), exercise, television (e.g., watching TV, video, DVD, movie), other play (listening to tapes, CDs, radio, music, or using computer/computer games), social and organised activities (e.g., visiting people, attending a special event or party, taking part in organised lessons/activities, attending a day care centre or playgroup), and travelling and being taken places with an adult (e.g., shopping, or travelling in a pusher, on a bicycle seat, in a car/other household vehicle, on public transport, on a ferry, on a plane).

Data linkage

LSAC has been able to link to a number of administrative databases, which has and will continue to enhance the value of the rich data collected during fieldwork. To date, four data sources have been linked to the main waves, and a further two are planned to be linked. A short description of these datasets follows.

**ABS Census of Population and Housing**

Data from the Census have been linked to the LSAC data file to obtain socio-demographic profiles of the neighbourhoods and communities in which children live.

**National Childcare Accreditation Council (NCAC)**

Key research question 4 of LSAC relates to the role of child care in shaping children’s development. NCAC has quality assurance data on every long day care (LDC) centre, some family day care (FDC) schemes and some before- and after-school care providers. The LSAC dataset includes linked NCAC data for most children, using LDC or FDC at Wave 1, where contact details of this care were obtained and matched with NCAC data.

**Medicare Australia**

In Wave 1, we asked parents of study children to give consent for their children’s data to be linked with Medicare Australia data for the duration of the study. This includes data from the Medicare Benefit Scheme (MBS), the Pharmaceutical Benefit Scheme (PBS) and the Australian Childhood Immunisation Records (ACIR). Data from these sources provide an indication of usage history of MBS, PBS and ACIR services.

**National Assessment Program—Literacy and Numeracy (NAPLAN)**

In 2008, NAPLAN commenced in Australian schools. Every year, all students in Years 3, 5, 7 and 9 are assessed on the same days using national tests in reading, writing, language conventions (spelling, grammar and punctuation) and numeracy. These data will enhance LSAC as the NAPLAN test gives a sense of the development of children’s literacy and numeracy over time, and also in relation to national benchmarks. We have linked data from NAPLAN since Wave 3 for the K cohort and Wave 4 for the B cohort.

**My School (to be linked)**

Information from NAPLAN tests aggregated for each of the Years 3, 5, 7 and 9 for each school.

**Figure 1** Children’s activity patterns, by time of day, weekdays and weekends, couple families, K cohort, Wave 1

Note: There are different scales for the activity groups.
and other school information, is available for almost 10,000 Australian schools on the My School website at <www.myschool.edu.au>. The information on the My School website is available to the public, and relevant parts of the data will be linked to the LSAC data file. The My School data linked to LSAC includes detailed information about a school’s performance in NAPLAN, its student population, the numbers of teaching and other staff, and the school type. Linking relevant aspects of the My School data to the LSAC data provides LSAC data users with valuable information about children’s educational environments, which have an important influence on children’s developmental experiences.

**Australian Early Development Index (AEDI) (to be linked)**

The AEDI is a measure of children’s development as they enter school. Based on scores from a checklist completed by the child’s teacher, the AEDI measures five areas of early childhood development. These are: physical health and wellbeing, social competence, emotional maturity, language and cognitive skills (school-based), and communication skills and general knowledge.

The AEDI was first implemented nationwide in 2009. At this time, the majority of the B cohort children were in the first year of school and would have had an AEDI checklist completed by their teacher. The K cohort was in their third or fourth year of school at this time, therefore no data are available for this cohort.

The AEDI data will be linked to the data file and will add considerably to the value of LSAC data because it will include rich information on the school readiness of study children, as provided by the teacher. This will enable investigation of the relationship between school readiness and early development measures, along with longer term outcomes.

**Examples of research that makes use of data linkages**

The value of these data linkages are still being realised; however, it is worthwhile noting some interesting examples of research using LSAC that have made use of these data.

Figure 2 shows differences between 4–5 year old children in their social-emotional wellbeing by quintiles of the Socio-Economic Index for Areas (SEIFA), a measure of the socio-economic status of areas, which is derived by the ABS from the Census (Edwards, 2005). There is a clear socio-economic gradient, with children living in more socio-economically disadvantaged neighbourhoods having lower social-emotional wellbeing than children living in more affluent neighbourhoods.

The Medicare Australia data linked to the LSAC database contains information on the health care costs incurred by the Australian government for the MBS and PBS. These data are being used by researchers to estimate the health care costs associated with common childhood disorders such as perinatal risk, mental health difficulties, sleep problems, special health care needs, overweight and obesity, and language disorders. The Medicare costs incurred by children with and without each of these conditions have been calculated, and the excess costs associated with these conditions have been estimated across the whole Australian population. Example findings are that:

- Children born pre-term, with low birth weight or who are small for their gestational age incurred higher Medicare costs in their first year of life and up to age 8 years. Over a four-year period, the excess cost to Medicare incurred by these children was $25 million (Westrupp et al., 2012).

- While individual Medicare costs increased with the persistence of mental health difficulties between ages 4–7 years, population-level costs were highest for those with transient mental health difficulties, suggesting that prevention may be more cost-effective than treatment. Over a four-year period, the excess cost to Medicare incurred by 0–7 year old children with a mental health difficulty was over $27 million (Lucas et al., 2012).
The linkage of educational information, such as NAPLAN data, was only released in 2011, but has tremendous potential for informing educational policy. Figure 3 shows the NAPLAN numeracy scores of children in the LSAC sample by parental occupation, and demonstrates that there is a gradient in children's test scores depending on the occupations of their parents.

As the study proceeds, where feasible, it is hoped that further data sources will be linked to LSAC. To facilitate this process, data users can apply to have geospatial datasets linked to LSAC.2

Data availability

Data from Waves 1, 1.5, 2, 2.5, 3, 3.5 and 4 have been released. The LSAC dataset is publicly available, subject to an application process and the granting of a deed of licence. Individuals can have an individual licence, or organisations can be licenced users with their individual users being required to sign a deed of confidentiality. At the end of the 2010–11 financial year, there were over 500 registered users of LSAC data. Data user training workshops are regularly held to assist users gain familiarity with the complex data set.

Endnotes

1 Originally, there were 14 key research questions around which LSAC research was based. Over time, these questions have been refined to the current 11 questions, but the broad topics covered remain the same.


References


**Dr Ben Edwards** is the Executive Manager, Longitudinal Studies, at the Australian Institute of Family Studies. This overview of LSAC draws upon previous work by Gray and Sanson (2005), and Gray and Smart (2009).

The author would like to thank Nina Lucas, Research Officer, Parenting Research Centre, for providing the information on the use of Medicare data.

This paper uses unit record data from Growing Up in Australia: The Longitudinal Study of Australian Children. The study is conducted in partnership between the Department of Families, Housing, Community Services and Indigenous Affairs (FaHCSIA), the Australian Institute of Family Studies (AIFS) and the Australian Bureau of Statistics (ABS). The findings and views reported in this paper are those of the author and should not be attributed to FaHCSIA, AIFS or the ABS.
Growing Up in Australia: The Longitudinal Study of Australian Children (LSAC) presents a rare research opportunity. Not only does the study allow us to see how children’s language develops as they grow, but it also provides information specific to the generation of children known as “digital natives”. The children in the study are “native speakers of the digital language of computers, video games and the Internet”; in contrast to their parents, who are “digital immigrants”, having largely grown up in a world without personal computers or the Internet (Prensky, 2001).

There are differing opinions about the nature of “new media”. Proponents of the “digital natives thesis” posit a radical discontinuity between the modern environment shaped by digital media and the past environment shaped by older media. Other historians of technology emphasise the continuities between older media platforms and the new media that challenge and, sometimes, eventually, completely displace them (Silverstone, 1999; Livingstone, 2002; Silverstone, 1999). Much recent theory articulates a “convergence” of media forms rather than a radical opposition (Jenkins, 2006; Spiegel & Olsson, 2004).

In response to developments in new media, some educationalists have evolved theory concerning new and multiliteracies (Coiro, Knobel, Lankshear, & Leu, 2008; Kress, 2003; Martin & Madigan, 2006). Traditional literacy is taken as the ability to read and write in the shared language of a culture (Hague & Williamson, 2009). Multiliteracy theory suggests that there is a plurality of literacies; that different technological platforms and environments may require different constellations of literacy skills (Cope & Kalantzis, 2000). In an extensive review of research literature, digital literacy is defined as “critical thinking in the context of technology use”, of which there are two components: “digital skills and critical thinking skills” (Newman, 2008, p. 5). Summing up the focus of this research trajectory on outcomes for children, digital literacy is linked with the goal of social participation: “the knowledge, skills and understanding that are required
to be involved socially, culturally, politically and economically in everyday life” (Hague & Williamson, 2009, p. 3). However, research still suggests that early language development is foundational for later traditional literacy skills and cognitive processing (Saxton, 2010). A primary goal of our paper is to examine the influences of “old” and “new” media technologies on the development of language and the relation of these media to children’s educational outcomes.

Pages and screens, old and new

There has been little study of the longitudinal effects of children’s new media use on language acquisition, literacy and school performance. However, there is a voluminous literature on the effects of older screen (television) and page media (reading) on children’s learning. While clear links have been found between the amount of time children spend reading and academic achievement (Hofferth & Sandberg, 2001), the literature on television suggests that mediating variables such as parental education/socio-economic status (Bianchi & Robinson, 1997; Hofferth & Sandberg, 2001; Baxter & Hayes, 2007), the social context of media consumption (Kubey, 1996; Christakis & Zimmerman, 2009), types of content (educational or commercial), and age at which educational content is viewed by disadvantaged children (Anderson, Huston, Schmitt, Linebarger, & Wright, 2001; Bickham, Wright, & Huston, 2001), may be at least as important as measures of simple time use.

Negative effects of television on children’s cognitive development and educational achievement have been associated with displacement of cognitively more valuable activities, especially in infancy (Anderson & Pempek, 2005) and early childhood (Schmidt & Anderson, 2007). Television has also been associated with disruption of concentration (background television) (Foehr, 2006; Rideout & Hamel, 2006), reduced parental mediation/guided interaction enabled by active co-viewing (Kirkorian, Wurtulla, & Anderson, 2008; Linebarger & Vaala, 2010), and sleep disturbances (Paavonen, Pennon, Roane, Valkonen, & Lahikainen, 2006). Increased hours of viewing have also been attributed to the presence of a television in a child’s bedroom (Vandewater et al., 2005). It has been argued that excessive hours of viewing by itself leads to overconsumption of inappropriate types of content (Hancox, Milne, & Poulton, 2005; Millwood Hargrave & Livingstone, 2006).

Evidence suggests that digital natives’ digital media use does not replace but instead operates in tandem with older forms (Roberts & Foehr, 2008), such as print. Studies of adult populations, including six national time use diary studies (Robinson & Martin, 2010), found higher levels of reading among Internet and information technology users compared to people who did not use the Internet or information technology. US studies have also correlated home computer ownership and Internet use with academic performance, particularly reading performance (Jackson et al., 2006; Roberts, Foehr, & Rideout, 2005). All “new” or digital media, however, may not be alike in their effects on educational achievement. For example, time spent by 8–18 year olds playing video games is negatively associated with school performance, measured by grade point average (Roberts et al., 2005). Thus, while it has become common to celebrate children’s engagement with digital media in their recreational activities (such as video gaming; use of social networking websites; video, image and music sharing; music/image editing and animation using online and other resources), the skills obtained by doing so might not necessarily equate to the skills and competencies associated with either traditional or digital literacy (Hague & Williamson, 2009). Prior acquisition of text-based literacy (whether texts are distributed by print or screen “page”) may be crucial for the critical thinking skills associated with all “new” literacies.
Research questions

The research reported here tests the hypothesis that access to digital technology alone guarantees development of vocabulary and language acquisition, and that “new media” are more critical in the developmental process than older electronic and print media (the “digital natives” thesis). Secondly, it tests the hypothesis that the context of access and mediation provided by parents (as “digital immigrants”) is no longer crucial in guiding the acquisition of foundational literacy skills, including ICT literacy.

There is very little research on young children and new media. In the absence of large-scale empirical data, some writers have assumed that new media will resemble television in its effects on the development of a child’s language abilities. The research presented in this paper used longitudinal data to disentangle the effects of access, context and time “exposed” to different media (including reading) on the child’s language skills at different stages of their development, while controlling for differences in family socio-economic resources.

Methods

Data for LSAC are obtained in “waves” (see Table 1) and this paper uses data from the first three waves (Waves 1–3) as well as Wave 2.5 (Soloff, Lawrence, & Johnstone, 2005; Sipthorp & Misson, 2009).

Data were obtained using a combination of face-to-face interviews, self-completed questionnaires, children’s time use diaries and, for the K cohort, teacher reports. Additional data about the stocks of digital devices, and the monitoring and regulation of digital technologies, were collected in a supplementary postal survey in Wave 2.5 (B cohort n = 3,246; K cohort, n = 3,252) in 2007.

Measures

Outcome measures (Wave 3)

For both cohorts, language ability was measured at Wave 3 using a specially adapted short form (40 items) of the Peabody Picture Vocabulary Test—Third Edition (PPVT-III). The PPVT-III measures receptive vocabulary (the extent to which children recognise the meaning of words used by others) and is frequently used to measure language acquisition in the early years—most famously used to demonstrate the benefits of the TV program Sesame Street (Wright et al., 2001).

For the K (1999/2000) cohort, the Language and Literacy Academic Rating Scale (ARS) was also used. The ARS is a highly reliable (Cronbach’s \( \alpha = 0.94 \)) rated measure of academic performance at school. Teachers scored the study child on whether they were able to:

- convey ideas clearly when speaking;
- use various strategies to gain information using print materials;
- read fluently;
- read grade level books (fiction) independently with comprehension;
- read and comprehend informational text;
- compose multi-paragraph stories/reports;
- reread and reflect on their writing, making changes to clarify and elaborate;
- make editorial corrections when reviewing a written draft; and
- use the computer for a variety of purposes.

Explanatory variables (Waves 1–3)

Independent variables of interest were (a) a cumulative measure of the time spent in media use and (b) measures of parental efforts to manage circumstances of the study child’s use of media. Time spent reading, viewing television or using a computer were each assessed using a “light” time use diary of a random weekday and a weekend day. Children were then classified into one of three groups:

Table 1 LSAC cohorts, children’s ages and waves of data collection

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0–1 years</td>
<td>2–3 years</td>
</tr>
<tr>
<td>2004</td>
<td>Wave 1</td>
<td></td>
</tr>
<tr>
<td>2006</td>
<td>Wave 2</td>
<td></td>
</tr>
<tr>
<td>2007</td>
<td>Wave 2.5</td>
<td></td>
</tr>
<tr>
<td>2008</td>
<td>Wave 3</td>
<td></td>
</tr>
</tbody>
</table>

Negative effects of television on children’s cognitive development and educational achievement have been associated with displacement of cognitively more valuable activities, especially in infancy and early childhood.
consistent low use, mixed use and consistent high use.

Parents were also asked (in Wave 2.5 collected in 2007) about their child’s access to digital devices—whether the child had a television or computer in their bedroom, or whether there was a computer, Internet access or a games console (e.g., PlayStation, Xbox, Game Boy) in the home.

Parental mediation was also assessed, asking:
- whether the child turns on the television by themselves (B cohort only);
- whether the television is “always/often” on while no one is watching (B cohort only);
- whether a parent “always/often” watches television with the child (B cohort only);
- whether the parent wishes the child would spend less time watching television, and DVDs, or playing computer games (K cohort coded only); and
- how “easy” or “difficult” the parent finds it to manage the child’s television, video and DVD viewing (both cohorts).

Controls (Wave 1)

Previous research suggests that the family’s socio-economic resources and the mother’s education are regularly found to have a strong influence on both media use and outcomes. These were controlled for in this study. Family resources were measured in bands for gross income adjusted for family size (equivalised household income). Mother’s education was measured in years.

Data analyses

The sample was restricted to those participants with 2 days of good quality time use diary data from at least two waves, with complete data on digital devices and regulation (Wave 2.5 postal survey) and teacher academic ratings (Wave 3 for the K cohort). The final analytic sample for the B cohort was 2,335. For the K cohort, the final sample for the analysis of effects on language acquisition (PPVT-III) was 2,233, and for teachers’ ratings of academic performance (ARS) the sample was 1,892.

Longitudinal associations between media use (Waves 1–3), parental practices (Wave 2.5) and the outcome variables (Wave 3) were determined for each of the cohorts using linear regression after adjusting for equivalised household income and mother’s education (Wave 1).

Results and discussion

Table 2 shows the results of the regression analysis of the PPVT-III scores for the younger (B, 2003/2004) cohort. The model presented here tested the effects of access, context, time “exposed” to electronic media and time spent reading, while controlling for family resources on the child’s vocabulary at age 4.

Children allocating sustained time to the oldest media (reading) exhibited significantly higher PPVT-III scores (i.e., $p < .001$) than those with a consistently low investment of time, which is consistent with earlier studies (Anderson, Wilson, & Fielding, 1988).

<table>
<thead>
<tr>
<th>Table 2 Regression model for receptive vocabulary, B cohort (born 2003–04)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variable</td>
</tr>
<tr>
<td>--------------------------------------------------</td>
</tr>
<tr>
<td><strong>Child has ... (Wave 2.5)</strong></td>
</tr>
<tr>
<td>Television in bedroom</td>
</tr>
<tr>
<td>Computer in bedroom</td>
</tr>
<tr>
<td>Computer in home</td>
</tr>
<tr>
<td>Internet in home</td>
</tr>
<tr>
<td>Electronic games system</td>
</tr>
<tr>
<td>Yes</td>
</tr>
<tr>
<td>Missing data</td>
</tr>
<tr>
<td><strong>Parental mediation (Wave 2.5)</strong></td>
</tr>
<tr>
<td>Study child turns television/DVD on by themselves</td>
</tr>
<tr>
<td>Is television on while no one is watching?</td>
</tr>
<tr>
<td>How easy is it to manage child’s use of electronic/computer games?</td>
</tr>
<tr>
<td>Easy/very easy</td>
</tr>
<tr>
<td>N/A</td>
</tr>
<tr>
<td>Watch programs with child (co-viewing)</td>
</tr>
<tr>
<td><strong>Patterns of media use (Waves 1 to 3)</strong></td>
</tr>
<tr>
<td>Television viewing</td>
</tr>
<tr>
<td>Mixed</td>
</tr>
<tr>
<td>High consistent use</td>
</tr>
<tr>
<td>Reading</td>
</tr>
<tr>
<td>Mixed use</td>
</tr>
<tr>
<td>High consistent use</td>
</tr>
<tr>
<td><strong>Control variables (Wave 1)</strong></td>
</tr>
<tr>
<td>Mother’s education (years)</td>
</tr>
<tr>
<td>Equivalised household income ($A10,000)</td>
</tr>
<tr>
<td><strong>Intercept</strong></td>
</tr>
</tbody>
</table>

Notes: * $p < .05$; ** $p < .01$; *** $p < .001$. 

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Access to new and older electronic media also matters. After controlling for the child's time spent reading, having access to the Internet was positively related to recognising words. In contrast, the results for a television in the child's bedroom were significantly associated with poorer vocabulary at age 4. The other measures of the context of media use also showed a significant effect, in the expected direction. Having the television running while no one was in the room, indicating little attempt to manage the child's viewing (Wiecha, Sobol, Peterson, & Gortmaker, 2001), was associated with lower receptive vocabulary. Co-viewing, in contrast, is associated with better vocabulary. Parental management of the child's game-playing seems to have had no significant influence. At this early age, the context that parents create for television usage appears to be the major determinant of the child's receptive vocabulary.

As previous research suggests (Duncan & Brookes-Gunn, 1997; Garrett, Ng'andu, & Ferron, 1994; Rowe, Pan, & Ayoul, 2005), high income security and stocks of cultural capital (a broad array of linguistic competencies, knowledge of refined social manners, preferences and orientations) powerfully promote language acquisition. The findings presented in Table 2 show a significant positive association between both income and mother's years of education and the child's PPVT-III score.

After controlling for context, in addition to customary controls for socio-economic advantage and parental mediation of media use, the amount of time spent watching television was not significantly associated with receptive vocabulary at this stage of the child's development. This is noteworthy given the convention of paediatric advice on limiting television in the child's early years (American Academy of Pediatrics, 2012). Our findings indicate that among preschoolers, perhaps, any dose of media is safe provided the protective factors—a stimulating home environment provided by sufficient family income, combined with interactive demonstration of vocabulary associated with high stocks of cultural capital and, importantly, a supportive parental context for the use of media (especially television)—are all in place. This implies that the children most at risk of delayed language acquisition are those from low socio-economic backgrounds whose parents are not involved in their child's use of media.

As Table 3 shows, factors affecting language acquisition, as measured by receptive vocabulary, remain remarkably similar as the child matures. For the K (1999/2000) cohort at age 8 years, family resources, time spent reading and the parental context of the child's media use continued to be significantly related to the child's mastery of vocabulary, and effects sizes were broadly similar. A TV in the child's bedroom was associated with a 1 point decline in PPVT-III score for both cohorts when the other influences were held constant. Similarly, each year that the child's mother spent in education was associated with an improvement of the child's PPVT-III score by about 0.2 points in both cohorts, while a $10,000 increase in

<table>
<thead>
<tr>
<th>Table 3</th>
<th>Regression model for receptive vocabulary, K cohort (born 1999–2000)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variable</td>
<td>Coefficient</td>
</tr>
<tr>
<td>Child has ... (Wave 2.5)</td>
<td></td>
</tr>
<tr>
<td>Television in bedroom</td>
<td>−1.144 ***</td>
</tr>
<tr>
<td>Computer in bedroom</td>
<td>−0.009</td>
</tr>
<tr>
<td>Computer in home</td>
<td>1.643 *</td>
</tr>
<tr>
<td>Internet in home</td>
<td>−0.607</td>
</tr>
<tr>
<td>Electronic games system</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>−0.389</td>
</tr>
<tr>
<td>Missing data</td>
<td>−0.489</td>
</tr>
<tr>
<td>Parental mediation (Wave 2.5)</td>
<td></td>
</tr>
<tr>
<td>How easy is it to manage child's use of electronic/computer games?</td>
<td></td>
</tr>
<tr>
<td>Easy/very easy</td>
<td>−0.081</td>
</tr>
<tr>
<td>Missing data</td>
<td>−0.256</td>
</tr>
<tr>
<td>Parent wishes child would spend less time watching television</td>
<td>0.328</td>
</tr>
<tr>
<td>Patterns of media use (Waves 1 to 3)</td>
<td></td>
</tr>
<tr>
<td>Television</td>
<td></td>
</tr>
<tr>
<td>Mixed</td>
<td>−0.431</td>
</tr>
<tr>
<td>Consistently high</td>
<td>−0.408</td>
</tr>
<tr>
<td>Computer</td>
<td></td>
</tr>
<tr>
<td>Mixed</td>
<td>0.505</td>
</tr>
<tr>
<td>Consistently high</td>
<td>0.326</td>
</tr>
<tr>
<td>Reading</td>
<td></td>
</tr>
<tr>
<td>Mixed</td>
<td>0.283</td>
</tr>
<tr>
<td>Consistently high</td>
<td>1.317 *</td>
</tr>
<tr>
<td>Controls</td>
<td></td>
</tr>
<tr>
<td>Mother’s education years (Wave 1)</td>
<td>0.207 ***</td>
</tr>
<tr>
<td>Equivalised household income ($A10,000)</td>
<td>0.326 ***</td>
</tr>
<tr>
<td>Intercept</td>
<td>73.967 ***</td>
</tr>
</tbody>
</table>

Notes: * p < .05; ** p < .01; *** p < .001.
annual household income (adjusted for family size) was associated with an improvement of between 0.3 and 0.4 in PPVT-III scores for each cohort. Conversely, time spent reading had a powerful effect in the early years. In the older cohort only, a sustained pattern of time devoted to reading significantly affected PPVT-III score at age 8, and the associated predicted effect was slightly smaller.

For this cohort, the only measure of child viewing context was the presence of a television in the child’s bedroom (other questions were not asked). Having a TV in the bedroom remains negatively associated with receptive vocabulary ($p < .05$). Conspicuously, among the older cohort, having a computer in the home ($p < .05$) is significantly associated with a better mastery of vocabulary at age 8 years, although Internet connectivity is not significant. Our findings suggest that at certain stages of the child’s development there is a positive association between language and computer access. Interestingly, exposure to the much-maligned older media of television, as measured by child’s time spent watching over the three waves, did not appear to be significantly related to vocabulary acquisition, once other influences have been taken into account.

PPVT-III is a measure of receptive vocabulary (the recognition of words); it does not imply that a child will use these words in speech (expressive vocabulary), and is not an all-round measure of literacy, in the broader sense outlined earlier in the paper. However, teacher ratings (ARS) assess extra dimensions of traditional and ICT literacy as well. Table 4 shows that, at age 8 years, the results for this broader measure of literacy closely resembled those for the PPVT-III measure of receptive vocabulary.

Parental socio-economic capital had significant ($p < .001$) association with language acquisition and literacy. In contrast to children with a history of consistent low time spent in reading, those with a history of mixed or consistently high time spent reading had higher language and literacy scores. The improvement in the scores was monotonic. The effect size of a pattern of consistently high time spent in reading over the 4-year period was almost 50% higher than effect size for the children with a mixed pattern of reading.

The subtle differences between results for Table 3 (receptive vocabulary) and Table 4 (Academic Rating Scale) centre on the substantial positive association of ARS and consistent computer use$^2$ and the lack of influence of or access to (and perhaps parent mediation of) media use on the broader ARS measure of language skills. Whether the child had access to a computer in their bedroom or home or had a home Internet connection had no effect on the teacher’s rating of the child’s language and literacy, when time spent in computer use and other independent variables are held constant. Similarly, there was no significant net effect on ARS scores for the 8-year-old children having a television in their bedroom. However, there was a significant negative effect ($p < .05$) of having a games console (or functionally similar device) in the house.

### Table 4 Regression model for Language and Literacy Academic Rating Score, K cohort (1999/2000)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>SE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Child has ... (Wave 2.5)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Television in bedroom</td>
<td>–0.105</td>
<td>0.069</td>
</tr>
<tr>
<td>Computer in bedroom</td>
<td>–0.006</td>
<td>0.076</td>
</tr>
<tr>
<td>Computer in home</td>
<td>–0.020</td>
<td>0.136</td>
</tr>
<tr>
<td>Internet in home</td>
<td>0.048</td>
<td>0.107</td>
</tr>
<tr>
<td>Electronic games ownership</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>–0.109 *</td>
<td>0.048</td>
</tr>
<tr>
<td>Missing data</td>
<td>–0.046</td>
<td>0.067</td>
</tr>
<tr>
<td>Parental mediation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>How easy is it to manage child’s use of electronic/computer games?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Easy/very easy</td>
<td>–0.096</td>
<td>0.093</td>
</tr>
<tr>
<td>Missing data</td>
<td>–0.262</td>
<td>0.154</td>
</tr>
<tr>
<td>Parent wishes child would spend less time watching television</td>
<td>–0.014</td>
<td>0.062</td>
</tr>
<tr>
<td>Patterns of media use (Waves 1 to 3)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Television</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mixed</td>
<td>–0.103</td>
<td>0.063</td>
</tr>
<tr>
<td>High consistent</td>
<td>–0.193</td>
<td>0.100</td>
</tr>
<tr>
<td>Computer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mixed</td>
<td>0.161 **</td>
<td>0.060</td>
</tr>
<tr>
<td>High consistent</td>
<td>0.208 **</td>
<td>0.078</td>
</tr>
<tr>
<td>Reading</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mixed</td>
<td>0.285 ***</td>
<td>0.067</td>
</tr>
<tr>
<td>High consistent</td>
<td>0.418 ***</td>
<td>0.096</td>
</tr>
<tr>
<td>Control variables (Wave 1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mother’s education years</td>
<td>0.036 **</td>
<td>0.010</td>
</tr>
<tr>
<td>Equivalised household income ($A10,000)</td>
<td>0.055 ***</td>
<td>0.015</td>
</tr>
<tr>
<td>Intercept</td>
<td>2.945 ***</td>
<td>0.222</td>
</tr>
</tbody>
</table>

Notes: * $p < .05$, ** $p < .01$, *** $p < .001$. 

Perhaps the most striking feature of Table 4 is the positive ($p < .05$) relationship between time devoted to computer use between ages 4 and 8, and improved literacy as measured by the ARS scores. While the coefficient of association for continuous access to computers is roughly half that of continuous exposure to reading, the increase associated with a continuously high level of computer use compared to mixed use is proportionally the same. Moreover, the effects of access to computers go in the opposite direction from the alleged effects of sustained exposure to television. However, the opposite holds true of access to electronic games consoles that are associated with lower ARS scores. These findings also suggest that if children devote anything higher than the lowest time to reading or computer use over the 4 years, regardless of amount of time devoted to television, their literacy in the early years of schooling will be advanced.

Conclusions

Our results indicate that parents’ characteristics and the context that they create for the child’s media use in the early years (0–4) have more influence on the child’s acquisition of vocabulary than raw “exposure” to television, or the supposedly transformative new media environment purported by the “digital natives thesis”. Indeed, our findings point to the significance of the context of viewing and the parent’s role (“digital immigrant”) in negotiating media with the child. Our results suggest that attention should be paid to encouraging the child’s use of the oldest media of all—print (or at least text-based reading material)—as this is closely associated with receptive vocabulary at age 4 years. Similarly, among children aged 4–8 years, there appears to be no developmental advantage in avoiding exposure to television. Parents’ socio-economic resources and time devoted to reading and/or using a computer (over the previous 4 years) are all associated with more advanced abilities with language, comprehension and literacy. Conversely, providing partial refutation of the idea that games or multimedia-based resources are preferable to text-based, our results indicated that ownership of games consoles and functional equivalents is associated with lower linguistic abilities. In contrast to the conventional image that time spent watching television displaces activities that promote literacy, it seems that computer use (but not electronic game use) does not displace activities necessary for the development of print literacy.

Taken together, these findings are consistent with the idea that there may be distinct developmental stages in the ability to use digital devices. First, our data indicated that use of computers in infancy appears to be negligible and therefore plays no part in explaining the development of receptive vocabulary, at the population level. Second, the growth of vocabulary as the child develops appears to be unaffected by old electronic media (television) and more by the parents’ education and participation in their child’s media use. Third, computer (but not games) access at later ages was associated with increased traditional literacy. The timing of the effect of computers suggests a developmental sequence—that certain levels of linguistic capacity are necessary to facilitate use of this platform.

This pattern seems consistent with Vygotsky’s (1987) scaffolding theory of learning. Even co-viewing television with parents seems to promote verbal abilities, especially when parents have significant cultural capital and material resources available to transfer. Our results raise the intriguing prospect that it is not “exposure” to media that harms language acquisition and development of traditional literacy, but the absence of age-appropriate “guided interaction” (Plowman, McPake, & Stephen, 2008) by parents. Although not directly measured in this study, it may be that instructional scaffolding is important in the process of increased digital literacy as well.

Endnotes

1. It may be that the American Academy of Pediatrics has over-interpreted the literature, which contains inconsistent findings on this issue (Schmidt, Rich, Rifas-Shiman, Oken, & Taveras, 2009; Schmidt & Vandewater, 2008; Sharf & Sargeant, 2006).
2. Sensitivity testing showed that omitting the item “uses the computer” does not reduce the significance of association between computer use and ARS.
3. It may be that children with a television in their own bedroom spend more time watching television without their parents’ knowledge, which is thus the equivalent of having the television on at all times, and is indicative of parental boundary-setting as well as “exposure time”.
4. However, the child’s parents’ use of the Internet does seem to be positively related to the child’s acquisition of vocabulary.

References


**Professor Michael Bittman and Jude Brown** are adjunct researchers in Sociology at the University of New England, **Dr Leonie Rutherford** is in the School of Communication and Creative Arts at Deakin University and **Professor Len Unsworth** is Professor in Education at Griffith University.

This paper uses unit record data from *Growing Up in Australia: The Longitudinal Study of Australian Children*. The study is conducted in partnership between the Department of Families, Housing, Community Services and Indigenous Affairs (FaHCISIA), the Australian Institute of Family Studies (AIFS) and the Australian Bureau of Statistics (ABS). The findings and views reported in this paper are those of the authors and should not be attributed to FaHCISIA, AIFS or the ABS.
Evaluating the effectiveness of the Home Interaction Program for Parents and Youngsters (HIPPY)

Tony Barnett, Fatoumata Diallo Roost and Juliet McEachran

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
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, & Franz, 2005; Heckman & Masterov, 2007; Tudge, Odero, Hogan, & Etz, 2003). Waldofgel (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 parents1 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. 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.
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 study 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>
<thead>
<tr>
<th>Included variables</th>
<th>Before propensity score matching</th>
<th>After propensity score matching</th>
</tr>
</thead>
<tbody>
<tr>
<td>SEIFA index score of relative disadvantage</td>
<td>$p &lt; .001$</td>
<td>$p = .030$</td>
</tr>
<tr>
<td>% of local population &lt; 5 years of age</td>
<td>$p = .086$</td>
<td>$p = .363$</td>
</tr>
<tr>
<td>Location (metropolitan/non-metropolitan; large/small)</td>
<td>$p &lt; .001$</td>
<td>$p = .995$</td>
</tr>
<tr>
<td>Who Am I? readiness for school score/classification, grouped according to developmental age</td>
<td>$p &lt; .001$</td>
<td>$p = .202$</td>
</tr>
<tr>
<td>% population of Indigenous Australian background</td>
<td>$p &lt; .001$</td>
<td>$p = .734$</td>
</tr>
<tr>
<td>Number of people living in the household</td>
<td>$p = .001$</td>
<td>$p = .597$</td>
</tr>
<tr>
<td>Whether the parent was born in an English-speaking country</td>
<td>$p &lt; .001$</td>
<td>$p = .470$</td>
</tr>
<tr>
<td>Employment status of parent (usually the mother)</td>
<td>$p &lt; .001$</td>
<td>$p = .073$</td>
</tr>
<tr>
<td>Financial hardship scale</td>
<td>$p &lt; .001$</td>
<td>$p = .296$</td>
</tr>
<tr>
<td>Parent’s self-rating of overall health</td>
<td>$p &lt; .001$</td>
<td>$p = .761$</td>
</tr>
<tr>
<td>Home activities scale</td>
<td>$p &lt; .001$</td>
<td>$p = .378$</td>
</tr>
<tr>
<td>Parent’s highest level of education</td>
<td>$p &lt; .001$</td>
<td>$p = .307$</td>
</tr>
<tr>
<td>Child’s developmental age</td>
<td>$p &lt; .001$</td>
<td>$p = .733$</td>
</tr>
</tbody>
</table>
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
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](image-url)
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.

**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, have an important place within early childhood public policy aimed at reducing inequalities.

**Figure 3 Parents’ sense of neighbourhood belonging at Baseline and T2**

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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.

References


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Joint attention and parent–child book reading
Keys to help close gaps in early language development, school readiness and academic achievement

Brad M. Farrant

Good language development is an integral component of school readiness and academic achievement (Brinkman, Sayers, Goldfeld, & Kline, 2009; Hoff, 2012; Janus & Offord, 2007). It is also a key facilitator of the social skills that optimise an individual’s capability to participate at the social, economic and civic levels (Zubrick et al., 2009). Language development therefore has a central role to play in efforts to enhance the wellbeing and capability of individuals and populations. There is also an increasing recognition of the importance of research into early childhood development—the years before school in particular—to provide access to a better understanding of human development and as a means to address policy and practice concerns around issues such as the intergenerational transmission of disadvantage (e.g., Halfon, Russ, Oberklaid, Bertrand, & Eisenstadt, 2009; Huston, 2008). This paper describes, integrates and elaborates on the results of studies at the nexus of these important issues, using data from Growing Up in Australia: The Longitudinal Study of Australian Children (LSAC).

Although the success that most children have in acquiring their native language is remarkable, it is not magical; it depends on the amount and quality of language they are exposed to (Hoff, 2012), as well as the interpersonal context in which this occurs. Joint attention and parent–child book reading have long been considered to be among the most important interpersonal contexts that facilitate children’s early vocabulary development in Western societies (e.g., Bruner, 1975; Highberger & Brooks, 1973; Ninio & Bruner, 1978). Joint or shared attention refers to the practice of sharing attention (usually visual) by following the focus of another person’s attention or by drawing their attention to one’s own focus of attention (Williams, Whiten, Sudendorf, & Perrett, 2001).

Tomasello and Todd (1983) argued that when adults say the appropriate word during episodes of joint attention with children (i.e., when both adult and child are looking at the same thing) it provides an effective way for children to learn what that word refers to (word–object...
mappings). Joint attention is thought to play a pivotal role in the “vocabulary explosion” that occurs in children at around 18 to 20 months of age (Baldwin, 1995). Parent–child picture book reading simultaneously involves joint attention, pointing gestures and verbal labelling (Durkin, 1995) and therefore provides an opportunity for children to learn word–object mappings in a more structured, reciprocal setting. Indeed, the beneficial effects of parent–child book reading continue into later development where it provides opportunities for children to learn the meanings of new words in terms of their existing vocabulary.

The findings of research with typically developing children, children with specific language impairment, and children with autism indicate that joint attention plays an important role in facilitating the development of language and communication skills (Charman, 2003; Charman et al., 2003; Farrant, Maybery, & Fletcher, 2011; Peek, 1998; Poon, 2005; Whalen, Schreibman, & Ingersoll, 2006). There is also evidence supporting the idea that joint attention is particularly important for vocabulary development (Dunham, Dunham, & Curwin, 1993; Kiernan & Gray, 1998; Saxon, 1997; Tomasello & Todd, 1983). Similarly, the findings of two major reviews of the evidence (meta-analyses) support the importance of parent–child book reading as a means of promoting the vocabulary development of children in Western societies (Bus, van IJzendoorn, & Pellegrini, 1995; Mol, Bus, de Jong, & Smeets, 2008).

Thus, there is fairly solid evidence that joint attention and parent–child book reading play important roles in children’s vocabulary development. What has not been so clear is whether the differences in children’s vocabulary development that research has observed as a function of socio-economic status (SES) (e.g., Arriaga, Fenson, Cronan, & Pethick, 1998) are a result of differences in the levels of joint attention and parent–child book reading. Another gap in the research is the extent to which low levels of joint attention and parent–child book reading increase the risk of children having poor vocabulary development when they start school. Answering these questions is important, as it will enable the development of evidence-based policy and practice to improve children’s school readiness, particularly for those from disadvantaged backgrounds.

Australian research using LSAC data

Using data from the LSAC, Farrant and Zubrick (2011) found that the effect of maternal education on Australian children’s vocabulary development at 34 months of age was completely mediated by the level of parent–child book reading (see Box 1). That is, having a more educated mother facilitates child vocabulary development because more educated mothers engage in more parent–child book reading. This study also found that the effect of the number of siblings in the home was completely mediated by the levels of joint attention and parent–child book reading; having more siblings in the home constrains vocabulary development because it decreases joint attention and parent–child book reading.

Hence the results of this study indicate that differences in the levels of joint attention and parent-child book reading help to explain the disadvantage in early vocabulary development experienced by children from low SES backgrounds. This is consistent with and extends international research, which found that differences in parent–child book reading...
Instruction that increases the frequency and quality of parent–child book reading has a positive effect on the vocabulary development of children from families with low levels of income and maternal education.

Instruction that increases the frequency and quality of parent–child book reading has a positive effect on the vocabulary development of children from families with low levels of income and maternal education.

The question of the extent to which low levels of joint attention and parent–child book reading increase the risk of Australian children having poor vocabulary development when they start school was investigated by Farrant and Zubrick (2012) using data from the LSAC (see Box 2). Children who had low levels of joint attention in infancy were significantly more likely to have poor vocabulary development. Around 16% of the children with low- and mid-level joint attention scores in infancy (at about 9 months of age) had poor vocabulary around the time of school entry (at about 58 months of age), compared to 11% of the children in the high joint attention group. Furthermore, the risk of poor vocabulary development was significantly increased for children who had experienced low levels of parent–child book reading (10 or fewer minutes/day). Nearly a quarter of the children who had low levels of parent–child book reading across early childhood had poor vocabulary around the time of school entry compared to fewer than 8% of the children who had high levels of parent–child book reading across early childhood.

The findings of Farrant and Zubrick (2012) suggest that it should be possible to improve children’s early vocabulary development by increasing the levels of joint attention and parent–child book reading. Furthermore, when taken together, the results of these two studies (Farrant & Zubrick, 2011; 2012) suggest the possibility of helping to close the gaps in school readiness (in terms of vocabulary/language development) experienced by Australian children from disadvantaged backgrounds by implementing interventions that target joint attention and parent–child book reading.

International intervention research

Indeed, there is international evidence that interventions that target parent–child book reading enhance children’s language development. Perhaps most importantly, instruction that increases the frequency and quality of parent–child book reading has a positive effect on the vocabulary development of children from families with low levels of income and maternal education (e.g., Taverne & Sheridan, 1995) and the facilitative effects of family literacy programs for disadvantaged children continue in the years following intervention (Phillips, Hayden, & Norris, 2006). Furthermore, the fact that parents of kindergarten and school-aged children often miss opportunities to explain novel words when reading with their children (Evans, Reynolds, Shaw, & Pursoo, 2011) opens up the possibility of improving the effectiveness of parent–child book reading. Indeed, there are a number of dialogic book reading training programs (e.g., Whitehurst et al., 1994) that have been found to change adults’ book reading style and facilitate children’s vocabulary development (see Mol et al., 2008, for a meta-analysis) as well as children’s language development more broadly (see Reese, Sparks, & Leyva, 2010, for a review). Similarly, instructing parents or teachers in adult–child book reading enhances the language development of children with language delays (Crain-Thoreson & Dale, 1999).

International research has also found that joint attention training for mothers (see Box 3) improves children’s language development (Bjorn, Kakkuri, Karvonen, & Leppanen, 2012), and that training child care staff increases the amount of staff–child joint attention and enhances children’s language development (Cain, Rudd, & Saxon, 2007;
Joint attention has developmental foundations (Keller & Gauda, 1987; Keller & Zach, 1993) and parents continue to establish joint attention with the child before providing a suitable language model. Instruction is provided on how to follow the child’s focus of attention and/or how to gain the child’s attention as well as how to engage with and direct the child’s focus of attention during games and other episodes of adult–child interaction. Because children’s attention is limited, adults are instructed to follow the child’s lead as much as possible. Joint attention interventions that focus on children typically encourage engagement with other people and teach children (using reinforcement etc.) how to respond to joint attention bids from others (e.g., pointing), how to initiate episodes of joint attention, and how to engage in turn-taking, involving switching between responding to and initiating joint attention.

Interventions designed to help parents and other carers foster joint attention typically involve instructing the adult(s) in how to establish joint attention with the child before providing a suitable language model. Instruction is provided on how to follow the child’s focus of attention and/or how to gain the child’s attention as well as how to engage with and direct the child’s focus of attention during games and other episodes of adult–child interaction. Because children’s attention is limited, adults are instructed to follow the child’s lead as much as possible. Joint attention interventions that focus on children typically encourage engagement with other people and teach children (using reinforcement etc.) how to respond to joint attention bids from others (e.g., pointing), how to initiate episodes of joint attention, and how to engage in turn-taking, involving switching between responding to and initiating joint attention.

Sources: Bjorn et al. (2012); Cain et al. (2007); Isaksen and Holth (2009); Jones et al. (2006); Kasari et al. (2008); Rocha et al. (2007); Whalen et al. (2006)

Ongoing engagement means that by around 9 months of age these skills are developed further such that infants can follow other people’s points or head-turns to a target that is out of their visual field (Butterworth, 1991; Butterworth & Cochran, 1980; Corkum & Moore, 1998; Scaife & Bruner, 1975). Children can follow an adult’s focus of visual attention to an object in order to find the target of the adult’s emotional outburst and make mappings between objects and emotional states by around 12 months of age (Moses, Baldwin, Rosicky, & Tidball, 2001). By around 16 months of age most children are able to learn what a word refers to (word–object mappings) when an adult follows the child’s focus of visual attention to the object before uttering the word (Baldwin, 1991; 1993b). Around 20 to 24 months of age, after hearing an adult say a novel word, children can follow the adult’s focus of visual attention to an object and learn word–object mappings (Baldwin, 1993a; 1993b; Baldwin, Markman, Bill, Desjardins, & Irwin, 1996). Baldwin (1995) argued that this joint attention skill underpins the “vocabulary explosion” that also occurs at this age.

Improving outcomes

Thus research has demonstrated that, beginning with parent–infant eye contact in early neonatal life, there are multiple points at which practitioners can help parents facilitate and monitor the development of joint attention and provide evidence-based interventions as necessary. Furthermore, encouraging parents and carers to start reading picture books to

Beginning with parent–infant eye contact in early neonatal life, there are multiple points at which practitioners can help parents facilitate and monitor the development of joint attention and provide evidence-based interventions as necessary.
children from an early age offers an excellent way to foster joint attention and language development (Farrant & Zubrick, 2011) because it simultaneously involves socio-emotional engagement, pointing gestures, joint attention and verbal labelling in a more structured setting (Durkin, 1995). Nevertheless, although most parents likely come across messages about the importance of parent–child book reading for early child development many times in the media, at the library and at the doctor’s/paediatrician’s office (Reese et al., 2010), it is unlikely that these messages alone are enough to close the gaps in outcomes.

The findings of Australian and international research also make it clear that targeting interventions to geographic areas that have high rates of disadvantage means that we fail to reach most of the vulnerable children because, although middle class children are less likely to be vulnerable, the size of this group means that the majority of vulnerable children live in middle SES areas (Brinkman et al., 2009; Lynch, Law, Brinkman, Chittleborough, & Sawyer, 2010; McCain & Mustard, 1999; McCain, Mustard, & Shanker, 2007; Offord, Kraemer, Kazdin, Jensen, & Harrington, 1998). Furthermore, positive patterns of parent–child interaction matter to every child and most parents could benefit from programs that improve their parenting skills and knowledge about child development (Chao & Willms, 2002). Therefore, to be more effective and efficient, programs need to take a universal prevention approach (McCain et al., 2007; Moore & Goldfeld, 2006).

Indeed, it has been argued that in order to improve outcomes for vulnerable children and prevent referral bottlenecks, services for young children and families in Australia need to be reconfigured from an unintegrated system of limited universal services and scarce targeted and treatment services into an integrated and tiered system of universal/primary, secondary and tertiary services (see Moore & Goldfeld, 2006). This kind of integrated system has the potential to maximise the benefits of early prevention and intervention via efficient referral pathways and universal/primary and secondary early childhood professionals that have sufficient knowledge and skills to identify and respond to emerging problems before they become entrenched (Moore & Goldfeld, 2006).

Thus, from this perspective it is important that universal/primary early childhood professionals, including nurses in community child and family health centres and child care staff, have adequate knowledge about dialogic parent–child book reading as well as joint attention and its developmental precursors. Secondary services could be provided by suitably trained professionals involved in an Australian version of the Nurse–Family Partnership (Olds et al., 2004) intensive home visiting program. Such a program could draw on those recently developed and trialled with disadvantaged families in New South Wales (Kemp et al., 2008; Kemp et al., 2011) and with Aboriginal families in South Australia (Sivak, Arney, & Lewig, 2008). These universal/primary and secondary services should have strong relationships with and streamlined referral pathways to tertiary professionals (Moore & Goldfeld, 2006). They could also be integrated with Child and Parent Centres on school sites to provide seamless support for families and children from the prenatal period all the way up to and through the school years.

Because every child and family is different, it is imperative that early childhood professionals have sufficient knowledge and skills to be able to adapt their practice accordingly. Indeed, because contextual factors such as parenting stress and general hassles have been found to have negative effects on the amount of parent–child book reading (Karrass, VanDeventer, & Braungart-Rieker, 2003), it is crucial that practitioners adopt a holistic approach to working with families and children. Another relevant contextual consideration is that, because the amount of non-parental care is increasing in early childhood, it is important that structures and programs in child care...
settings foster language development by providing sufficient opportunities for carer–child joint attention and dialogic book reading (Hargrave & Senechal, 2000; Nyland, 2004). Dialogic book reading is a practice that actively involves the child in shared book reading by encouraging the child to participate, providing feedback to the child, and adapting the adult’s reading style as the child’s linguistic skills develop (Hargrave & Senechal, 2000).

There is also an increasing recognition that, to be effective in culturally diverse settings, practitioners and programs need to be culturally aware and culturally appropriate. For example, the Family Home Visiting program in South Australia includes Aboriginal staff as Indigenous Cultural Consultants that visit Aboriginal families in partnership with nurses (Sivak et al., 2008). Participating Aboriginal families have identified the involvement of Indigenous Cultural Consultants as a key reason for the success of the program (Sivak et al., 2008). Another key recommendation was the provision of ongoing cultural awareness training to staff at all levels (Sivak et al., 2008).

Practitioners working with Aboriginal families need to recognise the importance of the oral storytelling tradition as a culturally appropriate foundation for language and literacy development (McKeough et al., 2008). There is also international evidence that, for children whose first language is other than the dominant language of the broader community, dual instruction in both the dominant (e.g., English) and heritage languages is associated with better academic achievement (e.g., Genesee & Lindholm-Leary, 2012). Indeed, after reviewing the available literature, Hoff (2012) recently argued that, given the obvious cultural, social and economic benefits of bilingualism and the fact that many bilingual children begin school with levels of English proficiency that are an obstacle to academic achievement in standard educational programs, it is important that curricula and teaching practices are improved to meet the needs of children from culturally and linguistically diverse backgrounds. Consistent with the findings of earlier research (e.g., Collins & Lea, 1999; Devlin, 1995; Murtagh, 1982), the results of more recent Australian (Devlin, 2011; Grimes, 2009) and international (Freeman, 2007; Human Development Network, 2006; World Bank, 2005) reviews identify many benefits that well designed bilingual instruction can deliver and, conversely, the many downsides associated with English-only education policies.

It is also important to understand that there are differences in parent–child book reading styles and practices across a range of cultures (Chow, McBride-Chang, Cheung, & Chow, 2008; Murase, Dale, Ogura, Yamashita, & Mahieu, 2005). Similarly, cultural differences in the occurrence of specific joint attention behaviours as well as in the purpose of sharing attention have been observed (Bakeman, Adamson, Konner, & Barr, 1990). Unfortunately, there is a lack of literature addressing how these factors differ among Australian Aboriginal and Torres Strait Islander cultures. Future research in this area has the potential to greatly enhance the effectiveness of culturally appropriate programs aimed at closing gaps in language, school readiness and academic achievement.

**Conclusions**

Language development in early childhood plays a critical role in school readiness and subsequent academic achievement (Brinkman et al., 2009; Hoff, 2012; Janus & Offord, 2007). The findings of Australian (Farrant & Zubrick, 2011; 2012) and international research indicate that joint attention and parent–child book reading are important interpersonal contexts that facilitate children’s early language development in Western societies. Research has also demonstrated that interventions that target joint attention and parent–child book reading enhance children’s language development. Incorporating what we know about joint attention and parent–child book reading into universal/primary and secondary/targeted early childhood services, and integrating these with Child and Parent Centres on school sites, could provide the seamless ongoing support families and children need to help them stop the intergenerational transmission of disadvantage.

**References**


For children whose first language is other than the dominant language of the broader community, dual instruction in both the dominant and heritage languages is associated with better academic achievement.
Housing and children’s wellbeing and development
Evidence from a national longitudinal study

Matthew Taylor and Ben Edwards

Very little is understood about the influence of housing on children’s development in Australia. For example, a recent review of the literature on this issue (Dockery et al., 2010) suggested that: “there is noticeably a lack of empirical research conducted in Australia on the links between housing and child development” (p. 2). In this paper, we begin to fill the gap in the Australian evidence on the influences of housing on children’s development, using national data from Growing Up in Australia: The Longitudinal Study of Australian Children (LSAC). Specifically, we examine the association between housing tenure, residential mobility, and housing stress on children’s cognitive development and social-emotional functioning.

Housing and children’s development

Secure housing tenure gives people a sense of autonomy, certainty and control that leads to lower levels of stress and increases residential stability. It has been found to affect the mental health of parents and family stability, which is associated with children attending fewer schools and having better educational performance and rates of school completion (Australian Housing and Urban Research Institute [AHURI], 2006).

Home ownership has also been associated with children performing better at school in terms of maths and reading (Haurin, Parcel, & Haurin, 2002), and having lower dropout rates (Green & White, 1997), higher levels of school completion (Aaronson, 2000), and higher earnings as adults (Boehm & Schlottman, 1999). Better health and behavioural outcomes are also evident, with children having better health (Fogelman, Fox, & Power, 1989) and fewer behavioural problems (Boyle, 2002; Haurin et al., 2002).

Dockery and colleagues (2010) reviewed possible explanations for the link between home ownership and children’s outcomes, and found that where there were high levels of home ownership and higher quality housing, children had greater levels of consistency and...
stability in their lives, fewer school transitions and more stable school environments.

Public housing represents a low-cost housing option and is therefore associated with lower levels of housing stress and greater security of tenure. Regulation governing the provision of public housing would also suggest that compared to other low-cost options, housing quality should be greater; however, there is mixed evidence in this regard, with more overcrowding in public housing but lower rates of exposure to health hazards such as infestation and lead (see Dockery et al., 2010, for a review). To the extent that public housing is placed in disadvantaged neighbourhoods or concentrated in particular locations, another potential flow-on effect for children living in these dwellings is that they are exposed to lower quality neighbourhoods, which has been found to be detrimental to children’s emotional and behavioural and learning outcomes in Australia as well as overseas (Edwards, 2005; Edwards & Bromfield, 2009).

Very little is known about the effects on children of “doubling up”—sharing housing with friends or relatives. There is some evidence to suggest that there are higher rates of childhood asthma in households that double up (Sharfstein & Sandel, 1998). However, one of the few large empirical studies examining the effects of doubling up on children found that in low-income families, doubling up had few adverse effects on children’s physical or mental health, cognitive development or health care use (Park, Fertig, & Allison, 2011).

High levels of residential mobility have consequences for the development of the children living in such households. A recent systematic review of 22 North American studies on the issue reported higher levels of behavioural and emotional problems, increased teenage pregnancy rates, faster initiation of illicit drug use and reduced continuity of health care among children who had experienced frequent house moves (Jelleyman & Spencer, 2008). Apart from these key findings, there were several other important points that were noted about the studies that were reviewed. First, there was no agreed definition of “high levels of residential mobility”. In many studies, this was defined as being greater than three moves in the child’s lifetime, a measure that must be interpreted within the context of the age of the children sampled. This level of mobility was found to have a statistically significant association with negative outcomes for children aged up to 18 years (Jelleyman & Spencer, 2008). Second, there were only...
three studies that examined the influence of residential mobility on the outcomes of preschool-aged children, and the evidence on the association with child outcomes was mixed, primarily because the studies used small and unrepresentative samples. Third, Jelleyman and Spencer did not identify any Australian studies in their review—17 of the 22 studies were from the United States and a further three studies were from Canada. Given that the Australian context is very different, it is important to have some nationally representative evidence.

There have been several large-scale studies from the United States that also suggest that children who experience higher rates of residential mobility are at higher risk of school dropout (Astone & McLanahan, 1994), repeating a grade at school, or being suspended or expelled (Simpson & Fowler, 1994; Wood, Halfon, Scarlata, Newacheck, & Nessim, 1993). The reasons given for higher levels of residential mobility influencing children negatively usually centre around the associated disruptions to social connections within neighbourhoods, particularly if children have to move schools and make new friends (Dockery et al., 2010; Jelleyman & Spencer, 2008).

High levels of residential mobility are also a characteristic of the homeless population (Bartholomew, 1999; Chamberlain, Johnson, & Theobald, 2007; Chamberlain & MacKenzie, 1998, 2008; McCaughey, 1992; Johnson, Gronda, & Coutts, 2008). While longitudinal data on families experiencing homelessness is sparse, there is some evidence that Australian families who experience homelessness have a history of being highly mobile. The most recent Australian data available indicate that 31% of children accompanying adults accessing homelessness support services had lived in three or more homes in the 12 months prior to receiving support, and over 20% had lived in two or more homes in the month prior to receiving support (Australian Institute of Health and Welfare [AIHW], 1999). Over 60% of these children had experienced a house move in the previous 12 months, compared to the national average of 15% of all families.

Even where families are not highly mobile, financial problems—such as having difficulties paying the rent or mortgage (i.e., housing stress)—can have significant effects on children. In 2003–04, 23% of Australian households in the bottom 40% of the income distribution were in housing stress. This equates to approximately 719,000 households (Yates, 2007).

Several studies have documented that housing affordability has negative consequences for children, although the findings have not been clearcut. Bartfield and Dunifon (2005) found that there was a large and robust link between food insecurity of households with children and greater median rents in the United States. Harkness and Newman (2005) reported that children living in areas with the least affordable housing markets had worse educational outcomes than those who did not. Their study suggests that the effect may be cumulative, as associations between housing affordability and educational outcomes were stronger for older children (12–17 years) than younger children (6–11 years). However, another large-scale US study suggested that children living in areas with higher housing costs fared no worse on cognitive tests and a measure of behaviour problems than those living in lower cost areas (Harkness, Newman, & Holupka, 2009).

There are two possible explanations given in the literature for the influence of housing costs on children’s development. The material hardship explanation suggests that higher housing costs can significantly affect parents’ ability to provide adequately for their children; for example, being able to afford food, school books, clothes and health care. The other potential explanation is derived from the family stress model of economic hardship, which postulates a series of mediated relationships between financial hardship, parents’ mental health, conflict between caregivers, parenting practices and children’s mental health (Conger & Donnellan, 2007). Low income and lack of parental employment influences the number of financial hardship events (such as having difficulty paying the rent or mortgage) experienced by families. The experience of this hardship in turn, produces elevated levels of parental mental health problems (Evans, 2006). The distress from this experience in turn produces aggression in the form of increased conflict in the parental relationship. Both parental relationship conflict and parental
Definitions and data

LSAC provides detailed information on a range of measures of child wellbeing in addition to the socio-economic and demographic characteristics of the study child’s family. It also contains detailed information on the circumstances of the study child’s housing, including the type of dwelling in which the child’s family lives, the tenure arrangement under which the child’s family resides in their dwelling and the number of dwellings in which the child has lived between waves. Most of this information is provided by “the person who knows most about the child”, who is referred to as Parent 1 in the study and in most cases is the biological mother of the study child. LSAC is therefore a good source of data for analysing the impact of housing on the developmental outcomes of Australian children.

This study uses data from the third wave of LSAC, collected in 2008. At that time, the B cohort was aged 4–5 years, the same age the K cohort had been in 2004, and the K cohort was aged 8–9 years. Combining both cohorts gives us a large sample of children who had been 4–5 years and under in 2004 and who were surveyed approximately every two years between 2004 and 2008. The longitudinal nature of LSAC provides a rich source of information on the housing transitions of the children sampled over this period.

Housing tenure

The survey instrument used in LSAC to elicit information on families’ housing tenure is similar to that used by the Australian Bureau of Statistics (ABS; 2007) in its Survey of Income and Housing (SIH). Since both LSAC and the SIH gather data using similar methods, we constructed a classification of the housing tenure of the LSAC children’s families that is consistent with that used by the ABS.

Households where at least one member owns the dwelling outright are defined as “Owner without a mortgage”. If the household reference person states that they currently have a mortgage or a secured loan against the dwelling then the household is classified as an “Owner with a mortgage”. Households where the primary respondent states that someone in the household rents the dwelling are classified as renters. LSAC also enumerates two different types of renters according to the type of landlord to whom the renter makes payments. Those who pay rent to a state or territory housing authority are classified as “Renter—State/territory housing authority”. Those who state that they pay rent to a private landlord who does not reside in the same household are classified as “Renter—Private landlord”.

The balance of tenure includes those who rent their dwelling from “other” landlords and those who have an alternative tenure type (“Other landlord/other tenure type”). This includes those who rent in caravan parks, those who rent from housing cooperatives or community organisations, those who occupy a dwelling rent free and those who occupy their dwellings as part of a life tenure, rent/buy or shared equity scheme. According to the ABS publication on Housing Occupancy and Cost this represents 6% of all Australian households (ABS, 2009).

Throughout this article, we will at times refer to families whose tenure is “Owner without a mortgage” as owners, those whose tenure is “Owner with a mortgage” as mortgagees, “Renter—State/Territory housing authority” as public renters, “Renter—Private landlord” as private renters, and those in tenure classified as “Other landlord/Other tenure type” as other tenure.

Residential mobility

While those parts of the LSAC questionnaire pertaining to tenure are similar to the instrument used in the SIH, this is not the case for the questions used to elicit information on the mobility of the child’s household. In the first wave of LSAC, Parent 1 was asked “How many homes has [child] lived in since he/she was born?” in both the B and K cohorts. B cohort children were newborns at the time of the first wave, whereas K cohort children were aged 4–5 years. The differences in the time since birth make it impossible to compare the level of mobility experienced by children’s households between the cohorts, and therefore it is impossible to make statements about the sample’s overall level of mobility. It is for this reason that we consider housing mobility experienced by both cohorts over the four-year period between the first data collection in 2004 and the third data collection in 2008 for those study children whose parents responded in all three waves.
Housing stress

In addition to house moves and tenure type, Parent 1 was also asked, in all of the three waves of LSAC used in this study, how much the family—not the household—paid in board, rent, mortgage and site payments for their residence. LSAC also contains information on the gross income of both parents in addition to “income of members of your household aged 15 years or over”. We used these data to construct a measure of weekly household income that were, in turn, used to create a measure of housing stress. For the purposes of this report, families were defined as being in housing stress if they:

- resided in households in the bottom two quintiles (or bottom 40%) of the equivalised5 gross household income distribution, as measured by the 2007–08 SIH6; and
- spent at least 30% of their gross household income on housing costs.

This measure of housing stress is commonly referred to as the 30/40 rule. We used gross income because that is the measure of income that is included in LSAC. This is in contrast to the SIH, which includes measures of both gross and disposable income. As noted by Yates and Gabrielle (2006), “refinements of this basic measure will give (sometimes only marginally) different estimates of the numbers and types of households in housing stress but the incidence of housing stress amongst different household types is relatively robust to different measures” (p. ix). While the income threshold and housing cost percentages are ultimately arbitrary, they are based on the assumption that families with higher equivalised incomes who spend more than 30% of their gross income on housing costs are making housing expenditures that are more likely to be discretionary. It is perhaps also worth emphasising that not all families in the bottom 40% of equivalised household income spend more than 30% of their gross (unequivalised) household income on housing costs. To foreshadow later results, we estimate that 37% of LSAC families with low equivalised household incomes have housing costs in excess of 30% of their gross household income.

A limitation of LSAC when compared to the SIH is that housing costs are reported for the study child’s family rather than their household. For most children these are synonymous; however, there are some children who live in households that contain multiple families. While it is likely that income is shared within households, at least those that contain blood relatives, we cannot be certain that this is the case. As a consequence, the families of children who reside in multiple-family households in the bottom 40% of the equivalised household income distribution are more likely to be discretionary. It is perhaps also worth emphasising that not all families in the bottom 40% of equivalised household income spend more than 30% of their gross (unequivalised) household income on housing costs. To foreshadow later results, we estimate that 37% of LSAC families with low equivalised household incomes have housing costs in excess of 30% of their gross household income.

The type of housing tenure in which families live depends in large part on need, but also to a large extent on what they can afford.
income distribution may contribute very little to the household’s housing costs, and therefore might be incorrectly classified as not being in housing stress, even in those instances where the household’s housing costs might exceed 30% of equivalised household income. This should be kept in mind when interpreting the results.

Dimensions of housing: Tenure, mobility and cost

Table 1 presents the tenure type of LSAC families who responded in the third wave of LSAC. By this time, almost three-quarters of LSAC families owned their own home, with just under 13% owning their home outright. Private rental was more common than owning a home outright, at 16%. Just over 3% of children were living in public housing at the time of the third wave, and 7% were living in housing with “other” tenure.

Table 2 presents the number of house moves experienced by LSAC families over the four years between 2004 and 2008. Forty-five per cent of families experienced at least one move, suggesting that moving house is a common experience for children within these age groups. Most children who experience a house move experienced a single move (27%); however, a significant minority experienced two or more moves (18%).

The type of housing tenure in which families live depends in large part on need, but also to a large extent on what they can afford. Table 3 provides the nominal housing costs paid by LSAC families per week for each tenure type in 2008. The “cheapest” form of tenure is, by construction, owning a home outright. Those who own outright do not face any out-of-pocket expenses for their housing other than local government rates and costs associated with maintenance. Unfortunately, LSAC does not collect information on rates and the cost of maintenance. We therefore proceed on the assumption that these are likely to be small relative to rental and mortgage payments and set the housing costs of outright homeowners to zero. The average weekly mortgage payment made by LSAC families in 2008 was $434; considerably more expensive than the $299 paid by private renters. Table 3 suggests that public housing was, on average, a little more than half the cost of private rental.

The least expensive form of tenure, in terms of out-of-pocket housing costs, was “Other” at just over $100 a week. This begs the question: What precisely does “Other” tenure constitute, and why is it that this tenure involves such low housing costs? An analysis of whom LSAC families share their household with would seem to suggest that many of those in “Other” tenure share their household with other adults and children, most often families members of the parents, such as their own parents (i.e., the grandparents of the study child) or siblings (an uncle or aunt of the study child). It is likely that LSAC families in this tenure type are staying with relatives and incurring nominal housing costs. We cannot, however, be certain of the nature of this “doubling up”. We are not able to infer whether these multiple family households are the result of LSAC families moving into, perhaps temporarily, an established household, or whether it is the LSAC family that is accepting another family into their home. All we can conclude is that the majority of “Other” tenure

### Table 1 Housing tenure type of LSAC families at Wave 3

<table>
<thead>
<tr>
<th>Housing tenure type</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Owner without a mortgage</td>
<td>12.7</td>
</tr>
<tr>
<td>Owner with a mortgage</td>
<td>60.9</td>
</tr>
<tr>
<td>Renter—Private landlord</td>
<td>16.1</td>
</tr>
<tr>
<td>Renter—State/territory housing authority</td>
<td>3.2</td>
</tr>
<tr>
<td>Other landlord/other tenure type</td>
<td>7.2</td>
</tr>
<tr>
<td>Total</td>
<td>100.0</td>
</tr>
<tr>
<td>No. of observations</td>
<td>8,717</td>
</tr>
</tbody>
</table>

Note: Percentages do not total exactly 100.0% due to rounding.

### Table 2 Number of house moves between Wave 1 and Wave 3, LSAC families

<table>
<thead>
<tr>
<th>House moves</th>
<th>No. of observations</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>4,633</td>
<td>54.9</td>
</tr>
<tr>
<td>One</td>
<td>2,314</td>
<td>27.4</td>
</tr>
<tr>
<td>Two</td>
<td>1,012</td>
<td>12.0</td>
</tr>
<tr>
<td>Three</td>
<td>324</td>
<td>3.8</td>
</tr>
<tr>
<td>Four</td>
<td>102</td>
<td>1.2</td>
</tr>
<tr>
<td>Five or more</td>
<td>59</td>
<td>0.7</td>
</tr>
<tr>
<td>Totals</td>
<td>8,444</td>
<td>100.0</td>
</tr>
</tbody>
</table>

### Table 3 Housing costs per week, by housing tenure type, LSAC families at Wave 3

<table>
<thead>
<tr>
<th>Housing tenure type</th>
<th>Average cost per week ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Owner without a mortgage</td>
<td>$0</td>
</tr>
<tr>
<td>Owner with a mortgage</td>
<td>$434</td>
</tr>
<tr>
<td>Renter—Private landlord</td>
<td>$299</td>
</tr>
<tr>
<td>Renter—State/territory housing authority</td>
<td>$159</td>
</tr>
<tr>
<td>Other landlord/other tenure type</td>
<td>$107</td>
</tr>
<tr>
<td>All families</td>
<td>$324</td>
</tr>
<tr>
<td>No. of observations</td>
<td>8,320</td>
</tr>
</tbody>
</table>
is made up of multiple-family households and that this appears to be associated with lower housing costs for LSAC families. That said, the lower housing costs associated with this tenure type would suggest that it is more common for the LSAC families to move into established households.

Different types of housing tenure have the potential to offer more housing security. Table 4 presents the average number of house moves made by LSAC families between 2004 and 2008, by tenure type. The families who were living in private rental accommodation had, on average, the highest rates of house moves, with families in this tenure type in 2008 reporting 1.5 moves on average in a four-year period. Next highest in terms of mobility were those families in the other landlord/other tenure type of housing, who had moved 1.3 times in a four-year period. Families living in public housing in 2008 had experienced fewer house moves, with less than one move in a four-year period. Families who owned their home outright or who had a mortgage had the lowest number of moves, averaging 0.3 and 0.5 moves respectively.

Table 5 gives an indication of the relationship between housing stress and families’ average housing costs, and equivalised and gross household incomes for each wave of LSAC. The table shows that, on average, families who were not in housing stress had higher household incomes than those who were not. This is to be expected, as the 30/40 rule defines only those families living in the lowest 40% of the household income distribution to be at risk of housing stress. It is important to keep in mind that not all households with incomes under the 40th percentile were in housing stress; however, the percentage was quite high (37%).

Overall, just over 14% of LSAC families were experiencing housing stress when they were interviewed in 2008. This is a higher rate of housing stress than that observed by other authors who have employed this 30/40 rule measure, such as Philips (2011). It is, however, important to keep in mind that this is a measure of housing stress for families rather than households, and one constructed from survey instruments that are somewhat different to the SHH, the most commonly used source of data for the calculation of housing stress.

Housing and child wellbeing

This section examines the extent to which child outcomes vary according to their family’s tenure, housing mobility and housing stress.

First, we display children’s outcomes by each of the three housing variables in 2008. Then we use regression modelling to take account of child and parent demographic variables—such as child gender and age, child Indigenous status, the highest level of parental education, household income and whether the child’s primary carer was born overseas—to see whether systematic differences in such variables explain the differences in children’s outcomes.

LSAC contains a comprehensive set of measures of child wellbeing. One such measure is the short form of the Peabody Picture Vocabulary Test (PPVT) (Dunn, Dunn, & Dunn, 1997; Rothman, 1999). The PPVT is designed to measure a child’s knowledge of the meaning of spoken words (receptive vocabulary) and verbal ability. The PPVT scores have been standardised to have a mean of zero and a standard deviation of one so that each effect is presented in standard deviation units. One standard deviation difference (that is, an effect size of 1) between two groups represents an approximate 34% improvement in the mean of the whole population. Presenting results in effect sizes enables a discussion of the strength of differences between groups or associations between variables.

Child behavioural and emotional outcomes are measured in LSAC using the Strengths and Difficulties Questionnaire (SDQ) (Goodman, 1997). The SDQ is designed to measure the extent to which children have problems in a number of different areas, including emotional problems, conduct problems, hyperactivity, peer problems and non-specific difficulties. The SDQ scores have been standardised to have a mean of zero and a standard deviation of one so that each effect is presented in standard deviation units. One standard deviation difference (that is, an effect size of 1) between two groups represents an approximate 34% improvement in the mean of the whole population. Presenting results in effect sizes enables a discussion of the strength of differences between groups or associations between variables.

### Table 4 Average number of house moves between Wave 1 and Wave 3, by housing tenure type of LSAC families at Wave 3

<table>
<thead>
<tr>
<th>Housing tenure type</th>
<th>Average no. of house moves</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Owner without a mortgage</td>
<td>0.3</td>
<td>1,081</td>
</tr>
<tr>
<td>Owner with a mortgage</td>
<td>0.5</td>
<td>5,187</td>
</tr>
<tr>
<td>Renter—Private landlord</td>
<td>1.5</td>
<td>1,317</td>
</tr>
<tr>
<td>Renter—State/territory housing authority</td>
<td>0.7</td>
<td>259</td>
</tr>
<tr>
<td>Other landlord/other tenure type</td>
<td>1.3</td>
<td>600</td>
</tr>
<tr>
<td>All families</td>
<td>0.7</td>
<td>8,444</td>
</tr>
</tbody>
</table>

### Table 5 Average housing costs, equivalised household income and gross household income by housing stress experienced by LSAC families at Wave 3

<table>
<thead>
<tr>
<th></th>
<th>Not in housing stress</th>
<th>Housing stress</th>
<th>All families</th>
</tr>
</thead>
<tbody>
<tr>
<td>Housing costs</td>
<td>$323</td>
<td>$368</td>
<td>$329</td>
</tr>
<tr>
<td>Equivalised household income</td>
<td>$948</td>
<td>$361</td>
<td>$872</td>
</tr>
<tr>
<td>Gross household income</td>
<td>$2,074</td>
<td>$764</td>
<td>$1,889</td>
</tr>
<tr>
<td>% of families</td>
<td>85.9</td>
<td>14.1</td>
<td>100.0</td>
</tr>
<tr>
<td>No. of observations</td>
<td>6,552</td>
<td>1,076</td>
<td>7,628</td>
</tr>
</tbody>
</table>
The four subscales included in the total score are:

- **hyperactivity**—fidgetiness, concentration span and impulsiveness;
- **emotional symptoms**—frequency of display of negative emotional states (e.g., nervousness, worry);
- **peer problems**—ability to form positive relationships with other children; and
- **conduct problems**—tendency to display problem behaviour when interacting with others.10

Each subscale is calculated from the mean score of five questions, and all the subscales are added together to form a total SDQ score. In this paper, we use the standardised total SDQ score so as to enable us to compare effect sizes across our two child outcomes measures. Standardised PPVT and total SDQ scores are calculated for each cohort separately.

The verbal ability and behavioural and emotional outcomes of the LSAC cohorts used in this report are those measured at the time of the third wave in 2008, when the K cohort were aged 8–9 years and the B cohort were aged 4–5 years. LSAC contains both parent and teacher responses to the SDQ. We chose parent reports to minimise the amount of missing data.

**Housing and cognitive outcomes**

Figure 1 presents mean standardised PPVT scores for LSAC children according to their family’s tenure type. The “I” bars overlaying the columns represent 95% confidence intervals, with non-overlapping “I” bars across two columns meaning that we are 95% confident that they are different from one another11. Children whose parents own their home outright had PPVT scores that are 12% of a standard deviation higher than that of the average child at Wave 3, a difference that is statistically significant at a 5% level of significance. The PPVT scores of the children of mortgagees were also higher than average, at 6% of a standard deviation. The children of public housing tenants were observed to have by far the lowest PPVT scores, 62% of a standard deviation lower than the mean. Children whose parents were renting also had lower PPVT scores compared to the average child, by 18% of a standard deviation.

Overall, there was a considerable amount of variation in the receptive vocabulary of children across tenure types. The difference in verbal ability between the children of homeowners and those of public housing tenants was large and statistically significant—about three-quarters of a standard deviation. There were also large differences in verbal ability between children living in public housing and private rental properties. Compared to homeowners and private renters, children in families who double up (the majority of those in “Other” tenure) had levels of verbal ability that were 9% of a standard deviation lower than the mean, significantly higher than those in public housing and 50% greater than those in private rental. The difference between private rental and those in the other tenure was not statistically significant.

Table 6 presents the mean differences in receptive vocabulary for children in the various types of housing tenure, using children of homeowner families as the reference group. These results use regression modelling to take account of child gender, Indigenous status and age, as well as the highest level of parents’ education, equivalised household income, family structure and mothers’ country of birth.

The verbal ability and behavioural and emotional outcomes of the LSAC cohorts used in this report are those measured at the time of the third wave in 2008, when the K cohort were aged 8–9 years and the B cohort were aged 4–5 years. LSAC contains both parent and teacher responses to the SDQ. We chose parent reports to minimise the amount of missing data.
To see whether the effect of tenure is sensitive to the age of the child, we present the results separately for children aged 4–5 and 8–9 years.

In broad terms, the results are very similar to those presented in Figure 1, suggesting that the demographic variables included in the regression modelling are not confounding the simple descriptive results. The level of receptive vocabulary was significantly lower for private renters when compared to homeowners. There was no statistically significant difference between homeowners and those in the “Other” category. Children living in public housing had significantly lower levels of receptive vocabulary compared to children of the same age in families who owned their home outright, albeit to a lesser extent for children aged 8–9 years.

Figure 2 presents mean standardised PPVT scores at Wave 3 according to the number of times the child moved house between 2004 and 2008. The only significant differences in receptive vocabulary were evident when comparing children who had moved once and those who had moved 5 or more times. Those that had moved only once are observed to have levels of receptive vocabulary 5% of a standard deviation higher than the mean (albeit on the cusp of statistical significance) and those who had experienced 5 or more moves have scores 41% of a standard deviation lower than the average.

Regression modelling of the number of moves for 4–5 and 8–9 year old children, taking into account child and parental demographic variables, indicates a statistically significant effect of 5 or more house moves for children aged 4–5 (see Table 7). This estimate is quite large, suggesting that frequent moves are associated with levels of receptive vocabulary that are 37% of a standard deviation lower than children who reside in the same home for a period of 4 years.

The estimates for children aged 8–9 appear somewhat less intuitive. A single move is associated with an increase in receptive vocabulary of 9% of a standard deviation compared to stable residency over the previous four years, while an additional move suggests levels of receptive vocabulary that are 11% of a standard deviation lower. One explanation for this might be the lower mobility of those in public housing observed in Table 4. Given the large and statistically significant lower scores observed for these children in Table 6, and keeping in mind that “no moves” is the base case against which we compare the other categories in forming these estimates, it may be the high concentration of children in public housing that are pushing the regression estimates in Table 6 upward.

The lower levels of mobility associated with public housing tenure are, however, unlikely to explain the statistical significance of the negative regression estimates observed for two moves for children aged 8–9, nor the counterintuitive sign on the coefficients for three and four moves. On the other hand, it is possible that these estimates point to a broader need to model tenure choice and residential mobility simultaneously, as in Donkers, Melenberg, van Soest, and Tu (2003). While it may be that housing tenure and residential mobility have an independent effect upon the developmental outcomes of children, tenure choice will in part be the outcome of a family’s need, or preference, for mobility. This makes it difficult to interpret the association.
between tenure, residential mobility and child outcomes, even when all of these appear in the same regression model. Future research could bring more sophisticated statistical techniques, such as those used in Donkers et al. (2003), to bear on this methodological issue.

Figure 3 presents mean standardised PPVT scores by housing stress experienced by the children’s families. There is a statistically significant difference of just under a quarter of a standard deviation in the level of receptive vocabulary for those who were in housing stress compared to those who were not.

Findings from the regression modelling of the receptive vocabulary of children aged 4–5 and 8–9 years (not shown) suggest that once other demographic characteristics are taken into account, there are no statistically significant differences in the receptive vocabulary of children experiencing housing stress. The results suggest that much of the association between this measure of housing stress and receptive vocabulary reflects having a household income in the bottom 40th percentile rather than having household income in the bottom 40th percentile and high housing costs.

Housing and emotional and behavioural problems

Figure 4 presents the average standardised total SDQ score, a measure of emotional and behavioural problems, by housing tenure type. Children in families who owned their own home had the lowest emotional and behavioural problems, at 15% of a standard deviation below the sample average. Children whose parents were paying off a mortgage also had lower emotional and behavioural problems, at 8% below the mean. Children in families who were living in public housing had the highest emotional and behavioural problems, almost 70% of standard deviation above the mean, which was significantly higher than any other group of children. Children in families who were living in “Other” types of housing had lower levels of emotional and behavioural problems, closer to those observed for children whose families were in private rental (19% and 24% of a standard deviation respectively).

Table 8 presents regression estimates for the standardised total SDQ score for children aged 4–5 and 8–9 years. As in Table 6 children who lived in families who own their own home with no mortgage are the reference case against which comparisons are made. The regressions show that children in families living in public housing had the highest levels of emotional and behavioural problems, even
after controlling for family characteristics, at 49% and 63% of a standard deviation higher than children whose parents owned their own home. Children in families who were renting privately also had higher levels of emotional and behavioural problems (23% of a standard deviation for children aged 4–5 and 27% of a standard deviation for children aged 8–9). Those in “Other” tenure had higher emotional and behavioural problems than the average, but somewhat lower than children in private rental, at 17% of a standard deviation for children aged 4–5 years and a quarter of a standard deviation for children aged 8–9 years. Only children aged 8–9 in families whose parents were paying off a mortgage were found to have levels of emotional and behavioural problems that were significantly different from those whose families owned their home outright.

Figure 5 presents the average standardised SDQ scores by the number of house moves experienced between 2004 and 2008. The figure suggests statistically significant increases in emotional and behavioural problems with the number of house moves up to four moves. While not a statistically significant difference, children who had experienced five or more moves had a higher level of emotional and behavioural problems compared to the overall average. Children who were yet to experience a house move at Wave 3 were observed to have total SDQ scores that were 6% of a standard deviation lower than the mean, while children who had experienced four moves were found to have levels of emotional and behavioural problems that were just over a quarter of a standard deviation higher than the average. Given the small number of children experiencing five or more moves observed in Table 2, it is not surprising that the estimates at five or more moves are not statistically significant at the 5% level.

The results from the regression support an increasing relationship between emotional and behavioural problems and number of house moves, but only for children aged 4–5 (Table 9). For older children, it would appear that the variation in total SDQ scores more likely reflects the characteristics of highly mobile families rather than residential mobility per se.

Figure 6 shows the average level of emotional and behavioural problems by housing stress experienced by children’s families at Wave 3. The figure indicates that children living in housing stress have levels of emotional and behavioural problems that are a quarter of a
standard deviation higher than those not in housing stress.

The regression models examining the association between housing stress and children's emotional and behavioural problems (not shown but available from the authors upon request) are consistent with the results for receptive vocabulary. Once low household income is taken into account, housing stress is not associated with statistically significant variation in emotional and behavioural problems.

Discussion and conclusion

Findings from this study begin to fill the gap in our understanding of the influence of housing on children's development and the housing circumstances of young Australian families.

The third wave of LSAC, when study children were aged 4–5 and 8–9 years, represents a sample of families that are relatively young. It is therefore not surprising that the majority (61%) of these families were observed to be partway through paying off a mortgage. At this time:

- a non-trivial proportion of families did, in fact, own their homes outright (13%);
- private rental was the second most common tenure type at Wave 3 (16%);
- the remaining LSAC families were in public housing (3.2%) or doubling up; that is, “Other” tenure (7%).

The majority of children did not move house between 2004 and 2008 (55%), and most children who experienced a house move did so only once (27%); however, a significant minority experienced two or more moves (18%).

While families who own their home outright do not incur any out-of-pocket expenses associated with their tenure aside from rates and maintenance:

- “Other” tenure had an average cost of $107 a week;
- renting from a state/territory housing authority cost $160 per week;
- private rentals cost just under $300 per week; and
- families with mortgages faced costs of $434 a week, the highest of all groups.

There were some very large differences in children's developmental outcomes by type of housing tenure and house moves, but not for housing stress after controlling for the low-income status of these households. The evidence from the regression modelling in particular suggests that the largest differences in levels of receptive vocabulary and emotional and behavioural problems are found when examining the housing tenure type of children's families. Children in families who were living in public housing had lower levels of receptive vocabulary and higher levels of emotional and behavioural problems than children living in families who owned or were paying off their own home. Interestingly, it appears that the cognitive outcomes of children aged 4–5 are more sensitive to tenure than emotional and behavioural problems, while the opposite seems true for children aged 8–9.

Residential mobility does not appear to be strongly associated with the receptive vocabulary or the emotional and behavioural problems of children aged 8–9. While the level of residential mobility of children in the LSAC sample was not very high, many studies have found statistically significant differences using a lifetime number of moves of three or more for adolescents (Jelleyman & Spencer, 2008). Perhaps the distance moved and whether children shifted schools may be one explanation for the lack of differences in the Australian context. We do, however, find statistically significant differences in both receptive vocabulary and emotional and behavioural problems for children aged 4–5. This might suggest that this is a more sensitive period in a child's development, where continuity of the community and school environment may be more important than at later stages in a child's life. Future research could examine this conjecture.

While this is one of few Australian studies to use nationally representative data to study the influence of housing on children's development it is not without its limitations. It is important to note that the associations between children's development and housing tenure cannot be considered to be causal. This paper has shown that there are very large differences in the housing costs of different tenure types, and therefore differences in the types of families who choose different types of tenure. While the regression models have taken account of many of these variables (child gender, age and Indigenous status; highest level of parental education; household income; mother born overseas), there may be others that explain these significant associations. To identify causal effects of housing on children's development, examining differences in the availability of types of housing across Australian states and territories may offer the best approach.

Having a “home” is a fundamental need of all children. Findings from this research suggest that the developmental outcomes of children may be more sensitive to residential mobility between the ages of 4 and 5, and that living
in types of housing tenure associated with instability (such as doubling up) is associated with some adverse effects. Even more substantive is the role played by the type of housing tenure, with those children living in public housing having much worse receptive vocabulary and much higher levels of emotional and behavioural problems than children in other types of housing. One explanation is that to be eligible for public housing, families need to have significant and ongoing needs, whereas a doubling-up arrangement can be entered into fairly quickly at a time of temporary housing insecurity. Housing costs may be another possible explanation, as families who are doubling-up with relatives and those living in public housing have much lower housing costs. Compared to those living in public housing, those who were doubling up had housing costs that were $55 per week lower. Given that there were more limited adverse outcomes for these children compared to those in public housing, it is perhaps possible that the smaller financial burden of this form of tenure is a reason for this finding.

Further work could examine the role of the financial stress associated with renting and having a mortgage, which dilutes the financial resources that low-income parents have to provide resources for their children. Learning more about the influence of financial stress on the mental health and parenting behaviours of low-income parents would help to ensure that housing policy works to enhance the wellbeing and development of Australian children.

Endnotes

1 The Journeys Home study at the Melbourne Institute of Applied Economics and Social Research (in its second wave at the time of writing) represents an exciting new resource for examining the residential mobility of families experiencing housing instability. However, the publications produced from this study do not yet quantify the extent of this mobility. For further information on Journeys Home, see <www.melbourneinstitute.com/journeys_home/>.

2 The latter percentage is based on the authors’ calculations, using Table 2 of Australian Bureau of Statistics (ABS, 2009).

3 We focus on the non-attriting sample because the Wave 3 questionnaire asked parents who had not responded to Wave 2: “How many homes has the child lived in the last two years?”. We cannot therefore ascertain the housing mobility these children may have experienced over the two years following the first data collection.

4 This question was not asked in Wave 1.

5 Equivalised household income is an estimate of financial living standards in which the incomes of different households are adjusted according to an estimate of their costs, taking into account economies of scale. The results presented in this figure are based on the so-called “modified OECD scale”, which gives a weight of 1.0 to the first adult in the household, a
A weight of 0.5 for each additional adult (people aged 15 years and over) and a weight of 0.3 for each child. (For example, it is assumed that a single parent with two children under 15 years old requires 1.6 times the disposable income of a person living alone in order to have the same living standard.) The total household income is then divided by the household weight to produce equivalised household income.

We use the SIH household weights in estimating the bottom 40th percentile cut-off.

It is also worth noting that the money that could be earned by homeowners were they to rent out their home in the private rental market and acquire housing services elsewhere does, of course, constitute an opportunity cost. However, it is out-of-pocket housing costs that are the focus of this study.

We control for household income using a binary indicator of whether the household is in the bottom two quintiles of household income for the wave.

The specific version of the PPVT used in LSAC uses a book of 40 display pictures. The child points to (or says the number of) a picture that best represents the meaning of the word read out by the interviewer.

There is also an additional SDQ subscale that measures prosocial behaviour. We excluded this since it is not one of the subscales used in the formation of the total SDQ scale.

In more technical terms were repeated samples to be taken from the population of interest we would expect that 95% of the averages calculated from these samples would lie within these bounds.

We operationalised the equivalised household income measure via a dummy variable indicating whether families were in the bottom 40% of the equivalised household income distribution. Given that labour force status is very closely associated with household income, we included parents’ labour force status.

A recent publication by Maguire, Edwards, and Soloff (2012) examined transitions in tenure and overcrowding across the first 3 waves of LSAC.

References


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**Matthew Taylor** is a Research Fellow and Dr Ben Edwards is Executive Manager, Longitudinal Studies, at the Australian Institute of Family Studies.

The developmental outcomes of children may be more sensitive to residential mobility between the ages of 4 and 5, and living in types of housing tenure associated with instability (such as doubling up) is associated with some adverse effects.

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This paper uses unit record data from *Growing Up in Australia: The Longitudinal Study of Australian Children*. The study is conducted in a partnership between the Department of Families, Housing, Community Services and Indigenous Affairs (FaHCSIA), the Australian Institute of Family Studies (AIFS) and Australian Bureau of Statistics (ABS). The findings and views reported in this paper are those of the authors and should not be attributed to FaHCSIA, AIFS or the ABS.
Footprints in Time: The Longitudinal Study of Indigenous Children
An overview

Laura Bennetts Kneebone, Jodie Christelow, Annette Neuendorf and Fiona Skelton

What is Footprints in Time?

Footprints in Time: The Longitudinal Study of Indigenous Children (LSIC) is an Australian Government-funded survey managed by the Department of Families, Housing, Community Services and Indigenous Affairs (FaHCSIA). It is guided by a steering committee of experts in the fields of early childhood, education and health, which has been chaired by Professor Mick Dodson AM since 2003. LSIC was established to help us understand how what happens to Aboriginal and Torres Strait Islander children in early childhood affects their later life. The study looks at the different developmental pathways Indigenous children take to see what contributes to improved social, emotional, educational and developmental outcomes.

Footprints in Time began with two years of consultation with Aboriginal and Torres Strait Islander communities and service providers to shape the study design. These consultations were followed by community trials and then pilot studies, with the assistance of the Australian Bureau of Statistics (ABS).1 The consultations emphasised the need to work collaboratively with communities and ensure that Indigenous people were involved in the research (Penman, 2006). This was done by having a steering committee with a majority of Indigenous members guide the research, by surveying people according to particular geographical areas, and by employing Indigenous people to work on the study, including conducting the interviews. The study involves extensive and continuing engagement with Indigenous communities, organisations and service providers. The LSIC Indigenous research administration officers usually conduct interviews and engage with the community in the same general area in which they live.

Agreement with and approval for the study was sought from Elders and communities in each geographical area, and ethics clearance was obtained at both jurisdictional and national levels. The Australian Government Department of Health and Ageing ethics committee was...
chosen as the primary human research ethics committee for LSIC.

Drawing on the consultations, Footprints in Time focuses on positive outcomes, highlights strengths, and collects data that are relevant and useful and can lead to positive change. LSIC is committed to providing feedback to families and communities, and this is done in a variety of formats, including site feedback sheets, DVDs and community booklets.

Further information about the study’s design, development and key research questions can be found in the LSIC Wave 1 Report (FaHCSIA, 2009).

Study design

Surveys began in March 2008 and are conducted annually, in “waves”. When this article goes to press, LSIC will have three waves of data available to users, as well as Wave 5 in the field and Wave 6 in design. The annual interviews help interviewers to develop relationships with participants, find a highly mobile population, and manage missing data from respondents who may need to skip a wave.

Like Growing Up in Australia: The Longitudinal Study of Australian Children (LSAC), LSIC employs an accelerated cross-sequential design involving two cohorts: one aged from 6 months to 2 years (Baby or B cohort) and one aged from 3 years and 6 months to 5 years (Kindergarten or K cohort) in Wave 1 (Table 1). The design allows data covering the first 9 or 10 years of Aboriginal and Torres Strait Islander children’s lives to be collected in 6 years.

Additionally, from Wave 4, the ages of the two cohorts overlap, allowing for greater numbers of children to be analysed at that age range, and improving the statistical power of results. Of the study children, 88% are Aboriginal and Torres Strait Islanders and 6% are both Aboriginal and Torres Strait Islander. Data are collected using face-to-face computer-assisted personal interviews (CAPI). The primary respondent is the study child’s primary parent or carer (usually their mother). Direct assessments of the study children are undertaken, including vocabulary and school readiness measures, height and weight. Where possible, interviews are also conducted with another primary carer of the study child. (In Waves 1 and 2, this could include grandmothers, aunts and other significant carers. However, as fathers were the usual respondents, the interview for the second primary carer was developed specifically for fathers from Wave 4 onwards).

In Wave 4, a touch-screen computer was introduced so that the children in the study could select their own answers for assessments such as the Wechsler Intelligence Scale for Children and Progressive Achievement Test—Reading. As the study children grow up, they are asked more questions and will eventually do a computer-assisted self-interview. In Wave 5, the computer asks some questions in English, Kriol, Torres Strait Creole or Djambarrpuynu, one of the languages spoken in Galiwin’ku. An annual survey is also sent, with parent/carer permission, to the primary teacher/child care teacher of the child, and this may be completed on paper or online.

FaHCSIA publishes a key summary report of findings from each wave, which can be found at <www.fahcsia.gov.au/lsic>.

Response rates are encouragingly high. By Wave 2, of the 1,671 primary carers in the sample from Wave 1, 1,523 remained (86% retention) (see Table 2). Only 42 did not want a Wave 2 interview, 45 had moved to places too far away for our interviewers to travel and a further 61 were not able to be contacted for an interview. There were 88 new entrants.

<table>
<thead>
<tr>
<th>Year born</th>
<th>Wave 1</th>
<th>Wave 2</th>
<th>Wave 3</th>
<th>Wave 4</th>
<th>Wave 5</th>
<th>Wave 6</th>
<th>Wave 7</th>
<th>Wave 8</th>
<th>Wave 9</th>
</tr>
</thead>
<tbody>
<tr>
<td>B cohort</td>
<td>2006–08</td>
<td>6 months–2 years</td>
<td>1½–3 years</td>
<td>2½–4 years</td>
<td>3½–5 years</td>
<td>4½–6 years</td>
<td>5½–7 years</td>
<td>6½–8 years</td>
<td>7½–9 years</td>
</tr>
<tr>
<td>K cohort</td>
<td>2003–05</td>
<td>3½–5 years</td>
<td>4½–6 years</td>
<td>5½–7 years</td>
<td>6½–8 years</td>
<td>7½–9 years</td>
<td>8½–10 years</td>
<td>9½–11 years</td>
<td>10½–12 years</td>
</tr>
</tbody>
</table>

Table 2 Primary carer survey respondent numbers

<table>
<thead>
<tr>
<th>Wave</th>
<th>Total number</th>
<th>Previous wave respondents</th>
<th>Additional interviews</th>
<th>Percentage of total sample (n = 1,759)</th>
<th>Retention from previous wave (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wave 1</td>
<td>1,671</td>
<td>1,135</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wave 2</td>
<td>1,523</td>
<td>1,135</td>
<td>88 b</td>
<td>86.58</td>
<td>86.88</td>
</tr>
<tr>
<td>Wave 3</td>
<td>1,404</td>
<td>1,132</td>
<td>92 c</td>
<td>79.82</td>
<td>86.15</td>
</tr>
<tr>
<td>Wave 4</td>
<td>1,283</td>
<td>1,150</td>
<td>133 c</td>
<td>72.94</td>
<td>81.91</td>
</tr>
</tbody>
</table>

Notes: a People interviewed in current wave who were also interviewed in the previous wave. b New entrants in Wave 2. c Interviewed in earlier wave but not the previous wave.
in Wave 2—these were people to whom the interviewers could not travel during the Wave 1 fieldwork period. In Wave 3, there were 1,404 primary-carer respondents, giving an 86% retention rate despite high mobility within sites. By Wave 4, the retention rate was 82%, with 1,283 primary carers interviewed.

Where is Footprints in Time?

The map in Figure 1 shows LSIC interviewer worksites as open circles and additional interviewing as grey dots. Although only 11 sites were chosen for the study, they mirror the distribution of the Aboriginal and Torres Strait Islander population reasonably well, as shown in Figure 2.

Footprints in Time sites were chosen to:

- ensure approximately equal representation of urban, regional and remote areas to enable some geographical comparison;
- represent the concentration of Aboriginal and Torres Strait Islander people across Australia’s states and territories; and

Figure 1 Footprints in Time interviewing locations for Wave 3

Figure 2 Percentage of Indigenous children aged 0–5 years by total state population and Footprints in Time state population, Wave 1
have a substantial Aboriginal and Torres Strait Islander population both within the sites and in the surrounding areas.

Footprints in Time data use a classification system of remoteness known as the Level of Relative Isolation (LORI) (Zubrick et al., 2005), indicating the relative distance of localities from population centres of various sizes. LORI has been designed to take account of Indigenous language and other culturally specific geographic characteristics, as well as distance from services. Figure 3 shows how the LSIC sites fit into the LORI classifications.

While quantitative data are a rich source of information, they can only describe events and circumstances within a narrow range of responses. To help further understand the richness and diversity of people’s lives, LSIC collects and releases responses to open questions, as well as asking for any options not included in pre-set response lists. LSIC is committed to ensuring that the voice of the respondents is heard and that they have the opportunity to express themselves in their own words. LSIC includes an “other” option in many of the questions and respondents are asked to specify their response in this category. There are also a number of “free text” questions for which interviewers type responses verbatim. These qualitative data are made available to researchers in a de-identified format. It is important for these data to be considered alongside the quantitative data. Some of the responses to questions are included in Box 1 and Box 2.

Box 1: Study children’s responses to the question, “What would you like to be when you grow up?”

- A scientist, one that works with bugs.
- A vet—give animals treats when they have been good with their needles.
- Um, a cop, or a robber.
- Astronaut, then Prime Minister of Australia.
- Zoo-keeper of pandas.
- A girl captain—they look to see who is going to crash boats.
- Work in the community being a policeman.
- Receptionist at the council office.

Box 2: Wave 2 parent/carer responses to the request, “Tell me something that’s happened to [child’s name] since last year”

- She started up at preschool and has built her confidence up interacting with children her own age.
- Talking more, independent, helps clean up, tries to help washing up.
- Just developed a cheeky personality.
- Started prep, moved house closer to family.
- Grown a lot, went on first plane trip.
- Had a haircut and walking.
- She attends preschool three days a week and likes it very much, loves to sing.
- Learning to read and write, word and sound recognition, showing his feelings, has become helpful, knows the difference between right and wrong when being disciplined.
- Moved house, talking more in sentences, more active, loves sports.
- He’s talking more, and seems more confident.
- Started school, he learnt to tie his shoe laces.
- He said his first word on Friday—he said “hello”; he was on the train and saying hello to people.
- Got grommets in her ears, has a baby brother now.
- Learnt how to be very careful with puppies, learning to be toilet trained.
- He is talking heaps, very forward for his age, kicking the football around and has good eye and hand coordination.
- Speaks more language, likes to dance to the Michael Jackson DVD.
How can you use Footprints in Time data?

While Aboriginal and Torres Strait Islander people are one of the most studied groups in Australia, little information is collected about the experiences of early childhood and how they lead to later outcomes. LSIC fills this gap, following children as they move through the various stages of childhood.

One of LSIC’s great strengths is the opportunity it presents to understand the substantial diversity within Aboriginal and Torres Strait Islander families and communities—cultural values, parenting, stress loads, attitudes to services, life circumstances and aspirations vary enormously. LSIC data can help unpack some of the variation in Indigenous children’s stories, for the celebration of successes and resilience and for targeting areas for support.

LSIC data include much of the same content as LSAC. Researchers wishing to examine the effects of child care or preschool, social and emotional wellbeing or gender differences can use LSIC data to explore these issues for Indigenous children. They can also examine issues that are more specific to Indigenous children and their families: cultural values and activities, learning languages, the effects of racism and the stolen generations, how parents cope with stress, what parents and carers want for their children and what can help Aboriginal and Torres Strait Islander children to “grow up strong”.

Researchers using the datasets honour the commitment to ensure that their research is available to study participants by registering their publications in FaHCSIA’s Longitudinal Surveys Electronic Research repository (known as FL08se).

An example of published work using LSIC is the report commissioned by FaHCSIA in 2011 titled *An Exploratory Analysis of the Longitudinal Survey of Indigenous Children*, completed by Dr Nicholas Biddle. Dr Biddle found, among other things, that going to cultural events and identifying with a tribal group, language group or clan were associated with higher rates of participation in preschool, whereas children of participants who had experienced discrimination were significantly less likely to attend preschool. In addition, children who had lived in two or more homes since birth were less likely to attend preschool in comparison with those who had lived in the same home since birth.

LSIC research discussed at the 2011 *Growing Up in Australia and Footprints in Time*: The LSAC and LSIC Research Conference included:

- **Learning Language, Learning Culture**, by Laura Bennetts Kneebone;
- **A Study of Indigenous Children’s Developmental Outcomes: The Impact of Child, Family and Socio-Economic Characteristics**, by Killian Mullan and Gerry Redmond;
- **The Assessment of Temperament in 4- to 5-Year-Old Indigenous Children**, by Keriann Little, Stephen Zubrick and Ann Sanson;
- **Preschool Participation Among Indigenous Children**, by Belinda Hewitt and Maggie Walter;
- **Nutrition and Development**, by Katherine Thurber; and
- **Resilience and Educational Outcomes in Footprints in Time**, by Annette Neuendorf, Fiona Skelton and Laura Hidderley.

Full abstracts for these papers are available at <www.aifs.gov.au/growingup/conf/2011/program.html>. The work of Laura Bennetts Kneebone, summarised briefly below, provides a good illustration of the relationships that can be explored using the LSIC data.

One of the outcomes tracked in LSIC is early language acquisition. This is measured through the MacArthur-Bates Short Form Vocabulary Checklist, a parent-rated list of words spoken by the study child, which gives a score out of 100.
A range of factors had significant associations with higher vocabulary scores in 2 and 3 year-olds, such as primary carer education level, child's social and emotional difficulties, and history of ear problems. Encouragingly, the data show that there is a lot that families can do to make a difference to their children's English vocabulary development.

Figure 4 highlights some of the significant changes in a multivariate regression analysis, controlling for age, gender, parent education, child social and emotional difficulties, ear problems, Index of Relative Indigenous Socio-economic Outcomes (IRISEO), presence of a household wage and financial hardship. The analysis showed that children who were sent to preschool or a preschool program at a child care centre or had someone in the family read to them had significantly higher vocabulary scores, with a 5 and 9 point increase respectively. On the other hand, watching five or more hours of television a day led to an average decrease in scores of 7 points. Area-level socio-economic outcomes, household wage and financial hardship had no significant effect on toddlers' vocabulary. The association between preschool attendance and vocabulary, while not necessarily causal, provides support for the government's initiative to increase Indigenous children's preschool attendance under “closing the gap” measures.

Speaking Aboriginal English in the home had a negative effect on toddler English vocabulary scores (6 point decrease), as did being in homes where English was not spoken frequently (22 point decrease). It is important that the effects of language background on English development are understood by early educators so that these children can receive extra assistance as speakers of English as a second language, rather than being categorised as slow learners.

**Development of LSIC data and future research**

As the children in the study are getting older, LSIC is collecting a more diversified pool of both outcome measures and predictors. This is a tremendous resource for researchers interested in conducting ground-breaking analyses about what works for Indigenous children, on a proportionately large sample drawn from across Australia, including urban, regional and remote areas. With LSIC data, Indigenous children's and families' pathways can be tracked from the child's first year of life through preschool, primary school and beyond.

Outcome measures available now with Wave 3 data, or soon to be available with Wave 4, include vocabulary development, drawing and writing, reading and maths, cognitive reasoning (pattern recognition), children's strengths and difficulties, height, weight and general health. Future linkages to the Australian Early Development Index and National Assessment Program—Literacy and Numeracy (NAPLAN) scores will provide detailed data on school readiness and school-based learning outcomes.

Parents or carers are also asked about children's temperament, development of motor skills, dental health, sleep and nutrition. Use of playgroup and child care, entry to school, parent involvement and attitudes to school and learning form a central part of the study. Context is provided through linking to indices showing Level of Relative Isolation, socio-economic indexes for areas (SEIFA) and Indigenous socio-economic outcomes, as well as by asking demographic questions about family finances, work, education, housing, mobility and child support.

Specifically sourced or designed questions attempt to provide answers about the role of culture. Family composition, involvement and activities form a major focus every year. Indigenous languages, activities with different family members, participation in cultural activities, access to cultural leave from work, values, and connection to country have all been

One of LSIC's great strengths is the opportunity it presents to understand the substantial diversity within Aboriginal and Torres Strait Islander families and communities—cultural values, parenting, stress loads, attitudes to services, life circumstances and aspirations vary enormously.
specifically sourced or designed questions attempt to provide answers about the role of culture.

Specific research projects could focus on parent social and emotional wellbeing, parenting style, smoking, housing, service use, pregnancy and birth and much more.

Under the National Indigenous Reform Agreement, governments across Australia have committed to closing the gap between Indigenous and non-Indigenous life circumstances and overcoming Indigenous disadvantage. LSIC can inform most of the Closing the Gap building blocks, from healthy homes to schooling. As Professor Dodson says, “I hope that you will be inspired to take up the challenge and apply this information to improve policy responses for the benefit of Aboriginal and Torres Strait Islander peoples” (FaHCSIA, 2011).

## Accessing LSIC data

To apply for access to LSIC data, available in SAS, STATA and PASW formats, please log on to <www.fahcsia.gov.au/lsic>. Both Indigenous and non-Indigenous researchers are encouraged to apply for the datasets. FaHCSIA encourages potential data users to draw on the strengths of an interdisciplinary approach, in partnership with Indigenous collaborators.

Further information about LSIC can be obtained from the LSIC website at <www.fahcsia.gov.au/lsic>. General inquiries can be emailed to <LSIC@fahcsia.gov.au>; data enquiries can be emailed to <LSICdata@fahcsia.gov.au>.

## Endnotes

1. Reports from the consultations, a commissioned literature review and qualitative research from the trials are available at <www.fahcsia.gov.au/lsic>.
3. MacArthur-Bates Communicative Development Inventories (CDIs) (Fenson et al., 2007) measure vocabulary growth over time and this measure was administered in Waves 1, 2 and 3 to parents of the Baby cohort. Parents were asked to identify the words that their child currently understands from lists of words that a growing child might be expected to say. Parents were able to respond that their child understood but did not say the words, or that the child understood and said these words in either English or another language. The MacArthur-Bates Short Form Vocabulary Checklist and other child measures are discussed in more detail in the appendix of the [Key Summary Report from Wave 2](http://www.fahcsia.gov.au/lsic).

4. IRIS uses nine measures of socio-economic outcomes across employment, education, income and housing from the 2006 Census to create a single index for 37 Indigenous regions and 531 Indigenous areas. As with SEIFA, the lower the decile, the greater the level of disadvantage (Biddle, 2009).

## References


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Laura Bennett Kneebone, Jodie Christelow, Dr Annette Neundorf and Fiona Skelton are non-Indigenous members of the Footprints in Time Data and Design team at the Department of Families, Housing, Community Services and Indigenous Affairs.

This paper uses unit record data from the Longitudinal Study of Indigenous Children (LSIC). LSIC was initiated and is funded and managed by the Australian Government Department of Families, Housing, Community Services and Indigenous Affairs (FaHCSIA). The findings and views reported in this paper, however, are those of the authors and should not be attributed to FaHCSIA or the Indigenous people and Indigenous communities involved in the study.
Indigenous disadvantage has many of its roots tied to experiences found within the context of early childhood. Policy recognises this as the overarching Overcoming Indigenous Disadvantage framework and includes positive child development as one component of the three priority areas (Steering Committee for the Review of Government Service Provision [SCRGSP], 2011). Of the other two priority areas, there is considerable focus on the importance of positive social environments in the local community and family. Given this emphasis, the historical lack of adequate research on the factors associated with positive development of Indigenous children, vis-à-vis other Australian children, constrain the ability of policy to achieve its stated goals. The very concept of child development means that it is a process that evolves, so the absence of longitudinal data on Indigenous children is one of the main reasons for poor evidentiary basis for policy.

Footprints in Time: The Longitudinal Study of Indigenous Children (LSIC) may be a crucial landmark for the development of an effective policy to address Indigenous disadvantage early in the life cycle. Indeed, the main goal of LSIC is to determine what helps Aboriginal and Torres Strait Islander children “grow up strong” in their communities. After a preliminary development phase, the 2007 Federal Budget set aside funds to collect data for LSIC (Australian Government, 2007):

The Australian Government will conduct a targeted longitudinal survey twice a year from 2008 to 2011. The survey will collect data on Indigenous babies under 12 months and 4 to 5 year old Indigenous children from 1,650 families in 11 areas covering urban, regional and remote communities.

The main fieldwork for Wave 1 started on 21 April 2008 and finished on 23 February 2009. The eventual survey collected is only annual, which reflects the practical difficulties of conducting a unique and unprecedented survey such as LSIC (e.g., it took more than 6 months to collect Wave 1). The initial funding has been extended: Wave 4 interviews were completed late last year and now LSIC is in the field for
Wave 5, with additional waves in development. It is worth noting that LSIC’s sample size is substantial as it represents between 5 and 10% of Indigenous children of the appropriate ages.

It is time to take a step back and ask the question: How useful is the information provided? In order to answer this question it is necessary to reflect on the content of the survey, as well as how the survey data were collected and how that data were coded.

Rather than simply replicate information provided in the Data User Guide (Department of Families, Housing, Community Services and Indigenous Affairs [FaHCSIA], 2012a), this paper provides analysis and some personal reflections on the utility of LSIC data. It is informed by extensive experience of the authors in collaborating with Indigenous communities and conducting research firmly grounded in scholarly and peer-review processes. Two of the current authors were involved in the process of design of LSIC: Mick Dodson had been the chair of the LSIC Steering Committee since its inception in 2003, while Boyd Hunter was on the design sub-committee from 2003 and, more recently, was a member of the Steering Committee until 2011. Neither of the authors are specialists in child development but both have a long and extensive grounding in Indigenous research. For example, between August 1988 and October 1990, Dodson was Counsel assisting the Royal Commission into Aboriginal Deaths in Custody, which highlighted the need for data and research to analyse the embedded disadvantage that starts with early family life.1

The paper is structured as follows. The next sections give a brief history of LSIC, which includes an extended rationale for the need for such data and directly reflects on the survey design and methodology. This discussion leads to an analysis of the strengths and weaknesses of LSIC with reference to a few selected variables that may be useful in potential research. The penultimate section will attempt to identify some useful research questions that LSIC data may be used to address. The final section provides some concluding remarks that, among other things, reflect on growing research using LSIC data. There is clearly a high level of demand for good quality research that illuminates the processes driving positive development for Indigenous children. A key question we wish to address here is whether LSIC adequately meets the need of acquiring quality information to best inform policy on how to foster positive child development. The main contribution of this paper is to highlight what LSIC data can tell us, by providing some historical context about the survey design and collection.

Rationale for collecting longitudinal data about Indigenous children

The collection of longitudinal data is a relatively recent phenomenon in Australia. One of the first major longitudinal studies was the Household, Income and Labour Dynamics in Australia (HILDA) survey, which started collecting data in 2001 (Wooden & Watson, 2007). An impressive body of research based on HILDA is being collated, but the small Indigenous sub-sample means that it is not overly credible for research focusing on the first Australians. In any case, while HILDA allows analysis of adult outcomes and broader family dynamics, it is not particularly useful for understanding children.

The biennial Growing Up in Australia: The Longitudinal Survey of Australian Children (LSAC) does allow considerable analysis of the processes underlying child outcomes, but again the Indigenous sub-sample is probably too small to allow credible analysis of the developmental processes of Indigenous children. In 2003–04, LSAC collected data on a cohort of 5,000 children aged 0–1 years and a cohort of 5,000 children aged 4–5 years. Information collected from the study child, their parents (including both parents in separated families), their carers and teachers includes details of the children’s physical health and social, cognitive and emotional development, as well as their experiences in key environments such as the family, community, child care, preschool and school settings. LSAC was designed to
be representative of Australian children and contained more Indigenous respondents than HILDA, with 300 Indigenous mothers and 171 Indigenous fathers, the majority of whom resided in regional areas. Hunter (2008) argues that LSAC's Indigenous sub-sample from remote areas should be treated with caution, as Wave 1 data were inconsistent with representative cross-sectional Indigenous data from the 2002 National Aboriginal and Torres Strait Islander Social Survey (NATSIS). Furthermore, he argued that the relatively high attrition rates for mobile Indigenous families in subsequent waves would make it difficult to draw reliable inferences for any longitudinal analysis of Indigenous families from non-remote LSAC data.

The mobility issue is one manifestation of the rather distinctive (and diverse) social and cultural circumstances facing Indigenous peoples. Indigenous peoples are not only more likely than other Australians to live in remote areas, but the Indigenous cultures are so radically different from each other and from that of other Australians that it cannot be presumed that particular questions and answers will mean the same thing to various respondents (see various chapters in Arthur & Morphy, 2005).

Survey methods and contents also need to be relevant for Indigenous contexts to ensure that policy-makers have a solid foundation for their policy initiatives (Stewart, Lohoar, & Higgins, 2011). The information on child functioning from LSIC is likely to be more informative, and culturally nuanced, than LSAC as many questions take into account the Indigenous context. For example, the instruments to measure vocabulary in LSIC take into account the possibility that Indigenous children will use an Indigenous language (see Australian Council for Educational Research [ACER], 2009, Table 10), whereas there is no facility to do so in LSAC. Furthermore, the heavy reliance of LSAC on telephone interviews and self-complete questionnaires means that is more difficult to identify and redress cultural and other misapprehension of the question being asked.

The LSIC Steering Committee recommended that the ultimate focus of the study be on discrete communities as this was a more practical and cost-effective option for collecting detailed information on the local Indigenous context. Despite the manifest strengths of LSIC’s approach, the fact that it is confined to 11 sites means that the resulting analysis cannot be generalised to the Indigenous population at large. It could be argued that the LSAC Indigenous sub-sample has the advantage, in that it could be used for making tentative statements about the relevant populations in regional areas and metropolitan areas, but not remote areas (see Hunter, 2008).

To be fair, LSAC was not designed to provide a basis for the analysis of Indigenous child development. Nicholson, Sanson and the LSAC Research Consortium (2003) concluded that more intensive studies of subgroups were better conducted as separate studies. They argue that it would not constitute an efficient use of the LSAC sample to increase the Indigenous sub-sample to enhance the reliability of information provided for that section of the population.

By 2003, there were sound arguments for a specialised survey to begin to understand Indigenous child development. The 2003–04 Federal Budget provided the initial resources for the LSIC study. The first phase, from September 2003 to June 2004, involved extensive consultation with Indigenous peoples and communities about the study. The design and development of the study commenced in December 2005, with pilot testing continuing through 2006 and 2007. Wave 1 data have been available for researchers to analyse since late 2009, while data for Waves 2 and 3 were released in first half of 2011 and 2012.

**Design of LSIC**

The central issue for the design of LSIC was how to collect reliable data that captured the development pathways of Indigenous children and the full diversity of Indigenous-specific circumstances facing their parents and families. LSIC is managed by FaHCSIA, and the LSIC Steering Committee has overseen the design, development and implementation of the study since 2003. Committee members are drawn from academic and community backgrounds, covering a wide range of disciplines such as health, early learning and child care. Sub-committees of the Steering Committee were formed to deal with particular issues as required. For example, the Design Sub-Committee provided expert advice on survey design and content.

Both the Steering Committee and Design Sub-Committee have a strong Indigenous representation and have an impressive commitment to community consultation. It is not only ethical to undertake considerable community consultation, but it is argued that consultation is essential for securing a high response rate to the initial wave and low attrition rates over subsequent waves. The reasoning was simple: the more information
Indigenous mobility is arguably complex and fundamentally different to that identified for other Australian groups.

that is available to the surveyed Indigenous families, and the greater the sense of local ownership of the study, the less resistance would be encountered to ongoing participation in LSIC.

The primary Human Research Ethics Committee (HREC) for the study is the Australian Government Department of Health and Ageing Departmental Ethics Committee. In addition, more decentralised regional ethics clearance and support were obtained for LSIC sites through state and territory HRECs or their equivalents (in accordance with the National Health and Medical Research Council and Australian Institute of Aboriginal and Torres Strait Islander Studies guidelines). The relevant departments of education and Catholic dioceses were also consulted to gain permission and support for preschool and school teachers to complete questionnaires about the children involved in the study. State and territory departments managing out-of-home care were also consulted. The agreement and approval to participate in the study was sought from communities and elders in these sites before research within the communities began.

There were two fundamental questions that needed to be resolved before credible information on Indigenous child development could be collected:

- What was the optimal sample size? and
- How should the survey methodology accommodate Indigenous diversity?

In 2010, there were 16,100 births registered in Australia where at least one parent identified themselves as being of Aboriginal and Torres Strait Islander origin on the birth registration statement (Australian Bureau of Statistics [ABS], 2011). This number is rather small and precludes a large birth cohort survey (unless the budget was unconstrained), especially given the geographically dispersed nature of the underlying population. In the original deliberations about the LSIC sample at the Steering Committee and Design Sub-Committee, it was suggested that the ideal sample size would be at least 2,000 respondents per cohort—substantially fewer than LSAC, but sufficient to capture the manifest diversity within the Indigenous Australian community. Ultimately, this aspiration was not realistic within extant budget constraints as it became apparent that collecting Indigenous data was fundamentally different to collecting information from other Australians due to the unique challenges of collecting culturally sensitive and varied information in sometimes inaccessible locations and difficult circumstances. A plausible methodology was identified after substantial debate and it became clearly evident that there was an additional cost in collecting information for Indigenous children.

The first challenge was how to find suitable families with children. For example, Medicare information on Indigenous status has only been collected on a voluntary basis since 2002—hence, Indigenous identification on administrative records is at best partial, meaning that the LSIC sample could not rely solely on such information to find suitable respondents. Accordingly, it was sometimes deemed necessary to supplement the sample using a “snowballing” methodology to identify additional potential respondents using known social networks. Snowball sampling is a form of non-probability sampling; another form of this sort of sampling is ad hoc quotas, where certain types of communities are sampled (see Box 1).

Given that the LSIC design deliberately focused on 11 sites, chosen in part to cover the range of socio-economic and community environments where Aboriginal and Torres Strait Islander children live, it is reasonable to construe LSIC as being based on implicit quotas. Non-probability sampling has been criticised on the basis that the resulting data and analysis is difficult to interpret because the respondents are selectively drawn from the population and hence data may be highly correlated and potentially biased (Magnani, Sabin, Saidel, &

Box 1: LSIC sampling

LSIC uses a non-random purposive sampling design that cannot be construed as a representative sample. Given that there are relatively few Indigenous children in the Australian population, potential respondents were identified using local social networks. LSIC sites were specifically chosen (non-randomly) to:

- represent the broad distribution of Aboriginal and Torres Strait Islander people around Australia;
- ensure approximately equal representation of urban, regional and remote areas, thus enabling some geographical comparison;
- contain a substantial Aboriginal and Torres Strait Islander population in the core and surrounding areas;
- include locations engaged in the pilot of the study where existing relationships could be built upon; and
- be located near relevant government offices, where the Indigenous interviewers could be based.
Heckathorn, 2005). In essence, this issue is just another aspect of the fact that the LSIC sample is not representative, a point that we will reflect on further below.

Another challenge for LSIC is the high rates of mobility among Indigenous Australians that affect the ability to follow up respondents in subsequent waves. Indigenous mobility is arguably complex and fundamentally different to that identified for other Australian groups (Taylor and Bell, 2004).

Geographically mobile populations are notoriously difficult to survey, especially in a cross-cultural longitudinal context (Martin & Taylor, 1996; Smith, 1992). The mobility-related issues documented in Hunter and Smith (2002) are likely to increase the costs of any longitudinal survey, especially those with an adequate sub-sample of Indigenous respondents. Indigenous mobility potentially affects (selective) individual response rates, subsequent relocation of respondents and sample attrition, and hence on data quality. Hunter and Smith suggest several strategies for minimising the cost of such a survey, including expanding operational definitions of households and combining a mix of qualitative and quantitative methodologies to maximise the chance that households can be found again (by enhancing the relationship between interviewer and respondent and hence arguably improving data quality).

Hunter and Smith (2002) identified several precedents for successful, relatively cost-effective longitudinal data collection where researchers worked closely with Indigenous research facilitators from each community. The argument was based on the need to engage the Indigenous community while maintaining the scholarly integrity of the survey methodology.

The community engagement strategy is integral to maximising participation and retention in a longitudinal survey of an Indigenous population that is arguably suffering survey fatigue. It was essential that Indigenous communities understood why LSIC was important and how the survey information was to be collected and analysed. The LSIC committees discussed how this might be best achieved and recommended that a series of reports and local profiles be provided to the communities involved, along with an extensive process of information dissemination at both a local and national level (e.g., workshops, seminars and conferences).

Initially, six full-time Indigenous Research Administrative Officers (RAOs) were employed and trained to manage the community engagement activities for the initial pilot research in 2006-07 (including consent processes, data collection and dissemination of information in pilot communities). This process was deemed to be so successful that it was extended, enabling all interviews for the final LSIC survey to be conducted by RAOs. Even though RAOs tended to initially have less expertise or experience than most professional researchers or interviewers, their commitment was unquestionable and the formal skills were gained on the job. RAOs’ connection with the local communities and culture clearly meant that they had vital advantages over other professional interviewers.

Readers may not realise how radical the community engagement process and employment of Indigenous interviewers was, but this unprecedented initiative (for a large-scale survey) has been responsible for the impressively high rates of ongoing participation in the survey that surprised many (including the authors of this paper). However, by going down the path of community engagement and RAOs, there were clearly additional costs involved: the direct cost of liaising with communities and preparing customised reports, and the training costs of building the research capabilities of Indigenous interviewers to work on the ground. While a nationally representative sample was desirable for the ability to generalise findings, and the community engagement strategy was deemed essential for getting credible information on Indigenous children over time. Adopting a methodology that solely relied on Indigenous RAOs may not have been possible for a nationally representative sample as it would have been almost impossible to employ, train and retain suitable RAOs throughout Australia (especially where the Indigenous community is relatively scattered). Community engagement was deemed to be both integral to the survey design and more affordable/practical than having a representative survey in a dispersed population, and hence the strategy involving Indigenous RAOs was formally endorsed.

After 2007, LSIC strategically focused solely on 11 sites and it was clear that the results would not be nationally representative. While it was a cost effective decision to focus resources on particular areas, LSIC arguably became more of a “proof of concept” at that stage rather than a provider of potentially definitive information on Indigenous child development. All research arising from LSIC data must be conditioned on the fact that the data was collected from discrete areas with a particular history. However, the focus on clearly identified areas had the distinctive advantage that it allowed a more intense community involvement. As the LSIC
The Indigenous cultures are so radically different from each other and from that of other Australians that it cannot be presumed that particular questions and answers will mean the same thing to various respondents.

Data collection method and response

The above section describes theoretical issues that were duly considered in the committee phase of survey development; however, revisiting in detail how the data were collected and coded will highlight some of the potential issues that users of the data need to take into account.

Eligible families were approached and voluntary consent obtained. Prior to being interviewed, parents were provided with an introductory letter and a DVD describing the study and the consent process. A plain language statement to introduce the study was provided to parents at the interview. Interviewers went through each consent form with individual participants to ensure that parents could provide informed consent about their participation in the study.

Given that LSIC involved a substantial number of Indigenous children but was clustered in geographically discrete sites (see FaHCSIA, 2012a, map on p. 15), most interviewers were required to find a large proportion of the total number of Indigenous children on-site, usually in locations where the vast majority of the local population is predominantly non-Indigenous. Due to difficulties in sample recruitment related to small resident populations and sparse geographic spread of potential respondents, it was not possible to find sufficient numbers of children to meet the study’s targets for some sites. Fortunately the number of eligible children in other sites was in excess of the required sample.

Content rationales were developed based on stakeholder and community consultations, as well as other research such as the Western Australian Aboriginal Child Health Survey (WAACHS) (Zubrick et al., 2004), and the NATSISS. These rationales were workshopped in November 2005 with members of the Steering Committee and other stakeholders, and then used to develop draft questionnaires and computer-assisted personal interview (CAPI) instruments.

Interviewers were instructed to select children for inclusion in the survey based on the agreement of their families to participate. If there was more than one in-scope child within the family, interviewers had been instructed to list more than one child during this initial stage, with the expectation that generally only one would actually be used for the main study. While the survey sites involved implicit quotas on where the surveys were to be conducted, no fixed quotas were imposed, either at the sample recruitment stage or the interviewing stage (Roy Morgan Research, 2009).

As indicated above, LSIC is not representative because of the focus on particular sites and the nature of the sample, specifically the
under-identification of Indigenous people on Medicare or Centrelink records and the need to use social networks to identify potential respondents not identified on administrative records. Self-selection bias may also arise from the fact that families needed to agree to participate in the survey.

For every child, each wave of data collection involved a number of questionnaires, including:

- Parent 1 Survey: household composition, pregnancy, diet and nutrition, health, emotional wellbeing, major life events, demographics, activities, community and neighborhood information;
- Study Child Survey: vocabulary, picture recognition, spatial development (i.e., copying shapes and letters), height and weight; and
- Parent 2/Father Survey: household composition, health, activities and demographics.

Parent 1 of the Study Child was the primary carer identified as the parent “who knew the child best”. Information was also collected from Parent 2, who was either Parent 1’s partner or another adult with a parental or carer relationship to the Study Child. Although the Parent 2 surveys were originally designed to be answered by grandmothers or aunts or other family members who had a caring role, there were few respondents who were not fathers (mostly biological fathers, but step-fathers were also common). Response rates for Parent 2 were quite low in Waves 1 and 2, so Wave 3 data were not collected from Parent 2. Responses from various stakeholders indicated that fathers should not be seen as secondary parents; as such, the interviews were redesigned to focus Parent 2 questions on fathers only from Wave 4.

Although it is the aim of the study to interview participants at 12-month intervals, this has not always been possible. The average intervening time between Waves 1 and 2 interviews was 10 months, which reflects some teething issues in the early stages with the process of organising interviews in this unique survey situation. In Wave 1, interviews with the Study Child went for between 10 to 20 minutes, interviews with Parent 1 were approximately 1 hour (ranging from 30 minutes to 3 hours), and interviews for Parent 2 were between 10 and 60 minutes. Despite this considerable respondent burden in terms of interview time, especially for Parent 1, most of these parents have been more than willing to return for subsequent waves. One suspects that the respondent who was interviewed for 3 hours (the maximum time recorded) rather enjoyed the process or at least wanted to talk.

The latest release of data (Release 3) contains new information on schooling (including questions asked directly of the child), parental relationships, gambling activities, children’s physical abilities, identification with Indigenous and non-Indigenous groups, experience with and responses to racism, difficulties caused by money problems, homelessness, home maintenance, and community trust.

Each wave of data collection also included carer and teacher questionnaires, which have been released for the first time for Wave 3:

- Centre-based Carer Survey: group size and resources, carer demographics, child behaviour and centre type; and
- Teacher Survey: school type, class size and resources, teacher demographics, child behaviour.

These questionnaires include topics such as the program offered by the school or child care centre, parental involvement, the teacher or carer’s observations about the child, and the relationship between the child and the teacher or carer.

Once collected, the household data was cleaned to remove obvious inconsistencies. For example, where a member was described as “Aboriginal” in two waves and “neither” in the other, this was changed to “Aboriginal”. Where sex varied across waves it was corrected in line with the person’s name (where obvious). Issues such as these are crucial for users of the Confidentialised Unit Record File (CURF) of LSIC, which is the electronic form in which most analysts will access the data.

**Brief overview of CURF**

LSIC is an omnibus survey of child development that includes a wide range of data that may explain the outcomes measured. The strategy of pursuing diversity was essential so that the
results of the analysis were not excessively anticipated or the nature of the cultural context presumed. LSIC quantitative data is coded into categories that are broadly analogous with coded responses available in other surveys. However, many questions and coding of responses are LSIC-specific, particularly in the cultural domain and child development.

As is well known, Indigenous culture and language are specific to Aboriginal and Torres Strait Islander populations and hence there is no data against which it can be compared. The “Strong Souls” questions in LSIC were developed by the Menzies School of Health Research (specifically for its Aboriginal Birth Cohort Study). The original questions were intended to identify both the physical symptoms of parents and the frequency with which parents had been feeling depressed, anxious, angry or impulsive (Thomas, Cairney, Gunthorpe, Paradies, & Sayers, 2010). Note that LSIC asks only a sub-set of the questions used in the original study. There is no reason why such questions could not be asked for the general population, but we are not aware of any attempt to do so at this stage.

LSIC is fundamentally a study of child development with many of the indicators used having their roots in other relevant surveys such as LSAC. However, as an Indigenous survey, it was deemed to be important that the questions and answers are meaningful to Indigenous people and hence the questions are asked in the idiom of Aboriginal English where appropriate (RAOs can even use the local idiom to explain questions where appropriate). For example, developmental indicators such as “Who am I?”, Renfrew and Spatial Matrix Reasoning all had precedents in the existing literature, but were adapted to an Indigenous-specific context (e.g., ACER, 2009).2 The Strength and Difficulties Questionnaire (SDQ) was asked in a very similar way but the validation process has shown that the resulting scales are not directly comparable with those used elsewhere (Zubrick, 2010).

One issue of the LSIC CURF is that some crucial socio-economic data that is usually used to control for family context is limited. The LSIC questionnaire rightly focuses on the child development outcomes rather than documenting all family circumstances that may explain development at the margin. Income is a core measure of resources available for family members, but income data on the CURF is heavily grouped because there were concerns that the resistance to answering this question in the pilot meant the finer grained income categories were not useful. For example, the small number of income groups provided on the initial LSIC waves cannot credibly be used to estimate “equivalent income” that controls for the resources needed by families of differing size and composition (Hunter, Kennedy, & Biddle, 2004). Furthermore, there was concern that finer income categories would create resistance, translating into higher attrition rates that the LSIC design process was seeking to avoid. Hopefully, finer grained income categories can be collected for future waves without compromising the integrity of the longitudinal nature of the study.

### Sample description

Rather than attempt to introduce the gamut of LSIC data, this section reports the number of LSIC respondents on the confidentialised data from Waves 1 and 2 and conducts some basic analysis to illustrate some important issues for users.

The same families who were interviewed in Wave 1 were approached again for an interview in Wave 2. However, a proportion of families could not be interviewed again because they could not be located, had moved substantial distances, refused interviews, or could not be interviewed for other reasons. However, the reduction in the number of study children was partially offset by recruiting 88 additional children into the sample from the 11 existing sites. These children were from families who had either missed out on or refused to participate in Wave 1, but were available and willing to participate in Wave 2.

The numbers on the LSIC CURF may vary between versions/data releases as participants have the right to leave the study at any time and ask that their data be removed. The stability of the number of study children in the study means that this generally does not occur. However, to deal with this issue and to facilitate comparisons between waves, the household data has been reorganised so that each individual has a permanent household member number/position (from Release 1.2 onwards).

### Table 1 Basic numbers of respondents to LSIC Waves 1, 2 and 3

<table>
<thead>
<tr>
<th></th>
<th>Wave 1</th>
<th>Wave 2</th>
<th>Wave 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parent 1</td>
<td>1,676</td>
<td>1,523</td>
<td>1,404</td>
</tr>
<tr>
<td>Parent 2</td>
<td>257</td>
<td>269</td>
<td>Not collected</td>
</tr>
<tr>
<td>Study child</td>
<td>1,485</td>
<td>1,472</td>
<td>1,394</td>
</tr>
</tbody>
</table>

Note: 1,435 Parent 1 respondents participated in both of the first two waves. The difference between Waves 1 and 2 is made up of 235 departures from the first wave, which was partially offset by 88 new entrants to Wave 2. In Wave 3, 92 respondents from Wave 1 participated even though they were not interviewed in Wave 2. The number of participants can vary from release to release because of irregularities across waves where a participant has requested to be removed from the study. The numbers of participants for Wave 1 listed in this table are those used in the statistical analysis reported in the text. FaHCSIA (2012b, p. 89) reports that 1,670 Wave 1 respondents were still participating at the later waves.
arguably, the unique identifier makes working with LSIC data simpler than LSAC data, as the latter includes a rather complex system for identifying transitional members to the family, which is relational relative to the primary carer (each wave). The Wave 2 data included in Table 1 is the respondents for the latest release of Wave 2 CURF (Wave 3 data was available at the time of writing, but Wave 3 CURF was not). FaHCSIA (2012a) reports that the retention rates between waves were high—relative to other longitudinal surveys—at around 86%.

The vast majority of Wave 2 respondents indicated they had not changed address in the last 12 months (77.4%). While 1.6% did not provide a clear response to this question, only just over one-fifth (21%) indicated that they had changed address in the previous 12 months. Of those who indicated that they had moved (and where they had moved to), 64.7% said they had moved only within the local Indigenous area. We do not want to minimise the importance of mobility, as these families all have young families and the change of community context could be significant. Indeed, this is one of the key research questions for LSIC that needs to be explored.

The standard LSIC CURF does not include information on the 11 sites; however, the in-confidence data (that can only be accessed from a secure data facility approved by FaHCSIA) can include data on Indigenous areas for analysis (although researchers must ensure confidentiality of respondents and take care not to release information at that level publicly). Given the potential selectivity in response rates for the various sites, it is important to briefly analyse the geography of LSIC.

The main geographic information in the standard LSIC CURF is the Level of Relative Isolation (LORI), a measure of remoteness and local accessibility that was designed to take into account culturally specific characteristics (e.g., Indigenous language). One potential weakness of LSIC’s use of LORI is that it is not widely used in research, with the important exception of the WAACHS survey, which provides the most comprehensive information on Indigenous child health (at least before LSIC was collected). However, LORI does have direct analogy with standard ABS remoteness classification and differences between measures of accessibility are generally not substantial (except perhaps for very remote areas).

Roy Morgan Research (2009) used ABS data from the 2006 Census to provide a rough analysis “sampling fraction” (i.e., the ratio of sample size to population size) that may have been achieved within each of the sites. ABS data cover the full range of ages from 0 to 5, while the LSIC respondents are generally clustered in two cohorts. Analysis of these data reveal that some of the definitions of postal areas used to create site-equivalent information within the ABS data require significant adjustment. The postal areas used in the analysis, commonly known as postcodes, do not adequately cover the areas used by the RAOs to generate the LSIC sample and hence can at best be considered indicative. Furthermore this assumption will generate large variation in sampling fractions as the reference population will be measured with more error in remote areas where the correlation is low between the sampling area effectively used in LSIC and ABS postal areas.

In remote areas, postcodes are much larger than either the standard local ABS geographic areas or LSIC sampling areas. The notional sampling fraction varies from 3% to well over 100%. Given the difficulty in reconciling the LSIC geography with the Indigenous geography in the Census, it is not really surprising that the variation in sampling fractions was extremely large in remote areas. In contrast, the sampling fraction estimated in metropolitan areas tended to be more bounded within a narrow range as the notional sampling fraction was 10% plus or minus 2%. The variation in sampling fractions may either indicate the inadequacy of the concordance of the Census geography with LSIC study areas or selectivity in the sample.

In order to achieve some sense of the selectivity of the sample, we attempted to estimate regional averages for the Indigenous population in 143 Indigenous areas with LSIC respondents using both survey and 2006 Census data. We estimated regional averages for all the Census and LSIC data that was asked for in a broadly comparable manner in the two data sources, but there are two important differences that need to be noted before attempting to interpret any comparisons: differences in the population sub-group and timing of respective data collections.

Indigenous areas are designed to have enough Indigenous adults to make informative (reasonably accurate) regional estimates from Census data. However, it is not possible to compare LSIC data in Indigenous areas exactly to Census estimates as the ABS web-based facility for generating local statistics (called Table Builder) does not allow researchers to separately identify families and households with children less than 5 years of age. The best comparison available is for the proportion of 0–4 year olds who attend preschool in 2006 Census data that can be estimated in a broadly comparable manner to LSIC. Even then there...
is a difference in the timing of the Census and LSIC of around 3 years, so the comparison of LSIC and Census estimates could only be broadly indicative of the representativeness of the sample. Another issue is that LSIC age distribution of 0–4 year olds is not designed to reflect that age group in the population, as it focuses on two age cohorts. Notwithstanding such issues, the LSIC sample is slightly less likely to attend preschool in that age group (3.8%); however, the difference is not statistically significant at the 5% level. This provides some direct evidence that LSIC sample is not selective with respect to the target population.

Other LSIC regional data also appears to be broadly consistent with population estimates once one takes into account likely behavioural differences in different population subgroups in LSIC and Census data. The issue of the utility of geographic and community information in LSIC is explored elsewhere (Hunter & McKay, 2011). Irrespective of the findings of that research, one can be reasonably confident that there is a trade-off between the size of the area and the relationship with the community level analysis. If it is difficult to identify reliable local data comparable with the young Indigenous families in the Census, it will be difficult to do so for other potential data sources. One could aggregate the data to a higher level of geography, but that would lose the ability to claim that one is capturing the effect of community, which is often a localised phenomenon.

Selected strengths and weaknesses of LSIC

It is important not to become too obsessed with strengths and weaknesses of LSIC because, in all likelihood, they are probably highly correlated. The great strength of the study is its sensitivity to cultural issues, especially in the design and implementation. The main weaknesses are arguably the non-representativeness of the sample and the difficulty in making direct comparisons with the rest of the population. No population weights are provided in LSIC data and all analysis should be interpreted as being conditioned on the sample attained (i.e., the specific individual, geographic, historic and cultural conditions facing respondents). If these sites differ from other similar areas of Australia through historical circumstances or unmeasured regional characteristics, then the specific nature of these areas needs to be taken into account. Perhaps the most direct way to achieve this is to link suitable regional data, but if this is not available then geographically disaggregated controls should be employed.

The optimal strategy to do this is likely to involve accessing customised LSIC data in an approved secure data facility.

The second problematic issue is rooted partially in this conditionality, but also relates to the lack of comparability of questions asked in LSIC, LSAC and other surveys. For example, many of the child development outcomes and potential explanatory factors are measured in LSIC using questions specifically adapted for the Indigenous population. Sometimes the adaptions may be relatively minor but, even if one had similar outcomes in the non-Indigenous population, one still has to make the case that comparisons are valid. Whatever the conclusion about the comparability of data, it will be relatively difficult to make a strong case for policy action as the claims about the relative need of Indigenous and other Australian families will necessarily be heavily qualified. While some measure of comparability may have been sacrificed by adopting an Indigenous-specific approach, it should make the LSIC data more meaningful in the context of Indigenous culture.

Another important issue is the relatively small sample size, which will limit the statistical power of the resulting analysis. The overall LSIC sample is less than one-third of that available to LSAC researchers and hence, unless factors are associated with relatively large effects on child development, they will tend to be discounted by analysts as being not significant. At the very least, analysis will be confined to the major factors and researchers should not be too surprised if more subtle interactions anticipated in theory are not statistically significant.

Sample size is not an issue for qualitative data, the inclusion of which is, somewhat ironically, a strength of LSIC. While the proposed qualitative component of LSIC never eventuated, a range of qualitative data items are collected as part of the study in the form of free text responses to a small number of open-ended questions in the survey. References to particular places, individuals, employers, clans, family names, languages and rare circumstances are suppressed to ensure the confidentiality of respondents. The text responses incorporated in the datasets have been truncated to a fixed number of characters (around 30 characters on the CURF). The full responses, or rather confidentialised responses with a minimal truncation of text, can be viewed in the spreadsheets that are potentially available for approved purposes. Data users are permitted to directly quote free text responses on the basis that such usage poses no risk of the
respondent being rendered identifiable. Some of the questions that list text response on the CURF include: What has happened to the study child in past year?; What do you do to cope with stress?; Is there anything else you want to say about the community?; How do you deal with racist bullying?; and What would a good education be for the study child?

Text analytics software can be used to analyse the free-text data. For example, Leximancer uses emergent clustering algorithms to discover and extract concepts from the text to generate a thematic or semantic map (Smith & Humphreys, 2006). This automated content analysis derives concepts from an analysis of frequency, as well as the identification of co-location of phrases and words through clustering like concepts. Linguistics obviously involves a broader range of theories and contexts than can be taken into account in assumptions embedded in such algorithms, but analysis of open text responses using this sort of software can highlight particular issues of concern. Irrespective of the analytical tools used, free text data is an integral aspect of LSIC as a “proof of concept” in that it illustrates the diversity of responses and the assumptions required to code them into standard categories. Many quantitative researchers will take the pre-coded categories as given, but these assumptions need to be questioned in the context of LSIC, especially if the assigned categories do not capture the full diversity of Indigenous responses (which themselves might be quite different from non-Indigenous responses).

Moreover, the free-text data in LSIC may also be useful for generating hypotheses that could be tested. It is important not to be overly prescriptive as the direct responses of Indigenous people themselves can, and arguably should, inform the emphasis of research. Research questions also need to take in other considerations such as existing literature and theoretical perspective of each researcher, but if many Indigenous people nominate certain issues as paramount in child development then it needs to be researched.

**Extant and potential uses of the data**

Some interesting analysis has been published in international journals comparing Indigenous to non-Indigenous outcomes using LSAC (e.g., Leigh & Gong, 2009). Given the culturally specific nature of much of the LSIC data on child outcomes, it may not be possible to conduct exactly the same analysis using that data. LSIC does not lend itself to comparisons to other Australian children, but is better placed to assist in identification of which Indigenous children are doing relatively well and the diversity of Indigenous outcomes.

LSIC has identified four key research questions, formulated under the guidance of the Steering Committee, which were designed to achieve this objective (FaHCSIA, 2012a):

- What do Aboriginal and Torres Strait Islander children need to have the best start in life to grow up strong?
- What helps Aboriginal and Torres Strait Islander children to stay on track or get them to become healthier, more positive and strong?
- How are Aboriginal and Torres Strait Islander children raised?
- What is the importance of family, extended family and community in the early years of life and when growing up?

These are “high level” questions that position the study in the minds of the community. Such questions may not actually be answered by any particular researcher, but may be more useful for explaining to respondents and communities the sorts of issues that animate researcher and policy interest. In this way it could be said to legitimise the survey and encourage participation by showing how the information may be used. Notwithstanding, the body of LSIC research could be taken as a whole, to provide some justification for some understanding of what “the best start in life” might be.

Objective measures of wellbeing almost always indicate that Indigenous Australians fare worse than the overall Australian population (Gray, 2012). Yet, on many of the subjective assessments of wellbeing, Indigenous Australians rate their wellbeing quite highly. According to parents’ ratings of the overall health status of their child, only 1 in 25 children had fair or poor health, with the majority in excellent or very good health (Shepherd & Zubrick, 2012). In contrast, more objective
measures have Indigenous women as being twice as likely as non-Indigenous women to have a low birth weight baby, and Indigenous children as being substantially more likely to have been hospitalised relative to other Australian children (SCRGSP, 2011).

There is considerable variation in Indigenous child outcomes and this is likely to be the most productive avenue for future LSIC research—especially in documenting how Indigenous children in remote areas fare relative to those in more accessible areas. Shepherd and Zubrick (2012) use NATSISS data to show that living in remote areas can be associated with differing levels of prompts, facilitators and constraints to child development. The linkages between these prompts and the factors that drive them need to be researched.

Rowley et al. (2008) provide a positive characterisation of outstation and homeland living embodied by their analysis of the NT community Utopia. That study attributes the better health of Utopia residents to the culturally appropriate community-controlled Aboriginal Medical Service, and outstation living that generally includes a better diet and greater physical activity, in addition to an environment where people live more harmoniously with culture, family and land. Even if there is some health premium from living “on country”, one has to take into account other factors associated with child development, including social determinants of health that may not be so positive in remote outstations, such as unemployment, low income, overcrowding, lack of education and level of community harmony (at least in terms of perceived safety). LSIC data provides an opportunity to test for the relative importance of potential trade-offs in child development.

Concluding remarks

In order to operationalise an unprecedented data collection exercise such as LSIC, FaHCSIA has had to be extremely adaptive; in many ways LSIC has been experimental in nature. By making LSIC unique in terms of content and methodology, it may have limited the extent to which the data can be compared directly with other surveys. LSAC arguably provides qualitatively different information to that in LSIC, as it relied more heavily on telephone interviews and self-complete questionnaires, which cost substantially less than the interview methodology used in the Indigenous survey. LSIC’s full-time Indigenous RAOs are associated with a not insignificant cost, but they are invaluable in collecting valid information in Indigenous households, especially where language, cultural and educational variation would otherwise undermine the quality of the data.

Some commentators, conservative or otherwise, may question whether it is appropriate for a government to be so heavily involved in the conduct of a survey such as LSIC. However, the experimental nature of the exercise has meant that writing contracts for private data collection companies that cover all contingencies that might arise in the operation of the survey would have been almost impossible. The commitment to community consultation and the training of RAOs were integral to the response rates achieved and both can also impose costs that are difficult to anticipate. For example, it was uncertain how many interviewers would leave LSIC between or even within waves, thus training costs are particularly uncertain. FaHCSIA has managed to minimise the turnover of RAOs and training costs by paying full-time government salaries and providing working conditions that are much more generous than the casual rates paid by other survey contractors.

In short, fundamental uncertainty about the way the survey was to be conducted and designed means that it would have been almost impossible to contract out the initial waves of the LSIC survey. Having successfully conducted several waves of LSIC, it may now become easier to write a contract for external operators, but there are some theoretical reasons why it might be difficult to specify terms of the contract that do not undermine the integrity of LSIC or some similar survey. Contractors theoretically will always have an incentive to cut training costs, as many of the skills attained are not transferable to other job situations (McConnell & Brue, 1992). If RAO wages were cut, this would raise the incentive for RAOs to look for another job in data collection and thus make it difficult for LSIC to build suitable relationships in the respective communities.

In addition to the secondary analysis of LSIC data as provided, there are also several less passive options for researchers. One possible mode of collaboration between researchers and the owners of the data (FaHCSIA) is to seek the consent of the LSIC respondent to be reinterviewed on a particular issue. This method is attractive to researchers in that it allows them to readily and cost-effectively identify young Indigenous families that can be difficult to identify in sufficient numbers. From FaHCSIA’s perspective, it is a way to add to LSIC’s public value and ensure that LSIC is actively used by researchers. At the same time, FaHCSIA can provide direct comments on the research.
process and enhance the research capability of its staff. Last but not least, such collaboration can build research partnerships and expertise in the field, which is still nascent, to say the least. One such example of a collaborative model is the Paid Parental Leave Research conducted just after LSIC Wave 3 (organised by Maggie Walters).

While lead time in getting research published is relatively long, there are still exceptionally few entries in FaHCSIA’s Longitudinal Surveys Electronic Research (FLoSse) repository that relates to Indigenous children. At the time of writing there were only three papers directly on Indigenous children in FLoSse. At least two of these relate to LSAC analysis, which, as this paper argues, is problematic for analysing development of Indigenous children.

There have been a number of promising LSIC-based research papers at conferences, but few have made it to the peer reviewed journals so far. One notable exception is a recent descriptive “data survey” by Mullan and Redmond (2012). At this stage, FaHCSIA staff members are still the major contributors of conference papers using LSIC, but the balance should shift towards scholarly research as more people become aware of the potential of the data. Hopefully, this article makes a contribution to enhancing understanding and confidence in the use of LSIC data for identifying positive pathways of the development of Indigenous children.

Endnotes

1 Professor Mick Dodson is a Yawuru man from the Broome area in Western Australia. He was the first Indigenous Australian to receive a law degree following studies at Monash University in Melbourne. He was Australia’s first Aboriginal and Torres Strait Islander Social Justice Commissioner with the Human Rights and Equal Opportunity Commission (from April 1993 to January 1998). He is a former member of the United Nations Permanent Forum on Indigenous Issues and was until recently the Co-Chair of Reconciliation Australia. Professor Dodson has a distinguished academic career at the Australian National University, where he is Director of the National Centre for Indigenous Studies. In this role he engages with the research community and develops the next generation of Indigenous researchers.

2 An LSIC trial to assess the usefulness of Who Am I? was conducted in 2007. The instrument was found to be satisfactory for administration to Aboriginal and Torres Strait Islander children, although some modifications were made to it. In particular, trial sample results suggested that it would be wise to delete some of the items (Numbers, Letters, Words, Sentence).

3 The other Census data that was broadly comparable to the information collected in LSIC includes some information on income, housing and mobility. Household income is slightly lower in LSIC data—this is consistent with the young families having lower income, as there is a tendency for adults to be outside the labour market (compared to other households in the local area). These compositional issues also explain why LSIC households are more likely than other local households to rent dwellings, although there is no significant difference in the proportion in private rental (i.e., sole parents are more likely to be in public housing). LSIC dwellings tend to have more bedrooms, which is consistent with the fact that they are more likely to have a greater number of people than Census data (i.e., families with young children). With respect to mobility, LSIC respondents are more likely than other local Indigenous people in the 2006 Census to have lived in the same address 1 year ago, but less likely to have lived at the same address 5 years ago. This last observation is consistent with a major event in LSIC households in the last few years, say, the birth of a new child.

4 The Australian Early Development Index (AEDI) is based on nation-wide data on the development of young children. Between 1 May and 31 July 2009, teachers provided information on five areas of early childhood development: physical health and wellbeing, social competence, emotional maturity, language and cognitive skills (school-based), and communications skills and general knowledge. It should be possible to link LSIC data with AEDI scores measured for all children in the local area. One historical limitation was the extent to which AEDI geography is compatible with LSIC geography on the CURF; however, both AEDI and LSIC data is held in geocoded form by the owners of the data so it may just be a matter of application of additional resources. Indeed, FaHCSIA can provide matched AEDI community level data now, but LSIC users have to make a specific request for it (and presumably have access to a secure data facility). Also, FaHCSIA has sought parental permission to link their child’s AEDI data with LSIC data that may be available for a later release (in a separate CURF). Given that AEDI outcomes will partially reflect outcomes in local schools, this addition is likely to considerably enhance the geographic information in LSIC.

References


LSIC data provides an opportunity to test for the relative importance of potential trade-offs in child development.


Mick Dodson is the Director of the National Centre for Indigenous Studies at the Australian National University (ANU). Boyd Hunter and Matthew McKay are, respectively, Senior Fellow and Research Assistant at the Centre for Aboriginal Economic Policy Research, the College of Arts and Social Sciences, also at the ANU.

Acknowledgements: We are indebted to the LSIC team at the Australian Government Department of Families and Housing, Community Services and Indigenous Affairs (FaHCSIA), and two anonymous referees for their comments on an earlier draft.

This paper uses unit record data from the Longitudinal Study of Indigenous Children (LSIC). LSIC was initiated and is funded and managed by FaHCSIA. The findings and views reported in this paper, however, are those of the authors and should not be attributed to FaHCSIA or the Indigenous people and their communities involved in the study.
The patterns and practices of post-separation parenting are central to ensuring children’s ongoing wellbeing (Amato, 2000; Smyth, 2004). Yet, there is very little existing Australian literature on post-separation parenting practices among Indigenous families. On parenting arrangements, the only directly relevant literature is a presentation by Qu and Weston (2012) that compared the pre- and post-separation parenting circumstances of Indigenous and non-Indigenous mothers and fathers. This study found that separated Indigenous parents were younger, poorer, had younger children at the time of separation and were far more likely to be in a cohabiting rather than a married relationship at the time of separation.

There is also a limited literature on the interaction of Indigenous families with the family law system. A 2004 article by Family Law Court Indigenous Family Consultant Steven Ralph, for example, details some unique aspects of Indigenous family law disputes. These include the extent of involvement of extended family in disputes, cultural issues around Indigenous affiliation and identity, and the lack of fit between norms of child access arrangements for many Indigenous families. More recently, the Family Law Council (2012) report, Improving the Family Law System for Aboriginal and Torres Strait Islander Clients, found that family law system services are underutilised by Indigenous families and there is evidence of significant unmet need in Indigenous communities. The very few Indigenous practitioners in the field and the low levels of Indigenous cultural competence among non-Indigenous practitioners have exacerbated this gap.

The literature on child support is even more scant, with the only identified literature being a 2010 presentation by Esler, Robertson, and Shipley (2010) on behalf of the Child Support Agency (CSA). Recognising a lack of knowledge of Indigenous families’ interaction with the CSA, the authors suggested that the limited existing data indicated that Indigenous parents were more likely to be unemployed and
paying or receiving low rates of child support than non-Indigenous CSA clients. The need for specific knowledge on how Indigenous families are negotiating the ongoing financial support of their children post-separation is of even greater import following the 2006 family law reforms. These reforms, among other objectives, included significant changes to how child support is calculated, paid and sought in order to encourage greater involvement of both parents in their children’s lives following separation (Kaspiew et al., 2011).

The evidence from these sources and the (albeit relatively) larger Australian literature on post-separation parenting (see, for example, Kaspiew et al., 2011; Ministerial Taskforce on Child Support, 2005; Parkinson, 2007; Smyth, 2004) suggest the direct applicability of their findings to Indigenous families is not a reasonable practice. Along with the aspects identified by Ralph (2004) and Qu and Weston (2012) above, socio-demographic data also indicate that Indigenous families, separated and together, have unique dimensions. Indigenous families are, for example, far more likely to be socio-economically disadvantaged, and more likely to live in extended family households, be a sole-parent family and record higher rates of ex-nuptial births (Australian Institute of Health and Welfare [AIHW], 2011).

The main purpose of this paper is to use Footprints in Time: The Longitudinal Study of Indigenous Children (LSIC) to provide baseline descriptive information on the post-separation arrangements of Indigenous households, including:

- the number, proportion and characteristics of children who have a parent living elsewhere;
- the level and pattern of contact between children and parents living elsewhere; and
- the patterns of payment and receipt of child support for children.

The study

LSIC is a national panel study that in Wave 1 (2008) surveyed the families of 1,670 Indigenous children from 11 sites across Australia. These locations ranged from very remote communities to major capital cities and include: the Northern Territory “Top End”; south-east Queensland; the south coast of New South Wales; Mt Isa, including Mornington, Doomadgee and Normanton; Western Sydney; Dubbo; Greater Shepparton; the Torres Strait and Northern Peninsula area; the Kimberley region; Adelaide, including Port Augusta; and Alice Springs, including Hermannsburg. The Level of Relative Isolation (LORI) classification was used to allocate LSIC households into one of five categories of isolation, ranging from 1 = “none” (e.g., the Brisbane metropolitan area); 2 = “low” (e.g., Shepparton); 3 = “moderate” (e.g., Derby), 4 = “high” (e.g., Doomadgee); and 5 = “extreme” (e.g., Moa Island) (Department of Families, Housing, Community Services and Indigenous Affairs [FaHCSIA], 2009). Data for all LSIC waves are collected via face-to-face interviews between the study child’s primary parent or main caregiver and locally employed Indigenous Research Administration Officers. As can be seen in Table 1, the spread of study children households is similar in geographic distribution to the total Indigenous population (Australian Bureau of Statistics [ABS], 2010). Around about 24% of LSIC households are in remote and very remote locations, but the majority (76%) are located in areas classified as having none or low levels of remoteness.

The LSIC design divided the sample of study children into two cohorts: babies (B) and kids (K). At Wave 1, the majority of the B cohort were aged between 6 and 18 months and the K cohort between 3.5 and 4.5 years. Overwhelmingly, the main caregiver of the LSIC study children was their mother. As shown in Table 2, for 95% of the study

<table>
<thead>
<tr>
<th>Level of remoteness</th>
<th>Percentage of LSIC households</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>25.9</td>
</tr>
<tr>
<td>Low</td>
<td>50.1</td>
</tr>
<tr>
<td>Moderate</td>
<td>12.7</td>
</tr>
<tr>
<td>High/extreme</td>
<td>11.3</td>
</tr>
<tr>
<td>Total</td>
<td>100.0</td>
</tr>
<tr>
<td>No. of observations</td>
<td>1,679</td>
</tr>
</tbody>
</table>

Note: Percentages do not total exactly 100.0% due to rounding.
Source: LSIC Wave 1

<table>
<thead>
<tr>
<th>Caregiver’s relationship to study child</th>
<th>Percentage of LSIC study children</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mother</td>
<td>93.0</td>
</tr>
<tr>
<td>Father</td>
<td>2.3</td>
</tr>
<tr>
<td>Grandparent</td>
<td>3.0</td>
</tr>
<tr>
<td>Aunt/uncle</td>
<td>0.8</td>
</tr>
<tr>
<td>Step- or adoptive parent</td>
<td>0.7</td>
</tr>
<tr>
<td>Other</td>
<td>&lt; 0.1</td>
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<tr>
<td>Total</td>
<td>100.0</td>
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<tr>
<td>No. of observations</td>
<td>1,676</td>
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</tbody>
</table>

Note: Percentages do not total exactly 100.0% due to rounding.
Source: LSIC Wave 1
children their nominated main caregiver was a birth parent, and in 98% of these cases that parent was their mother (n = 1,597). Around 5% of the study children were being primarily cared for by a person other than a birth parent, mostly a close female relative. Our analysis found that study children living in urban metro environments were just as likely to be in the care of another family member as those living in remote locations.

In this study we used data from Wave 2 (2009) of LSIC. We restricted analysis to Wave 2 because questions relating to parent–child contact and child support for study children who had a parent living elsewhere were not included in the Wave 1 survey. In Wave 2 (2009), 86% of families from Wave 1 were retained. In addition, to maintain the viability of the sample in remote regions, 88 new entrant families were interviewed. This provided a total of 1,527 study children and their families participating in Wave 2 (FaHCSIA, 2010).

**Results**

**Study children whose other birth parent lives elsewhere**

As shown in Table 3, 39% of the LSIC study children had a parent living elsewhere. In comparison, research using data from the Households, Income and Labor Dynamics in Australia (HILDA) survey, which uses a nationally representative population sample, suggests that around 25% of children have a birth parent living in another household (Walter, Hewitt, Natalier, Wulff, & Reynolds, 2010). Research using data from Growing Up in Australia: The Longitudinal Study of Australian Children (LSAC) indicates that around 15% of children in its B and K cohorts did not live with both biological parents (Australian Institute of Family Studies [AIFS], 2011). Four hundred and twenty eight primary parents of 597 study children with a birth parent living elsewhere agreed to answer questions about the other parent. In 86% of these LSIC families, the parent living elsewhere is the study child’s father, which is similar to that of the broader population, where 88% of children not living with both parents primarily reside with their mother (ABS, 2008). In the remaining 14% of households, the parent living elsewhere was the study child’s mother or neither parent resided in the study child’s household.

The comparatively high proportion of study children with a birth parent living elsewhere is made more significant by the fact that LSIC study children are still quite young. In line with general trends on relationship separation, where parents are less likely to separate when they have young children, rates of having a birth parent living elsewhere could be expected to rise as study children move through their childhood years. In Table 4, we show the proportion of study children with a parent living elsewhere by cohort. We find that the main caregivers of the older K cohort reported higher rates of having a parent living elsewhere than the main caregivers of the B cohort. This difference (38% cf. 41%), however, is only three percentage points. This result suggests that, for the B cohort at least, parental separation happened very early in the study child’s life. Or, alternatively, the study children’s parents may have never lived together in the same household. While Qu and Weston’s (2012) results support the finding of the younger age of the child at parental separation compared to non-Indigenous separated families, we were unable to ascertain the pattern of these variables, as LSIC Wave 1 or 2 did not collect

<table>
<thead>
<tr>
<th>Table 3</th>
<th>Study children with a birth parent living elsewhere, and which parent, 2009</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>%</td>
</tr>
<tr>
<td>Parent living elsewhere:</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>597</td>
</tr>
<tr>
<td>No</td>
<td>913</td>
</tr>
<tr>
<td>Missing</td>
<td>17</td>
</tr>
<tr>
<td>Totals</td>
<td>1,527</td>
</tr>
<tr>
<td>Which biological parent living elsewhere:</td>
<td></td>
</tr>
<tr>
<td>Father</td>
<td>367</td>
</tr>
<tr>
<td>Mother</td>
<td>28</td>
</tr>
<tr>
<td>Both</td>
<td>33</td>
</tr>
<tr>
<td>Total no. of responses</td>
<td>428</td>
</tr>
<tr>
<td>Refused *</td>
<td>166</td>
</tr>
<tr>
<td>Missing</td>
<td>3</td>
</tr>
<tr>
<td>Total sample</td>
<td>597</td>
</tr>
</tbody>
</table>

Note: * Note that 166 primary parents declined to provide information on the parent living elsewhere. Source: LSIC Wave 2

<table>
<thead>
<tr>
<th>Table 4</th>
<th>Study children who have a parent living elsewhere, by cohort, 2009</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parent living elsewhere</td>
<td>B cohort</td>
</tr>
<tr>
<td>N</td>
<td>%</td>
</tr>
<tr>
<td>Yes</td>
<td>326</td>
</tr>
<tr>
<td>No</td>
<td>535</td>
</tr>
<tr>
<td>Missing</td>
<td>8</td>
</tr>
<tr>
<td>Totals</td>
<td>869</td>
</tr>
</tbody>
</table>

Note: Percentages may not total exactly 100.0% due to rounding. Source: LSIC Wave 2
data on the time since the study children’s parental separation.

**Socio-economic and demographic characteristics**

While most LSIC family households were disadvantaged, we found a differentiation in the level of socio-economic position depending on whether the study child lived with both birth parents or not. As shown in Table 5, overall, those study children who had a parent living elsewhere tended to live in environments that were more disadvantaged than study children whose parents lived together. This was consistent across a wide range of socio-economic variables. For example, when the public and private renter figures are amalgamated over 80% of all LSIC households were renting. The proportion of renters was 82% in households where the study child’s birth parents resided together compared to 88% for those with a birth parent living elsewhere. Moreover, the households where a birth parent lives elsewhere were statistically significantly more likely to be living in public rental housing than households where the parents reside together. Additionally, while fewer than half all LSIC households gave salary and wages as the major source of household income, the figures vary dramatically by parental household type. Fifty-six per cent of households with two birth parents reported salary or wages as the main source of household income compared to 20% of households where a birth parent of the study child lived elsewhere. Primary parents in households where the study child’s other birth parent lived elsewhere were also less educated, less likely to be employed and more likely to live in public housing.

Study child households where a birth parent was living elsewhere, therefore, were experiencing higher rates of socio-economic disadvantage than those where both birth parents resided together. It is critical, however, to reiterate that nearly all the LSIC families were socio-economically disadvantaged. The higher levels of socio-economic disadvantage for families where the study child’s birth parent lives elsewhere, therefore, come off a very low starting point. These results indicate that Indigenous families where the child’s other parent lives elsewhere are occupying the extreme end of socio-economic disadvantage.

We also found demographic differences between the two parental types of households. As shown in Table 6, for study children with a parent living elsewhere, a higher proportion of their primary parents were Indigenous compared to those living in households where both parents lived together. There are differences also in the age profile of primary parents. The ages of the primary parents of the study children who had a parent living elsewhere are concentrated in the younger and older age groups. This pattern can be attributed for the younger primary parents to the generally younger age profile of Indigenous sole parents (ABS, 2011), and for the older group to grandparents being the primary parent in the majority of the study children households where both parents lived elsewhere. The self-reported health of the primary parent in both types of parental households was similar.

---

Table 5  Socio-economic characteristics of primary parent, by whether study child has a parent living elsewhere, 2009

<table>
<thead>
<tr>
<th>Education *</th>
<th>Study child has a parent living elsewhere</th>
<th>Study child lives with both parents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bachelor degree or above</td>
<td>22 3.7</td>
<td>64 7.0</td>
</tr>
<tr>
<td>Diploma/certificate</td>
<td>85 14.2</td>
<td>178 19.5</td>
</tr>
<tr>
<td>Year 12</td>
<td>90 15.1</td>
<td>162 17.7</td>
</tr>
<tr>
<td>Year 10 or 11</td>
<td>259 43.4</td>
<td>387 42.4</td>
</tr>
<tr>
<td>Below Year 10</td>
<td>135 22.6</td>
<td>107 11.7</td>
</tr>
<tr>
<td>Missing</td>
<td>6 1.0</td>
<td>15 1.6</td>
</tr>
<tr>
<td>Totals</td>
<td>597 100.0</td>
<td>913 100.0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Employment status *</th>
<th>Study child has a parent living elsewhere</th>
<th>Study child lives with both parents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Currently employed</td>
<td>134 22.4</td>
<td>347 38.0</td>
</tr>
<tr>
<td>Not currently employed</td>
<td>463 77.6</td>
<td>566 62.0</td>
</tr>
<tr>
<td>Totals</td>
<td>597 100.0</td>
<td>913 100.0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Main sources of household income a,b</th>
<th>Study child has a parent living elsewhere</th>
<th>Study child lives with both parents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Salary or wages</td>
<td>122 20.4</td>
<td>514 56.3</td>
</tr>
<tr>
<td>CEA or CDEP</td>
<td>15 2.5</td>
<td>59 6.5</td>
</tr>
<tr>
<td>Government benefit</td>
<td>524 87.8</td>
<td>561 61.4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Housing tenure c</th>
<th>Study child has a parent living elsewhere</th>
<th>Study child lives with both parents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rented community group</td>
<td>106 17.7</td>
<td>232 25.4</td>
</tr>
<tr>
<td>Rented private</td>
<td>179 29.9</td>
<td>308 33.7</td>
</tr>
<tr>
<td>Rented public</td>
<td>244 40.8</td>
<td>211 23.1</td>
</tr>
<tr>
<td>Owned outright</td>
<td>20 3.3</td>
<td>22 2.4</td>
</tr>
<tr>
<td>Being paid off</td>
<td>20 3.3</td>
<td>92 10.1</td>
</tr>
<tr>
<td>Missing</td>
<td>28 4.9</td>
<td>48 5.3</td>
</tr>
<tr>
<td>Totals</td>
<td>597 100.0</td>
<td>913 100.0</td>
</tr>
</tbody>
</table>

Notes: * Chi-square test indicates that this patterning is statistically significant at p < .05. a We excluded the 17 respondents with missing data on parent living elsewhere. b Note that numbers may not add up because respondents were allowed to nominate more than one source of main household income. c This is housing tenure at Wave 1. Percentages may not total exactly 100.0% due to rounding.

Source: LSIC Wave 2
Post-separation parenting arrangements

In LSIC Wave 2, 72% (n = 428) of the primary parents of the study children who had another parent living elsewhere agreed to answer questions about the contact between that child and their other parent. The results we report in this section are from the data supplied by these parents. In additional analysis comparing respondents who provided information and those who did not, we found that parents who did not agree to answer questions about the parent living elsewhere tended to have lower incomes than those who did agree.1

As shown in Table 7, 56% of LSIC children with a birth parent living elsewhere see that parent at least once a week (41%) or at least once a month (15%). Around a quarter, however, never saw their other parent. In comparison, around half of all Australian children who have a birth parent living elsewhere see that parent at least once a fortnight and just over a quarter (28%) either never see that parent or see them less than once per year (ABS, 2008). While Qu and Weston (2012) found Indigenous separated mothers are more likely to report that the father spends no time with the child, from these data, the pattern of the frequency of contact between the LSIC study children and their other parent is not dissimilar to that found in total population figures.

The type of contact, not just its frequency, is an important aspect in how post-separation parenting is practised. Patterns of overnight contact between study children and the parent living elsewhere varied by the age of the study child. As shown in Table 8, 42% of the B cohort stayed overnight with the other parent once a month or more. This figure increased to 49% in the K cohort, with one-quarter of primary parents reporting that the study child stayed overnight with the other parent at least once per week.

Payment and receipt of child support

In this section we investigate the receipt of child support by the primary parent in relation to LSIC study children. Within the broader Australian population, nearly 95% of separated parents with children register with the Child Support Agency. Among this group, roughly half pay or receive child support monies via the CSA, and the other half select to make or receive payments directly between the parents (Fehlberg & Behrens, 2008). Rates of assessed child support to be paid or received depend on a number of factors, including the income of the parent living elsewhere. Around 40% of Australian payers pay only the minimum child support liability of $312 per annum ($6 per week). Though not able to be fully quantified, the research also suggests that a substantial minority do not always pay their liabilities in

---

**Table 6** Demographic characteristics of primary parents, by whether study child has a parent living elsewhere, 2009

<table>
<thead>
<tr>
<th>Study child has a parent living elsewhere</th>
<th>Study child lives with both parents</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>N</strong></td>
<td><strong>%</strong></td>
</tr>
<tr>
<td>Primary parent Indigenous status *</td>
<td></td>
</tr>
<tr>
<td>Aboriginal</td>
<td>489</td>
</tr>
<tr>
<td>Torres Strait Islander</td>
<td>31</td>
</tr>
<tr>
<td>Both</td>
<td>22</td>
</tr>
<tr>
<td>Neither</td>
<td>53</td>
</tr>
<tr>
<td>Missing</td>
<td>2</td>
</tr>
<tr>
<td>Totals</td>
<td>597</td>
</tr>
<tr>
<td>Age group *</td>
<td></td>
</tr>
<tr>
<td>&lt; 20</td>
<td>26</td>
</tr>
<tr>
<td>20–29</td>
<td>290</td>
</tr>
<tr>
<td>30–39</td>
<td>179</td>
</tr>
<tr>
<td>40–49</td>
<td>70</td>
</tr>
<tr>
<td>50+</td>
<td>32</td>
</tr>
<tr>
<td>Totals</td>
<td>597</td>
</tr>
<tr>
<td>Self-assessed health status *</td>
<td></td>
</tr>
<tr>
<td>Excellent</td>
<td>80</td>
</tr>
<tr>
<td>Very good</td>
<td>153</td>
</tr>
<tr>
<td>Good</td>
<td>297</td>
</tr>
<tr>
<td>Fair</td>
<td>54</td>
</tr>
<tr>
<td>Poor</td>
<td>11</td>
</tr>
<tr>
<td>Missing</td>
<td>2</td>
</tr>
<tr>
<td>Totals</td>
<td>597</td>
</tr>
</tbody>
</table>

Notes: * Chi-square test indicates that this patterning is statistically significant at p < .05. Percentages may not total exactly 100.0% due to rounding.

Source: LSIC Wave 2

---

**Table 7** Frequency of contact between study child and birth parent living elsewhere, 2009

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>At least once a week</td>
<td>161</td>
<td>40.8</td>
</tr>
<tr>
<td>At least once a month</td>
<td>58</td>
<td>14.7</td>
</tr>
<tr>
<td>At least once a year</td>
<td>69</td>
<td>17.5</td>
</tr>
<tr>
<td>Not at all</td>
<td>96</td>
<td>24.3</td>
</tr>
<tr>
<td>Missing</td>
<td>11</td>
<td>2.8</td>
</tr>
<tr>
<td>Totals</td>
<td>395</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Note: Includes responses only from primary parents of study children who had another parent living elsewhere who agreed to answer questions about the other parent (n = 428). Study children who had both parents living elsewhere (n = 33) were also excluded from this table. Percentages do not total exactly 100.0% due to rounding.

Source: LSIC Wave 2
full and/or regularly (Ludwig, 2008; Ministerial Taskforce on Child Support, 2005; Parkinson, 2007; Walter, 2002). In 2008, 58,000 CSA parents identified as Indigenous (Esler et al., 2010). Of the 597 LSIC study children in Wave 2 who had a parent living elsewhere only around half (281) had primary parents who agreed to answer questions about child support arrangements. The results we report in this section are from the data supplied by these parents. Our analysis of respondents who provided information and those who refused permission, suggest that those who refused permission were significantly more likely to report lower incomes.

As shown in Table 9, the majority of LSIC primary parent respondents whose study child had a birth parent living elsewhere received child support (58%). Of those who received child support the average amount of child support received was $59 per week. While not directly comparable due to data collection timing variation, this amount is lower than the median amounts of child support reported in other Australian literature (see Ministerial Taskforce on Child Support, 2005; Natalier et al., 2008). Such lower amounts are likely explained by the socio-economic disadvantage in Australian Indigenous families relative to the general population. A further one-quarter of parents did not know how much they received or stated that the amount varied. These data suggest that these parents were receiving irregular and/or part payments. Of the 114 primary parents who reported that they did not receive any child support for the study child, 24% indicated that they were not meant to receive it. The main reasons given for not receiving payments were that the other parent could not afford to pay (10%), child support couldn’t find them (11%), they helped out (presumably in other ways) (10%), they didn’t want to pay (14%) other reasons (24%) or the primary parent did not know (9%). In only one case was the response of “exempt due to cultural reasons” selected by a primary parent.

<table>
<thead>
<tr>
<th>Table 8</th>
<th>Frequency of overnight stays of study child with parent living elsewhere, by cohort, 2009</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B cohort</td>
</tr>
<tr>
<td></td>
<td>N</td>
</tr>
<tr>
<td>Half the time</td>
<td>15</td>
</tr>
<tr>
<td>At least once a week</td>
<td>32</td>
</tr>
<tr>
<td>At least once a month</td>
<td>21</td>
</tr>
<tr>
<td>At least once a year</td>
<td>9</td>
</tr>
<tr>
<td>Not at all</td>
<td>86</td>
</tr>
<tr>
<td>Totals</td>
<td>163</td>
</tr>
</tbody>
</table>

Note: Includes responses only from primary parents of study children who had another parent living elsewhere who agreed to answer questions about the other parent (n = 428). LSIC Wave 2 data on this variable categorised missing and refused responses into a single category and so they are excluded from this table. Study children who had both parents living elsewhere (n = 33) were also excluded from this table. Percentages do not total exactly 100.0% due to rounding.

Source: LSIC Wave 2

<table>
<thead>
<tr>
<th>Table 9</th>
<th>Receipt and non-receipt of child support and reasons for non-receipt of child support for primary parents of study children with a parent living elsewhere, 2009</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Primary parents whose study child has a parent living elsewhere</td>
</tr>
<tr>
<td></td>
<td>N</td>
</tr>
<tr>
<td>Receives child support</td>
<td>167</td>
</tr>
<tr>
<td>Knows amount received (mean $58.79)</td>
<td>125</td>
</tr>
<tr>
<td>Doesn’t know</td>
<td>16</td>
</tr>
<tr>
<td>Amount varies</td>
<td>23</td>
</tr>
<tr>
<td>Resfused</td>
<td>3</td>
</tr>
<tr>
<td>Pays child support</td>
<td>1</td>
</tr>
<tr>
<td>Neither pays or receives, because:</td>
<td>114</td>
</tr>
<tr>
<td>Exempt due to cultural reasons</td>
<td>1</td>
</tr>
<tr>
<td>Other parent can’t afford to pay/unemployed</td>
<td>11</td>
</tr>
<tr>
<td>Child support can’t find them</td>
<td>12</td>
</tr>
<tr>
<td>Other parent helps out</td>
<td>11</td>
</tr>
<tr>
<td>Other parent doesn’t want to pay</td>
<td>16</td>
</tr>
<tr>
<td>Other</td>
<td>26</td>
</tr>
<tr>
<td>Don’t know</td>
<td>10</td>
</tr>
<tr>
<td>Not supposed to receive child support</td>
<td>27</td>
</tr>
<tr>
<td>Totals</td>
<td>281</td>
</tr>
<tr>
<td>Missing/ refused</td>
<td>2</td>
</tr>
</tbody>
</table>

Note: Includes LSIC study children in Wave 2 with a parent living elsewhere whose primary parent agreed to answer questions about child support arrangements, excludes 2 cases who refused to answer questions about child support and 1 parent who pays child support (n = 281). Percentages do not total exactly 100.0% due to rounding.

Source: LSIC Wave 2
make as much difference for the higher income households. This suggests the payment of child support may provide a strong financial buffer for households who receive it, particularly households with low to medium level incomes.

Discussion

The answers to this study's first question on the proportion and characteristics of Indigenous children who have another parent living elsewhere have significant implications. Nearly 40% of LSIC study children live in households apart from at least one of their biological parents; a rate much higher than total Australian population estimates of 25%. The relatively young ages of the study children indicates that this disparity will likely widen further over the course of their childhood years. These figures are particularly concerning, because, even though almost all LSIC study children were living in socio-economically disadvantaged households, this disadvantage was greater where study children had a parent living elsewhere. Thus, these Indigenous children are particularly vulnerable economically and socially. Significant and systematic disadvantages are already accruing in the young lives of these study children. Their families and communities will likely require substantial support systems and deployment of resources to aid them in their task of nurturing their children to strong, healthy, capable young adulthood.

The findings related to our second question—the level and shape of the interaction between these study children and the parent living elsewhere—also provide important new knowledge. Our results indicate similarities, but also differences, between the patterns of post-separation parenting of the LSIC study children and that of all Australian children living separately from one parent. First, consistent with total population findings (ABS, 2008), the primary parent of the vast majority of LSIC children with a parenting living elsewhere was the child’s mother. Second, in line with mainstream data (ABS, 2008), around half of the study children saw the other parent regularly and around one-quarter rarely or never saw the other parent.

A subtle, but important difference, however, was found in the effect of the child’s parent’s previous relationship on post-separation parenting. The broader Australian research finds that ex-nuptial fathers are significantly less likely than their married counterparts to maintain ongoing contact with their child/ren (Walter, 2000). The LSIC data did not allow us to ascertain the status of the study children’s

<table>
<thead>
<tr>
<th>Method of transfer</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Through Child Support Agency</td>
<td>84</td>
<td>50.0</td>
</tr>
<tr>
<td>Through Centrelink</td>
<td>14</td>
<td>8.3</td>
</tr>
<tr>
<td>Private arrangement</td>
<td>65</td>
<td>38.7</td>
</tr>
<tr>
<td>Other</td>
<td>5</td>
<td>3.0</td>
</tr>
<tr>
<td>Totals</td>
<td>168</td>
<td>100.0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sources of help/advice</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Centrelink</td>
<td>35</td>
<td>12.3</td>
</tr>
<tr>
<td>Child Support Agency</td>
<td>140</td>
<td>49.3</td>
</tr>
<tr>
<td>Aboriginal legal service</td>
<td>3</td>
<td>1.0</td>
</tr>
<tr>
<td>Legal aid</td>
<td>2</td>
<td>1.0</td>
</tr>
<tr>
<td>Elder or community leader</td>
<td>1</td>
<td>0.4</td>
</tr>
<tr>
<td>Family or friend</td>
<td>5</td>
<td>2.0</td>
</tr>
<tr>
<td>Received no help</td>
<td>65</td>
<td>22.8</td>
</tr>
<tr>
<td>Missing/no response</td>
<td>31</td>
<td>10.9</td>
</tr>
<tr>
<td>Totals</td>
<td>284</td>
<td></td>
</tr>
</tbody>
</table>

Note: * Includes LSIC study children in Wave 2 with a parent living elsewhere whose primary parent agreed to answer questions about child support arrangements and who reported receiving child support payments. Excludes 2 cases who refused to answer questions about child support and 1 parent who pays child support (n = 281). * Multiple responses were allowed. * This sums to 170, not 167 due to multiple responses by 3 parents, who answered that they received child support payments through the Child Support Agency and by private arrangement. Source: LSIC Wave 2

<table>
<thead>
<tr>
<th>Weekly income after deductions</th>
<th>Receives child support</th>
<th>Does not receive child support</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>%</td>
<td>N</td>
</tr>
<tr>
<td>Less than $150</td>
<td>7</td>
<td>5.4</td>
</tr>
<tr>
<td>$151–249</td>
<td>3</td>
<td>2.3</td>
</tr>
<tr>
<td>$250–399</td>
<td>21</td>
<td>16.2</td>
</tr>
<tr>
<td>$400–599</td>
<td>54</td>
<td>41.5</td>
</tr>
<tr>
<td>$600–799</td>
<td>24</td>
<td>18.5</td>
</tr>
<tr>
<td>$800–999</td>
<td>3</td>
<td>2.3</td>
</tr>
<tr>
<td>$1,000+</td>
<td>8</td>
<td>6.2</td>
</tr>
<tr>
<td>Missing</td>
<td>10</td>
<td>7.7</td>
</tr>
<tr>
<td>Totals</td>
<td>130</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Notes: * Chi-square test indicates that this differs at p < .1. Percentages may not total exactly 100.0% due to rounding.

Source: LSIC Wave 2
parents’ previous relationship, but we already know from other data that Indigenous parents are less likely to be in *de jure* marriage relationships than non-Indigenous parents (ABS, 2010). Additionally, in this study, the high proportion of the B cohort already living apart from their other parent suggests a substantial number never lived with the other parent in the same household. Despite these (imputed) high rates of ex-nuptial parenting, the level and patterns of ongoing contact between the study child and the parent living elsewhere were at similar, or perhaps even higher, levels than those found in total population figures. Our findings, therefore, indicate that not being previously married and/or never living in the same household as the child’s other parent does not affect Indigenous post-separation parenting practices in the same negative ways as it does the post-separation parenting practices of non-Indigenous parents who live apart from their child.

Our third question sought data on child support. While the level of median child support payments was lower for LSIC study children households than in the total CSA payee population, similarities were observed in the patterns of receipt in the LSIC families. The proportion of Indigenous primary parents whose method of transfer of monies is via the Child Support Agency is roughly the same as that found among all CSA clients (Ministerial Task Force on Child Support, 2005). Our results on the proportion of primary parents receiving child support were lower, but also not outside the parameters among non-Indigenous primary parents. CSA figures indicate that around 40% of all payers pay only the minimum child support liability (House of Representatives Standing Committee on Family and Community Affairs, 2003), which is currently $312 per annum or $6.00 per week, per payer.

While 40% of the LSIC parents reported receiving no child support, as suggested in mainstream literature (see Walter et al., 2010), many of these parents may be in fact receiving the minimum amount through the Centrelink system. At $6.00 per week, this amount is likely to be either not noticed or perhaps not classified as child support due to its relative financial insignificance. The low level of knowledge of entitlements among those not receiving child support monies suggests more targeted and Indigenous-appropriate educative and engagement work by agencies such as the CSA may be beneficial. The fact that the CSA was most commonly identified by a substantial proportion of separated parents as their main source of information suggests that study children’s parents are open to CSA interaction.

The critical finding in relation to child support was the association between its receipt and rates of household income. Despite the very high levels of disadvantage among the households where study children had a parent living elsewhere, those who did receive some child support monies tended to have higher incomes than those who reported receiving no child support. This suggests that the, albeit limited, financial buffer provided by child support monies may make a disproportionate difference to households battling poverty and social marginalisation. As such, child support may be even more critical for Indigenous households than non-Indigenous households for reducing their economic and associated social vulnerability. This finding is tentative, as households receiving child support may have been higher income households before separation. However, the growing proportion of study children with a parent living elsewhere and the deep disadvantage of those households revealed by this study indicate that the need to further explore the potential importance of child support in such households is compelling.

**Conclusion**

This study builds on the knowledge base of Indigenous post-separation parenting practices. These practices are shown to vary in subtle but important ways from those of non-Indigenous families. In turn, the results of this study indicate that targeted, Indigenous-informed and culturally shaped research such as that delivered by LSIC is of crucial importance...
importance if public policy and its outcomes are to meaningfully assist such families to raise strong, resilient children with positive life chances. The task of future research is to examine the implications of the layers of disadvantage for those study children who not only have a parent living elsewhere but have little contact or support from them.

Endnotes
1 Other factors examined included whether the study children were in the B or K cohort, and the gender, employment status and education level of the primary parent. According to chi-square tests, these factors were not significantly different for those who gave permission compared to those who did not.

References


Associate Professor Maggie Walter is at the School of Sociology & Social Work, University of Tasmania, and Dr Belinda Hewitt is a Senior Research Fellow at the Institute for Social Science Research, University of Queensland.

This paper uses unit record data from the Longitudinal Study of Indigenous Children (LSIC). LSIC was initiated and is funded and managed by the Australian Government Department of Families, Housing, Community Services and Indigenous Affairs (FaHCSIA). The findings and views reported in this paper, however, are those of the authors and should not be attributed to FaHCSIA or the Indigenous people and their communities involved in the study.
Do individual differences in temperament matter for Indigenous children?
The structure and function of temperament in Footprints in Time

Keriann Little, Ann Sanson and Stephen R. Zubrick

It is well known that Aboriginal and Torres Strait Islander (hereafter Indigenous) people suffer disproportionately from a range of physical and mental health issues (Thomson et al., 2012). Understanding the origin of these problems is fundamental to the development of effective policy, prevention and interventions that would “close the gap” in health and wellbeing between Indigenous and non-Indigenous people. Given the connection between adjustment in early childhood and later wellbeing (Power & Hertzman, 1997; Rutter, 1991), it is critical to identify factors that promote socio-emotional adjustment for Indigenous children. Research to date that has examined influences on adjustment in Indigenous children has most often focused on the effect of environmental factors, particularly those relating to social disadvantage or disparities in physical health (Priest, Mackean, Waters, Davis, & Riggs, 2009). Significantly less is known about the contribution of more normative psychological processes to socio-emotional wellbeing.

Studies of children from Western backgrounds have indicated that temperament may play an important role in children’s wellbeing (e.g., Rothbart & Bates, 1998). At this stage, however, there is very little research on the nature and importance of temperament for Indigenous children. Drawing on data on children’s temperament style and socio-emotional wellbeing from Footprints in Time: The Longitudinal Study of Indigenous Children (LSIC), this study investigated the structure of temperament in Indigenous children as well as how temperament, along with parenting style, might be linked to their later emotional and behavioural adjustment. Where possible, comparisons were made with data from Growing Up in Australia: The Longitudinal Study of Australian Children (LSAC).

Social and emotional adjustment in childhood

The connection between children’s early emotional and social adjustment and later
wellbeing is well established, with early behaviour providing good “signals” of later outcomes (Buchanan, Flouri, & Ten Brinke, 2002; Rutter, Kim-Cohen, & Maughan, 2006). In particular, when children experience emotional and behavioural problems in their early years, there is potential for these difficulties to become entrenched and affect their later development (Fischer, Rolf, Hasazi, & Cummings, 1984; Roza, HoFstra, Ende, & Verhulst, 2003). The most common difficulties encountered in early childhood are typically categorised as externalising problems (aggression, oppositional behaviours and hyperactivity) and internalising problems (anxious, depressed and withdrawn behaviours) (Carter et al., 2010; Hawes & Dadds, 2004). Questionnaire scales have been developed to measure these domains, including the well-established Strengths and Difficulties Questionnaire (SDQ) (Goodman, 1997). Parents using these scales have been shown to be valuable informants on their young children’s behaviour (Hawes & Dadds, 2004).

Exploring the nature of temperament in Indigenous children

Temperament refers to stable, constitutionally based characteristics or behavioural styles that may be evident from birth (see review by Sanson, Hemphill, & Smart, 2004). While they have biological roots, they are not set in stone; environments and contexts may promote or discourage the display of particular traits. Research into the underlying elements (structure) of child temperament has consistently identified three broad factors, namely:

- **Approach-Sociability** (or simply **Approach**)—the child’s degree of comfort when encountering new situations or people;
- **Persistence**—the child’s capacity to self-regulate and see tasks through to completion; and
- **Reactivity**—how intense and emotionally volatile the child is.

With young children, these dimensions are typically assessed by parents or other primary caregivers who have the best opportunity to observe their child across time and across contexts. Written questionnaires are most often used.

To the extent that it is biologically based, it would make sense for temperament structure to be culturally invariant, such that the same dimensions are relevant for describing temperament across cultures. Indeed, cross-cultural comparisons have provided evidence of the same temperament structure for children from the United States, Australia, Europe and Asia (Bates & Pettit, 2007; Deater-Deckard & Dodge, 1997; Schwartz, Snidman, & Kagan, 1999). However, the existence of the same dimensions does not mean that children in different cultures necessarily exhibit these traits to the same degree. Given that temperament can be influenced by the environment, it might in fact be expected that children from some cultures would have “more” of a specific trait than those from other cultures. To date, research that has assessed the same dimensions across cultures has generally observed minimal if any differences, with similar proportions of children from different backgrounds being shy and sociable, emotionally reactive and calm, and persistent and non-persistent (Putnam, Sanson, & Rothbart, 2002; Russell, Hart, Robinson, & Olsen, 2003).

The nature of temperament in Indigenous children in Australia has not previously been investigated. Hence, the first aim of this study was to investigate whether the same dimensions of child temperament found in other cultures could be identified in Indigenous children, as well as whether Indigenous and non-Indigenous children showed similar levels of these traits. Given the biological basis and observed cultural invariance of temperament, the same dimensions of Approach, Persistence and Reactivity were expected to emerge for Indigenous children as for non-Indigenous children. Indigenous and non-Indigenous children were also expected to have generally similar scores on the three traits.

The role of temperament and parenting in psychosocial adjustment

Intrinsic child characteristics such as temperament, along with environmental factors such as parenting, have been shown to play contributory roles in the development of childhood behavioural problems. While temperament is, at least in theory, value-neutral (i.e., characteristics are neither “good” nor “bad” within themselves), certain temperamental traits may fit differently with particular environmental demands, cultural norms and beliefs. Traits that may be perceived as difficult or problematic in one environment or culture may be regarded as desirable in another—for example, shyness is viewed more positively and associated with better outcomes in Eastern than in Western cultures (Chen, Rubin, & Sun, 1992).
In Western cultures, certain temperamental traits have been found to be associated with specific emotional and behavioural problems (for reviews, see Bates & Pettit, 2007; Sanson et al., 2004). In general, greater inhibition and shyness has been linked with internalising problems; lower self-regulation or persistence has been observed to be related to externalising problems; and higher emotional reactivity or volatility predicts both kinds of adjustment difficulties.

Parents are also known to be critically important influences on children’s wellbeing. Two realms of parenting that have been found to have significant consequences for children’s development are parental warmth (the extent to which a parent conveys love, acceptance, emotional availability and enjoyment of their child) (Rapee, 1997) and harsh discipline (the extent to which parenting reflects overt negative feelings—including criticism and rejection—and involves coercive acts and punitive punishment) (Arnold, O’Leary, Wolff, & Acker, 1993). Low levels of parental warmth have been linked with emotional problems such as anxiety and depression, as well as aggressive, oppositional behaviour (McLeod, Weisz, & Wood, 2007; Stormshak, Bierman, McMahon, Lengua, & Group, 2000), while high levels of parental harsh discipline have been implicated in the development of both internalising and externalising problems (Chang, Schwartz, Dodge, & McBride-Chang, 2003; Cowan & Cowan, 2002). The match, or “goodness of fit”, between parenting style and child temperament (Chess & Thomas, 1989, p. 380) may also be an important factor in predicting emotional or behavioural problems. For example, highly reactive children who receive hostile, harsh parenting may be particularly susceptible to developing problems with aggression (e.g., Morris et al., 2002).

This research has generally been conducted with population-based samples of children from Western countries, and it is not yet known whether more “difficult” child temperament, sub-optimal parenting style or a poor match between the two pose similar risks for Indigenous children from Australia. The second aim addressed in this study was therefore to examine the associations between temperament, parenting and emotional and behavioural adjustment. We hypothesised that similar relationships to those found in other populations would be observed in Indigenous children; specifically, that:

- more unsociable, shy children at 4.5–5.5 years old would have greater risk of internalising (emotional) problems at 5.5–6.5 years;
- more emotionally volatile, reactive children at 4.5–5.5 years old would have greater risk of later internalising problems and externalising (both conduct and inattention/hyperactivity) problems at 5.5–6.5 years;
- less persistent children at 4.5–5.5 years old would have greater risk of externalising problems at 5.5–6.5 years, particularly difficulties with inattention/hyperactivity;
- children whose parents displayed lower levels of warmth at 3.5–4.5 years old would be at greater risk of internalising problems and conduct problems at 5.5–6.5 years; and
- children who received high levels of hostile, harsh discipline at 3.5–4.5 years old would be more vulnerable to both internalising and externalising problems at 5.5–6.5 years.

The possibility that temperament and parenting might interact in their effects on emotional and behavioural adjustment was also considered. We hypothesised that:

- shy, unsociable children who received low levels of parental warmth would be particularly vulnerable to internalising problems;
- emotionally volatile children who received high harsh discipline would be particularly at risk for conduct problems; and
- children with low persistence who received high harsh discipline would be particularly susceptible to problems of inattention/hyperactivity.

LSIC, which has followed the progress of a large group of Aboriginal and Torres Strait Islander children since 2008, is a particularly useful dataset for examining the nature and function of temperament in Indigenous children. Significant time and effort has been devoted to ensuring that data is collected in a culturally appropriate manner while still permitting comparisons with data from the broader Australian community (Department of Families, Housing, Community Services and Indigenous Affairs [FaHCSIA], 2009). This has involved adapting well-validated questionnaires used in Western populations for use with Indigenous participants, both in terms of wording and modes of administration. While this is appropriate and necessary, it means that methodological issues need to be carefully considered when analysing the data (see Box 1).
Box 1: Measuring temperament in Indigenous children

One of the challenges of cross-cultural research is ensuring that relevant constructs are measured in a culturally appropriate way while maintaining scientific rigour and allowing for meaningful comparisons across studies and population. As described in the Measures section, temperament was assessed with a shortened version of the STSC, with a change in mode of administration from a written questionnaire to a structured oral interview. Our first task was therefore to conduct a careful examination of the LSIC temperament questionnaire data, rather than assuming that it would operate similarly to other studies.

We started with a detailed look at response distributions for each item, which showed that rescaling was necessary. We then examined a number of possible reasons for the unexpected item distributions.

Response distributions

Responses on STSC items are expected to roughly follow a bell-shaped normal curve, with most children rated as around average (ratings of 3 and 4 on the 6-point scale) and few children rated at either extreme (ratings of 1 or 6). This distribution was found in LSAC data. However, responses in the LSIC sample tended to be flatter, and often trimodal, with response peaks at 1 (“almost never”), 4 (“usually does not”) and 6 (“almost always”). This is illustrated in the three example items in Box Figure 1, with LSAC data for comparison.

This unexpected pattern did not support our prediction that temperament scale responses for Indigenous and non-Indigenous children would be similar, and had ramifications for all subsequent explorations of the psychometric qualities of the STSC. It suggested that averaging item responses across the six response categories to form scores for each dimension was inappropriate for the LSIC cohort, a finding that may have relevance also for other orally presented Likert-style responses in LSIC. Possible reasons for the differences in response distributions are discussed below.

Explanations for differences in response distributions

We explored several possible explanations for why LSIC parents responded differently to LSAC parents, with greater endorsement of extremes on the rating scale. First, we considered whether these differences could reflect a serial position effect (Ebbinghaus, 1913), such that LSIC parents better remembered
exploration of similarities and differences in temperament and socio-emotional adjustment across these groups.

Overview of Footprints in Time: The Longitudinal Study of Indigenous Children (LSIC)

LSIC is a longitudinal study of 1,687 Aboriginal and Torres Strait Islander children, conducted by FaHCSIA. An Australian Government initiative, LSIC is governed by the Footprints in Time Steering Committee, chaired by Professor Mick Dodson AM. There has been extensive consultation with Indigenous peoples, communities and organisations, both prior to and throughout the study, around the development of the study’s design and content. Since the study’s commencement in 2008, LSIC has followed the annual progress of two cohorts of Indigenous children: a birth (B) cohort of infants who were 6–18 months old at the commencement of the study, and a kindergarten (K) cohort of children who were 3.5–4.5 years old.

LSIC used a purposive non-random clustered sampling design, which involved the invitation of eligible families from 11 sites around Australia to participate, following agreement and approval from communities and Elders. Sites were selected to represent the range of socio-economic and community environments where Indigenous children live.

The study investigates similar domains to LSAC, including child temperament, behavioural and emotional adjustment, health, social skills,
academic progress and family relationships, as well as broader family functioning, parenting practices and family socio-demographic background. Issues specific to Indigenous children are also assessed. Three waves of data have been collected up to the year 2011 through face-to-face interviews conducted in the home with the primary caregivers (primarily biological mothers), child assessments and teacher and child care provider questionnaires. The current project drew on the first three waves of data from the older K cohort based on the reports of their primary carer, with sample sizes of 719 in Wave 1, 655 in Wave 2 and 589 in Wave 3. At Wave 1, 90% of the primary carers were biological mothers, 3.7% were biological fathers, 3.6% were grandparents, 1.7% were aunts or uncles and 0.9% were adoptive or foster parents.

Overview of Growing Up in Australia: The Longitudinal Study of Australian Children (LSAC)

LSAC follows the development of about 10,000 children and their families from all Australian states and territories (Gray & Smart, 2008). The study commenced in 2004, with two cohorts of children aged 0–1 years (B cohort) and 4–5 years (K cohort) about whom new information is gathered every two years.

LSAC used a clustered, stratified design, with children randomly selected to participate based on their postcodes, and initial contact being through letters from Medicare. This sampling method meant that children in remote areas, especially those who were Indigenous, were less likely to be selected (Hunter, 2008). Thus, while the study is broadly representative of Australian children, the Indigenous children who were recruited into the study were more likely than the general Indigenous population to live in urban areas. This needs to be borne in mind in making comparisons between the Indigenous and non-Indigenous children in LSAC and the Indigenous children of LSIC. It is worth noting that, in 2006, 75% of Indigenous people in Australia lived in non-remote areas (major cities or regional areas) and 25% in remote areas (Australian Bureau of Statistics [ABS], 2008).

The data used here are from the LSAC B cohort, collected in 2008 in Wave 3 when the children were between 4 and 5 years old. Responses were received from 3,831 families (a response rate of 87%). Of these, 115 (3%) were Indigenous.

Measures

Temperament

Temperament was measured in both LSIC and LSAC with a shortened, 12-item version of the Short Temperament Scale for Children (STSC) (Prior, Sanson, Smart, & Oberklaid, 2000). Four items assessed each of the three temperament dimensions of Approach (e.g., will approach unknown children in parks or when visiting and join in play), Persistence (e.g., likes to complete one task before going on to the next) and Reactivity (e.g., if upset it is hard to comfort him/her). Temperament was measured in the B cohort of LSAC children at Wave 3 when they were 4–5 years old, and in the K cohort of LSIC children at Wave 2, when they were 4.5–5.5 years old.

For LSIC, the standard written administration of the scale (as used in LSAC) was changed to oral administration, with items being read aloud to parents during the face-to-face interview. To better fit this modality, items were changed from statements to questions. Parents then responded orally, using the same 6-point scale as on the written questionnaire, where 1 = “almost never” and 6 = “almost always”. Due to the differences in item distributions described in Box 1, responses in both studies were later collapsed into a 3-point scale, such that 1 = “not much”, 2 = “sometimes” and 3 = “often”. Items on each scale were summed and divided by the number of items responded to, so scores ranged from 1 (reflecting a low level on the temperament trait) to 3 (reflecting a high level).

Parenting

Parenting in LSIC was measured at Wave 1 when the K cohort children were 3.5–4.5 years old, with 10 items that were specifically developed for the study. Items were administered orally during the interview. The items were rated on a 5-point scale, where 1 = “never” and 5 = “always”. A factor analysis to identify the underlying constructs tapped by these 10 items suggested that three items measured a construct that was labelled “parental warmth”. These items asked how often parents hugged or held their child for no particular reason, and enjoyed doing things together with them. Another four items tapped a construct that was labelled “harsh discipline”, referring to how often parents yelled or shouted when telling off their child, used smacking or time out for misbehaviour, and punished their child for continuing to do something wrong. The remaining three items did not form a
Results suggest higher levels of emotional and behavioural problems in Indigenous children, which were particularly notable in LSIC children.

coherent factor and were therefore excluded from analyses.

As different measures were used to assess parenting in LSAC, direct comparisons were not possible between LSAC and LSIC and hence are not examined in this study.

**Emotional and behavioural adjustment**

The Strengths and Difficulties Questionnaire (SDQ) was used to measure emotional and behavioural adjustment in both LSIC and LSAC (with the data used here being collected at age 5.5–6.5 years for LSIC, and 4–5 years for LSAC). The SDQ has been found to be culturally acceptable (Morris et al., 2002) and was used in the Western Australian Aboriginal Child Health Study (Zubrick et al., 2005), but it has not yet been validated against clinical diagnosis. In LSIC, the scale was administered orally instead of the usual written form used in LSAC (as for temperament and parenting).

Items in the SDQ can be used to derive the subscales of “emotional problems”, which targets anxiety, depression and withdrawal behaviours (5 items, e.g., has often seemed unhappy, sad or tearful); “conduct problems”, such as lying, stealing, defiance and temper tantrums (5 items; e.g., has often had temper tantrums); and “hyperactivity/inattention”, such as significant problems with restlessness, impulsivity and maintaining attention and concentration (5 items; e.g., has been constantly fidgeting or squirming). Response categories were 0 = “not true”, 1 = “somewhat true”, and 2 = “certainly true”. The items were totalled to provide a score out of 10 for each scale. Based on cut-off scores provided by Goodman (2001), scores of 5 and above on emotional problems, 4 and above on conduct problems and 7 and above on hyperactivity/inattention were considered to indicate high risk for clinically significant difficulties.

**Findings**

**Question 1: The nature of temperament in Indigenous 4.5–5.5 year old children**

Given that temperament has not previously been assessed in a large sample of young Indigenous children, our first task was to examine the temperament data in detail to ensure its meaningfulness and scientific soundness with this population. As described in Box 1, this revealed a number of unexpected differences compared to other studies including LSAC, reinforcing the importance of careful scrutiny.

Given the non-normal distribution of the data, it was not appropriate to use factor analysis to explore the structure of temperament in LSIC children. Instead, the relationship between temperament items was explored by fitting a Euclidean distance model via multidimensional scaling. Figure 1 provides a graphical depiction of the relationships between the items, by placing them in two-dimensional space. A dimension reduction algorithm calculates locations of the items in space according to the “similarity” or “dissimilarity” of responses among the items. If two items are placed close together, this indicates that parents who reported a high score on one item were likely to report a high score on the other. The results show that individual items measuring Approach are located close together, as are the items measuring Persistence and Reactivity. This suggests that it is appropriate to group items into an Approach scale, a Persistence scale and a Reactivity scale, as expected and similar to other studies such as LSAC.

As discussed in Box 1, the trimodal response distributions for individual temperament items suggested that the 6-point scale was not appropriate for LSIC. We therefore re-scaled responses to create a 3-point scale. Original scale points 1 (“almost never”) and 2 (“not often”) were merged to create a new point 1 (“not much”); original scale points 3 (“usually does not”) and 4 (“usually does”) became 2 (“sometimes”), and points 5 (“frequently”) and 6 (“almost always”) became 3 (“often”). This resulted in a more normal, albeit relatively flat, distribution of responses on the individual items that was sufficient to allow further analysis. In order to allow cross-study comparisons, the same recoding was undertaken with LSAC data.

Mean (average) scores and standard deviations on temperament ratings for the LSIC children, Indigenous children from LSAC and non-Indigenous children from LSAC are displayed in Figure 2. Children in all three groups scored around the mid-point on Approach and Persistence, suggesting that the “typical” child in each of these groups showed similar temperament styles, being sometimes sociable and persistent and sometimes not. Children from LSIC, however, were rated slightly higher on Reactivity (M = 1.93, SD = 0.53) than children from LSAC (Indigenous children: M = 1.56, SD = 0.45; non-Indigenous: M = 1.55, SD = 0.43). Indigenous children from LSIC scored around the midpoint on Reactivity, suggesting that they were reactive at times but at other times were more placid. Both Indigenous and non-Indigenous children from LSAC were perceived to be a little below the midpoint on Reactivity, indicating that they were usually not reactive.
However, as indicated by the overlapping standard deviations, the differences between groups did not appear statistically significant. The larger standard deviations in the LSIC group indicate that there was more variability within this group than the other groups.

Question 2: The function of temperament in Indigenous children—how is it associated with later adjustment?

Our second question was how temperament, along with parenting, predicted later adjustment as measured by the SDQ scales of emotional problems, conduct problems and inattention/hyperactivity. The mean level of parent-reported emotional problems at age 5.5–6.5 years was relatively low among children in LSIC ($M = 2.42, SD = 2.02$) but somewhat higher than that for both non-Indigenous and Indigenous 4–5 year old children from LSAC, who were comparable to each other (LSAC Indigenous: $M = 1.51, SD = 1.56$; LSAC non-Indigenous: $M = 1.41, SD = 1.49$). The three groups displayed generally similar mean levels of conduct problems (LSIC: $M = 2.41, SD = 1.95$; LSAC Indigenous: $M = 2.65, SD = 1.97$; LSAC non-Indigenous: $M = 2.13, SD = 1.77$). Children from LSIC and Indigenous children from LSAC were rated as being more inattentive/hyperactive than the non-Indigenous children from LSAC, with difficulties being particularly pronounced in the LSIC cohort (LSIC: $M = 4.60, SD = 2.50$; LSAC Indigenous: $M = 3.90, SD = 1.99$; LSAC non-Indigenous $M = 3.25, SD = 2.08$).

The percentages of children above the cut-offs for risk of clinically significant difficulties in the three groups (see Table 1) reflect the trend for higher levels of reported difficulties in LSIC children, and also to some extent in Indigenous children in LSAC. In LSIC, 15.6% of children...
were rated as being at high risk of clinically significant emotional problems, compared to 3.5% and 4.6% of Indigenous and non-Indigenous LSAC children respectively. Risk for clinically significant hyperactivity/inattention difficulties was also much greater in LSIC children, with almost a quarter of the cohort (22.5%) falling into this category compared to 12.2% of LSAC Indigenous children and 7% of LSAC non-Indigenous children. The proportion of children at high risk of clinically significant conduct problems was high across all three groups, but particularly in the two Indigenous cohorts (26.8% in LSIC children and 28.7% in LSAC Indigenous children, compared to 20.5% in LSAC non-Indigenous children).

In summary, results on the SDQ suggested higher levels of emotional and behavioural problems in Indigenous children, which were particularly notable in LSIC children. The difference in mode of administration of the SDQ, and the differences in group ages, should be borne in mind in interpreting these results. It should also be noted that by far the majority of children in each of the groups did not show high risk for emotional or behavioural difficulties.

**Parenting in LSIC**

Given that parenting is a critical environmental influence on children’s outcomes, we included the measures of parental warmth and parental harsh discipline in analyses investigating the role of temperament in predicting later adjustment. The mean score of 4.68 (SD = 0.51) on the parental warmth scale suggested that the “typical” LSIC parent was very affectionate and enjoyed high levels of emotional connectedness with their child. The mean score of 2.74 (SD = 0.81) on harsh discipline

<table>
<thead>
<tr>
<th>Percentage of children with clinically significant difficulties</th>
<th>LSIC (5.5–6.5 years, n = 589)</th>
<th>LSAC Indigenous (4–5 years, n = 114)</th>
<th>LSAC non-Indigenous (4–5 years, n = 3,708)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emotional problems</td>
<td>15.6</td>
<td>3.5</td>
<td>4.6</td>
</tr>
<tr>
<td>Conduct problems</td>
<td>26.8</td>
<td>28.7</td>
<td>20.5</td>
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<tr>
<td>Hyperactivity/inattention</td>
<td>22.5</td>
<td>12.2</td>
<td>7.0</td>
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</table>

<table>
<thead>
<tr>
<th>Variable</th>
<th>Logistic regression predicting emotional problems</th>
<th>Logistic regression predicting conduct problems</th>
<th>Logistic regression predicting inattention/hyperactivity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender (1 = male)</td>
<td>Adjusted OR: 0.83 CI (95%): 0.51–1.33</td>
<td>Adjusted OR: 1.05 CI (95%): 0.71–1.55</td>
<td>Adjusted OR: 0.72 CI (95%): 0.47–1.10</td>
</tr>
<tr>
<td>Parent household income after tax</td>
<td>Adjusted OR: 0.94 CI (95%): 0.82–1.07</td>
<td>Adjusted OR: 0.91 CI (95%): 0.81–1.01</td>
<td>Adjusted OR: 0.97 CI (95%): 0.87–1.9</td>
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<tr>
<td>Temperament</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Approach</td>
<td>Adjusted OR: 0.57* CI (95%): 0.37–0.88</td>
<td>Adjusted OR: 1.14 CI (95%): 0.81–1.61</td>
<td>Adjusted OR: 1.49* CI (95%): 1.03–2.17</td>
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<tr>
<td>Persistence</td>
<td>Adjusted OR: 0.68 CI (95%): 0.44–1.05</td>
<td>Adjusted OR: 0.66* CI (95%): 0.46–0.95</td>
<td>Adjusted OR: 0.32*** CI (95%): 0.21–0.48</td>
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<tr>
<td>Reactivity</td>
<td>Adjusted OR: 2.61*** CI (95%): 1.66–4.10</td>
<td>Adjusted OR: 2.36*** CI (95%): 1.62–3.43</td>
<td>Adjusted OR: 1.86* CI (95%): 1.24–2.79</td>
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<tr>
<td>Parenting</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Warmth</td>
<td>Adjusted OR: 0.59* CI (95%): 0.36–0.97</td>
<td>Adjusted OR: 0.52** CI (95%): 0.35–0.78</td>
<td>Adjusted OR: 0.96 CI (95%): 0.61–1.55</td>
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<tr>
<td>Harsh discipline</td>
<td>Adjusted OR: 0.87 CI (95%): 0.62–1.22</td>
<td>Adjusted OR: 1.21 CI (95%): 0.93–1.57</td>
<td>Adjusted OR: 1.31 CI (95%): 0.98–1.75</td>
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<td>Step 3</td>
<td></td>
<td></td>
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<tr>
<td>Approach X Parental warmth</td>
<td>Adjusted OR: 1.23 CI (95%): 0.47–3.18</td>
<td>Adjusted OR: 0.51 CI (95%): 0.22–1.15</td>
<td>Adjusted OR: 1.38 CI (95%): 0.56–3.38</td>
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<td>Approach X Parental harsh discipline</td>
<td>Adjusted OR: 0.96 CI (95%): 0.55–1.69</td>
<td>Adjusted OR: 1.16 CI (95%): 0.75–1.80</td>
<td>Adjusted OR: 1.88* CI (95%): 1.15–3.10</td>
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<td>Persistence X Parental warmth</td>
<td>Adjusted OR: 1.00 CI (95%): 0.43–2.35</td>
<td>Adjusted OR: 1.32 CI (95%): 0.61–2.86</td>
<td>Adjusted OR: 1.48 CI (95%): 0.61–3.57</td>
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<tr>
<td>Persistence X Parental harsh discipline</td>
<td>Adjusted OR: 0.96 CI (95%): 0.56–1.62</td>
<td>Adjusted OR: 0.77 CI (95%): 0.50–1.18</td>
<td>Adjusted OR: 1.12 CI (95%): 0.68–1.85</td>
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<tr>
<td>Reactivity X Parental warmth</td>
<td>Adjusted OR: 1.69 CI (95%): 0.69–4.11</td>
<td>Adjusted OR: 1.38 CI (95%): 0.62–3.03</td>
<td>Adjusted OR: 1.42 CI (95%): 0.60–3.36</td>
</tr>
<tr>
<td>Reactivity X Parental harsh discipline</td>
<td>Adjusted OR: 1.62 CI (95%): 0.95–2.77</td>
<td>Adjusted OR: 1.24 CI (95%): 0.80–1.93</td>
<td>Adjusted OR: 1.05 CI (95%): 0.64–1.72</td>
</tr>
</tbody>
</table>

Notes: * p < .05; ** p < .01; *** p < .001.
We used three logistic regression analyses to explore connections between child temperament at age 4.5–5.5 years, parenting at age 3.5–4.5 years, and clinically significant emotional problems, conduct problems and hyperactivity/inattention at age 5.5–6.5 for participants with data on the adjustment outcomes (see Table 2). Gender and family income were entered at the first step to control for their effects, followed by the three temperament dimensions of Approach, Persistence and Reactivity, and two parenting dimensions of warmth and harsh discipline in the second step, and all interactions between temperament and parenting entered in the final step. All predictors except for gender were continuous measures. The Expectation-Maximisation algorithm was used to account for missing data.

The results of logistic regressions are expressed in terms of odds ratios (OR). ORs provide a relative measurement of risk by telling us how much more likely it is that a person experiencing one particular condition (e.g., greater levels of parental harsh discipline) will develop the outcome of interest (e.g., emotional problems), compared to someone with reduced exposure to that condition. When OR = 1, this suggests that the condition does not affect the outcome, while an OR > 1 indicates that the condition is associated with greater risk (higher odds) of the outcome. An OR < 1 denotes a reduced level of risk (lower odds). Confidence intervals (CI) provide an indication of the statistical significance of the OR. When the CI contains the value of “1”, which corresponds to the value of “no effect”, we cannot be certain that the OR represents a statistically significant altered risk. The results are summarised below. Neither gender nor family income predicted any of the three emotional and behavioural outcomes. In terms of temperament assessed one year previously:

- More outgoing, gregarious LSIC children (at the high end of the Approach scale) appeared to be at approximately half the risk of emotional problems ($OR = 0.57$, $CI = 0.37–0.88$, $p < 0.05$) of their shyer counterparts. The only significant interaction between temperament and parenting showed that these highly sociable children had increased susceptibility to problems of inattention/hyperactivity only when they received high levels of parental harsh discipline ($OR = 2.09$, $CI = 1.16–3.74$, $p < 0.05$). Approach did not predict conduct problems.
- LSIC children who displayed lower persistence were at approximately three times the risk for inattention/hyperactivity problems ($OR = 0.32$, $CI = 0.21–0.48$, $p < 0.001$), and just less than double the risk for conduct problems ($OR = 0.66$, $CI = 0.46–0.95$, $p < 0.05$). Persistence was not associated with emotional problems.
- Highly reactive children’s vulnerability to both emotional problems and conduct problems was more than double that of more placid children ($OR = 2.61$, $CI = 1.66–4.10$, $p < 0.001$ and $OR = 2.36$, $CI = 1.62–3.43$, $p < 0.001$ respectively). Highly reactive children also had close to twice the risk of inattention/hyperactivity difficulties ($OR = 1.86$, $CI = 1.24–2.79$, $p < 0.001$).

In terms of the relationship of parenting with problem outcomes two years later:

- Children who received higher levels of parental warmth had almost half the risk for emotional problems ($OR = 0.50$, $CI = 0.36–0.97$, $p < 0.05$) and conduct problems ($OR = 0.52$, $CI = 0.35–0.78$, $p < 0.01$), but warmth had no association with inattention/hyperactivity difficulties.
- In general, parental harsh discipline did not significantly increase risk for emotional and behavioural problems, though, as noted above, higher harsh discipline did increase vulnerability to inattention/hyperactivity for highly outgoing, gregarious children, suggesting that the “fit” between parenting and temperament played a role.

In summary, “temperament” was associated with all indicators of later emotional and behavioural adjustment, while “parental warmth” predicted two areas of difficulties and “harsh discipline” was only predictive for one outcome, when in interaction with temperamental Approach.

Discussion and implications

LSIC was designed to advance current understanding of how Indigenous children’s early years may affect their later development. The knowledge gained from LSIC will be important in guiding policy responses to “close the gap” in the lives of Indigenous children, their families and communities. The current study had a specific interest in temperament and psychosocial adjustment in Indigenous children. It sought to examine both the structure and the nature of temperament as well as the connection between temperament, parenting and later adjustment in the LSIC K cohort. Similar methodologies between LSIC and LSAC allowed comparisons of the temperament and emotional and behavioural adjustment of

Children who received higher levels of parental warmth had almost half the risk for emotional problems, and higher harsh discipline increased vulnerability to inattention/hyperactivity for highly outgoing, gregarious children.
three groups: Indigenous children from LSIC and Indigenous and non-Indigenous children from LSAC.

Our findings suggest similarities in temperament structure across Indigenous and non-Indigenous children, with the same three dimensions appearing in LSIC as in previous studies with the same instrument. There also appear to be similar average levels of the temperamental traits of Approach and Persistence in LSIC children and both Indigenous and non-Indigenous children in LSAC, while LSIC children demonstrated only slightly higher average levels of Reactivity.

However, examination of the individual item responses suggested that LSIC parents responded to the 6-point rating scale differently to LSAC parents. They were more likely to rate their children as more extreme (at both the “easy” and “difficult” ends of the continuum) on these temperamental traits than LSAC parents. As described in Box 1, we explored a variety of possible reasons for these differences, with no conclusive answers being apparent. Further research is required to determine whether Indigenous children do in fact show more extreme temperament traits, or whether the differences in response patterns reflect something else—perhaps, for example, a cultural preference for “yes/no” options rather than Likert-scale alternatives, particularly when items are administrated orally. The non-normal distribution of item responses required changes in the approach to analysis of these variables. Differences in the nature of parents’ responses also mean that interpretations of comparisons with other studies such as LSAC need to be made with care.

There was evidence that Indigenous children, particularly those from LSIC, experienced higher levels of emotional and behavioural problems, paralleling previous findings from the Western Australian Aboriginal Child Health Study (Zubrick et al., 2005). There was an age difference of approximately one year between the assessments of emotional and behavioural problems in the two studies. Available evidence suggests considerable stability in these problems over the period from 4 to 6 years old, and certainly no sharp increase over this period (Campbell, Shaw, & Gilliom, 2000; Luby et al., 2002), so age differences seem unlikely to explain the findings. Once again, the influence of mode of administration needs to be considered in interpreting these findings, as does the conceptual “meaning” of the items to the respondents. It is also possible that the difference in emotional and behavioural problems between Indigenous and non-Indigenous children could reflect demographic differences, such as differences in socio-economic status or parental education. Clearly these issues warrant further investigation. It is also worth reiterating, however, that most LSIC children did not show any signs of difficulties.

Despite it not being possible to make direct comparisons between LSIC and other studies, our findings regarding the contribution of temperament and parenting to later adjustment difficulties are broadly comparable with those of previous studies of non-Indigenous children, such as the Australian Temperament Project and LSAC (Smart & Sanson, 2008). First, there were strong associations between the temperamental trait of approach and later emotional problems, between persistence and both inattentiveness/hyperactivity and conduct problems, and between reactivity and all three types of difficulties, as hypothesised. Similar patterns have been found in previous studies. It therefore appears that temperament affects development in a similar way in Indigenous and non-Indigenous children, as expected. With regard to parenting, findings suggested that Indigenous parents were typically warm towards their children and did not rely heavily on harsh discipline techniques. Lower levels of parental warmth and higher harsh discipline were related to some aspects of emotional and behavioural adjustment, although not all hypothesised associations were found. In particular, the predicted interactions between parenting and temperament were not observed, though an unanticipated interaction between approach and parental harsh discipline was seen. Results were nevertheless comparable to findings from LSAC (Zubrick et al., 2008).

These associations reinforce the importance of individual differences in child temperament in the aetiology of childhood emotional and behavioural problems. The findings therefore emphasise the need for temperament to be taken into account when planning prevention and intervention efforts, and the importance of making support available to parents, particularly if their child has temperamental characteristics that may be difficult to manage. The finding that there is an interaction between harsh discipline and high approachability in increasing a child’s risk for hyperactivity/inattention is also a reminder of the importance of parents understanding their child’s temperament so that they can match their parenting to their child’s needs. Despite most LSIC children being rated as at low risk for adjustment problems, the emergence of significant levels of problems by 5.5–6.5 years of age is a strong signal for the need for better preventive and early intervention efforts.
The current study also highlighted the necessity of examining the basic characteristics of study data carefully before engaging in further analysis, especially when there are differences in sample characteristics and/or modes of data collection from previous research. These differences also complicate comparisons across studies, especially where the cultural background of respondents differs. Moreover, it is a reminder that while measures might be the same across studies, this does not guarantee that they tap identical constructs.

The question of equivalence of measures is a particular challenge for cross-cultural research, where there are often concerns about the validity of measures that have been developed for Western populations for use in other cultures. While it is important for measures to be similar enough to allow meaningful comparisons, it is equally important for measures to be culturally appropriate. It is important to acknowledge that there may be differences in the value placed on particular traits or constructs, and in perceptions about the appropriateness of specific behaviours at particular ages that may affect participants’ responses. It is also possible that the scales used to capture responses (e.g., scales with “sometimes” and “often”) may have a different meaning for individuals from different cultural groups, and there may be cultural differences in response preferences (e.g., for “yes/no” versus Likert responses). This study’s finding of similar functional relationships between temperament and adjustment in LSIC and LSAC, however, does suggest that while parents in the two studies might have responded differently on the original 6-point temperament scales, the three temperament dimensions of Approach, Persistence and Reactivity are in fact similar in meaning and significance across cultural contexts.

As with all longitudinal studies, there has been some attrition in LSIC; however, checks on the temperament and parenting of children with and without SDQ data at Wave 3 revealed no differences on these variables, suggesting that the effect of attrition on the findings of the logistic regressions was small. It should also be noted that all data used in this study was based on parent (generally maternal) report, which raises the question of potential reporter bias. For example, a parent’s own personality or current difficulties (such as experiencing a mental health condition) may affect the way that they view their child’s traits and behaviours (Fergusson, Lysneskey, & Horwood, 1993; Mednick, Hocevar, Baker, & Schulsinger, 1996). It is possible that this may account for some part of the association found between parents’ ratings of temperament, their own parenting, and their child’s emotional and behavioural problems over three waves of data. However, it is generally accepted that parents have a particular advantage in being able to observe a wide range of their child’s behaviour and that parent reports have acceptable validity compared to independent assessments (e.g., Pauli-Pott, Mertesacker, Bade, Haveroock, & Beckmann, 2003; Rothbart & Bates, 1998). It is also important to remember that any potential subjectivity in parental perceptions has consequences for children’s development given that a parent’s view of their child is likely to affect their interactions with the child (Mednick et al., 1996).

In summary, this study suggests that the structure and nature of temperament is similar in Indigenous and non-Indigenous preschool-aged children. Due to the unexpected response distributions to the items in the LSIC Wave 2 temperament scales, it is recommended that these data are not analysed as 6-point scales, but rather condensed to 3-point scales as was done here. Furthermore, the study suggests that equally careful scrutiny is given to all LSIC measures. While most LSIC children show good adjustment, the findings suggest concerning levels of emotional and behavioural difficulties at age 5.5–6.5 years, and show that temperament and to a lesser extent parenting, have a strong predictive association with them. The nature of these associations suggests that the roles of temperament and parenting are similar in the development of Indigenous children and non-Indigenous children, and point to an unmet need for effective prevention and early intervention efforts.

Endnotes

1 Given the non-normal distribution of the data, we initially explored the structure of temperament in the LSIC sample via confirmatory factor analysis using a weighted least squares estimation. This procedure is generally recommended for non-normal ordinal data. Unfortunately, the data proved unsuitable for modeling in this way, due to the relatively small sample size and evidence of failure to meet
the underlying assumption of bivariate normality in some of the item distributions. We therefore decided to explore the relationship between the temperament items via multidimensional scaling, as this type of analysis does not pose restrictions regarding multivariate normality. The Euclidian Distance model was selected as it is the “most natural distance function” (Borg & Groenen, 2005, p. 39).

2 The Euclidean model does not address the question of conceptual equivalence. Therefore it should not be assumed that the three temperament scales have the same meaning in LSIC as in other studies.

References


Hawes, D. J., & Dadds, M. R. (2004). Australian data and psychometric properties of the Strengths and


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This paper uses unit record data from the Longitudinal Study of Indigenous Children (LSIC) and from *Growing Up in Australia: The Longitudinal Study of Australian Children* (LSAC). LSIC was initiated and is funded and managed by the Australian Government Department of Families, Housing, Community Services and Indigenous Affairs (FaHCSIA). LSAC is conducted in partnership between FaHCSIA, the Australian Institute of Family Studies (AIFS) and the Australian Bureau of Statistics (ABS). The findings and views reported in this paper, however, are those of the authors and should not be attributed to FaHCSIA, AIFS, the ABS or the Indigenous Australians. The findings concern levels of emotional and behavioural difficulties at age 5.5–6.5 years, and show that temperamental, and to a lesser extent parenting, have a strong predictive association with them.
Child representatives in Hague Convention matters

A recent case in the High Court of Australia and the Family Court of Australia

The High Court of Australia recently considered the issue of separate child representation in matters arising from Australia’s obligations under the Convention on the Civil Aspects of International Child Abduction (the Child Abduction Convention), and held that the absence of a child representative did not constitute a denial of procedural fairness. In RCB v Forrest (the First Defendant) concerning the return of the children to Italy, the place of their habitual residence, under the Family Law (Child Abduction Convention) Regulations 1986, the Court held that a child’s view, and an assessment of the strength of that view and the maturity of the child, is adequately transmitted to the court via the appointment of a family consultant or other means.

The High Court proceedings arose in the context of several Family Court of Australia orders made by Forrest J (the First Defendant) concerning the return of the children to Italy, the place of their habitual residence, under the Family Law (Child Abduction Convention) Regulations 1986 (the Child Abduction Regulations). The events that surrounded the making of the (then) final return order by Forrest J were extensively publicised in the news media, and it is not the purpose of this article to add further commentary on those events. See Box 1 (on page 107) for a case chronology.

High Court decision

In RCB, the plaintiff (the aunt of the children subject to the Family Court proceedings acting as litigation guardian) argued that, although s 68L(3) of the Family Law Act 1975 makes sufficient provision, the court may order a child’s interests be independently represented by a lawyer in Convention matters, the restriction of this mechanism only to “exceptional circumstances” compels or allows the court to function contrary to the rules of natural justice. That is, that if a child is not routinely permitted to exercise a right to participate in the proceedings—and to be heard—via direct legal representation, the court has abdicated its responsibility to afford natural justice to that child.

A further limb of the plaintiff’s argument was that the appointment of an Independent Children’s Lawyer or preparation of a family report do not adequately meet the requirements of natural justice, as each of these mechanisms presents the view of the child through the filter of a third party whose role is not to advocate on behalf of the child, but to assist the court to form a view as to the child’s best interests.

Conversely, the Second Defendant (Director General, Department of Communities, Child Safety and Disability Services, the body responsible in this instance for managing the Hague Convention proceedings) argued the Family Law Act 1975 makes sufficient provision, both generally and specifically with respect to Hague Convention matters, to ensure the views of a child are put before the court where it is appropriate and warranted. That is, it would be erroneous to start with the assumption that a child should always be separately represented because there are a range of mechanisms, used at the discretion of the court, to enable the views of the child to be heard. The Second Defendant argued the absence of separate representation for the children in the matter at hand did not represent a denial of natural justice, but the appropriate operation of the rules in a case where the “exceptional circumstances” requirement was not made out.

In a unanimous decision, the High Court rejected the argument made on behalf of the children that natural justice required that they be represented by a legal practitioner bound to act on their instructions. It made the following observations:

This contention assumes that each child can be equated with a capable adult. It assumes that each child was capable of giving instructions to the ends described in the contention. (par. 51)

These assumptions are factually false in respect of many children. And they are legally incoherent in respect of most children. Contrary to the assumptions, unlike most capable adults, a child is almost invariably under the control of other people who owe the child legal duties. Inevitably, that child is vulnerable to their influence (par. 52).

Hague Convention proceedings in the family law courts: Key issues

Legislative framework

The question at the heart of these proceedings was whether the children should be returned to Italy. The Family Court proceedings concerned questions of jurisdiction under the Hague Convention, which is used to determine where a matter involving a dispute between parties in different signatory countries should be heard in circumstances where a child has been unlawfully removed (or retained) from their home country. They are not proceedings to determine broader questions in relation to the parenting arrangements for the child and do not involve the exercise of a best interests discretion. In distinguishing the matter from a domestic family law parenting proceedings, Forrest J noted in the decision of
3 October 2012 that it was not the Court’s responsibility to determine the children’s best interests or whether the children were better off living with one parent over another, and that to have done so would have been an error at law [4].

As a party to the Child Abduction Convention, Australia has obligations in accordance with the objects of that Convention to:

- secure the prompt return of children wrongfully removed to or retained in any Contracting State; and
- to ensure that rights of custody and of access under the law of one Contracting State are effectively respected in the other Contracting States.

Section 111B of the *Family Law Act 1975* and the Child Abduction Regulations set out the laws which give effect to Australia’s Convention obligations.

**Box 1: Background and case chronology**

The children’s mother is of Australian origin and the children’s father is an Italian citizen. The children were born in Italy and lived there until their mother brought them to Australia in 2010. The children’s parents separated, and in 2008, they made a separation agreement, in accordance with Italian law, to have joint custody of their four children (now aged between 9 and 15 years). In June 2010, the parents agreed that the mother was to bring the children to Australia for a one-month holiday. The mother and the children subsequently remained in Australia in contravention of the separation agreement.

In February 2011, at the request of the father, the Department of Communities, Child Safety and Disability Services filed an application under regulation 14 of the Regulations seeking a return of the children to Italy. The mother opposed the return and claimed, among other things, that the children objected to returning to Italy. Following the preparation of a family report and submission of other evidence as to the children’s views by the mother, Forrest J ordered on 23 June 2011 that the children be returned to Italy. His Honour found that the mother had not made out any of the defences to return under the Regulations.

The mother appealed the decision of Forrest J to the Full Family Court. This appeal was dismissed on 9 March 2012. On 4 May 2012, Forrest J ordered that the children be returned to Italy on a date not before 16 May 2012. In light of evidence that the children had already been relocated in contravention of that return order, on 14 May 2012 Forrest J issued warrants for possession of the children pursuant to regulation 31 of the Regulations. These orders also stipulated that the children should be placed in foster care pending their return to Italy.

On 15 May 2012, the mother applied for a discharge of the return orders under regulation 19A of the Regulations. On 16 May 2012, the children’s maternal aunt sought leave to intervene in the application to discharge the return orders as litigation guardian for the children. Forrest J dismissed each of these applications.

On 26 June 2012, the mother filed a further application to discharge the return orders as well as the other orders made by Forrest J that the children live in foster care. The children’s maternal aunt sought to be appointed as the children’s case guardian pursuant to rule 6.10 of the *Family Law Rules 2004*. The children sought, pursuant to section 92 of the *Family Law Act 1975*, to intervene in the proceedings via their case guardian. The children wished to agitate a case precisely in the same terms as that put to the court by their mother. On 6 July 2012, Murphy J made orders that the children be returned to the care of their mother pending determination of the proceedings in the High Court, but refused the application that the aunt be appointed as a case guardian and also refused the children’s application to intervene in the proceedings via their case guardian.

On 7 August 2012, the High Court dismissed the proceedings initiated by the maternal aunt, acting as the children’s litigation guardian. Following the High Court decision, the mother filed a further application in the Family Court for discharge of the return orders made by Forrest J and, after seeking new reports from the family consultant, on 3 October 2012 Forrest J dismissed the application and ordered the children to return to Italy.

On 5 October 2012, the children returned to Italy. The mother remained in Australia.
In Department of Communities (Child Safety Services) & Garning [2011] FamCA 485, at the request of the children’s father, the (now) Queensland Department of Communities, Child Safety and Disability Services initiated proceedings to have the children returned to Italy under regulation 15 of the Regulations. Pursuant to regulation 16 of the Regulations, where a child has been “wrongfully” removed, and the application is made within one year of the child being removed, a court must order the return of that child to the jurisdiction of their habitual residence. A removal is wrong if the person seeking the child’s return had custody rights in relation to that child, was exercising those rights (or would have exercised them if the child had not been removed), and the removal breaches those rights.

A court may refuse to make a return order if the person opposing the return satisfies one or more of the exceptions set out at regulation 16(3) of the Regulations. Relevantly in this matter, the exceptions include where a child (a) objects to being returned; and (b) the objection shows a strength of feeling beyond the mere expression of a preference or of ordinary wishes; and (c) has attained an age and degree of maturity at which it is appropriate to take account of their views.

Additionally, once a return order is made, an application can be brought under Regulation 19A for the order to be discharged. The scope for discharging an order is limited to circumstances where (a) the parties consent to the order being discharged; or (b) there are new circumstances that make carrying out the order impracticable; or (c) there are exceptional circumstances; or (d) the day on which the application for discharge is made is more than one year after the return order was made or related appeal determined.

Where proceedings arise under section 111B of the Family Law Act, section 68L(3) of the Family Law Act provides that a court may order that the child’s interests be independently represented by a lawyer if there are exceptional circumstances. For the purposes of both regulation 19A of the Regulations and section 68L(3), what constitutes exceptional circumstances is at the discretion of the court, but is often treated as something more than “unusual”. 3

Key issues

In the earlier Family Court proceedings (reported as Department of Communities (Child Safety Services) & Garning [2011] FamCA 485), the mother put forward several arguments opposing the application for return orders, including that the children objected to returning to Italy. Forrest J ordered reports from a Family Consultant, and the mother adduced evidence from a psychologist who interviewed the children in order to ascertain their views. No order for an Independent Children’s Lawyer was made, pursuant to section 68L(3), Forrest J found there were no exceptional circumstances. Forrest J notes in the decision ordering the children’s return that, although the children had expressed a preference to remain in Australia with their mother, “I do not find that the children’s objections show a strength of feeling beyond the mere expression of a preference or of ordinary wishes” [118].

Protracted original and appellate proceedings followed the making of this return order by Forrest J. The central, but not necessarily sole, issue in each of these proceedings was the children’s objection to being returned. Interestingly, the issue of procedural fairness that formed the basis of the High Court appeal was not raised in earlier proceedings. In the ultimate decision on 3 October 2012 Garning & Department of Communities, Child Safety and Disability Services and anor [2012] FamCA 839, Forrest J observed that the strength of the children’s objections had increased in the twelve months or so between the original return order and the time the final appeals were heard. This was noted as being unsurprising, given the circumstances of the matter [43]. Forrest J was critical of the conduct of the mother and maternal relatives (particularly the maternal great-grandmother) and was cognisant of the influence of their conduct on the children’s views [e.g., 49–50]. Forrest J also noted that a significant reason for the children’s objection to returning was a belief that the mother could not return with them, but found this to be an insufficient reason to avoid their return [53].

Apart from the appellate proceedings, the mother also made several applications, pursuant to regulation 19A of the Regulations, that the return order be discharged. These applications principally relied on two of the available exceptions: that carrying out the order is impracticable and/or there are exceptional circumstances that warrant discharging the order. Ultimately, there were two elements to the mother’s arguments on these issues. The first was that the strength of the children’s objection manifested in “escalating psychological distress”, which constitutes an exceptional circumstance that justifies discharge of the order [44]. The second was that the mother was unable to return to Italy for both economic reasons and a fear of being arrested, criminally prosecuted and imprisoned for having retained the children in Australia. Forrest J dismissed each of these grounds as unfounded, unexceptional or not genuine impediments to return. Forrest J noted the decision of Butler-Sloss LJ in Re C (A Minor) (Abduction)4 in which her Ladyship stated that, in a situation where a risk of harm to a child is created by a parent who is refusing to
accompany that child back to their country of habitual residence, the parent could not then rely on that risk to defeat an order of return. In relation to the mother’s economic circumstances, Forrest J had made the original return order conditional upon a cash payment by the father to the mother to assist with her immediate financial support upon arrival, should she opt to also return with the children [51, 58–59].

The original order thus stood and the children were returned to Italy on 5 October 2012.

How can social science research be used in judicial determinations?

The Family Violence Best Practice Principles acknowledge that courts may be assisted by evidence about current social science and medical research when determining the effects of family violence on “child development, child health and parental capacity” (Section F). The question arises as to how this evidence may be used by judicial officers in family law disputes.

The Full Court of the Family Court of Australia has recently considered the question of the admissibility of academic opinion in McGregor and McGregor [2012] FamCAFC 69. In this case, Bryant CJ, Faulks DCJ and Ainslie-Wallace J upheld an appeal by a father against a decision of the Federal Magistrates Court, in circumstances where the parenting orders were made with reliance on academic literature about “parental alienation”. Federal Magistrate O’Dwyer referred to the academic literature summarised in Fidler and Bala (2010) when concluding that the case before him was a “classic case of parental alienation perpetuated by the husband against the wife” [15] (citing [41] of the Federal Magistrates reasons). Federal Magistrate O’Dwyer accepted the mother’s claims that “the father had been aggressively violent, both physically and verbally to her and that he had caused the children to behave in a similar way” [9].

The Full Court held that Federal Magistrate O’Dwyer’s findings of fact that the father’s behaviour had encouraged the children were not impugned. Rather, the finding based on these facts was challenged. The Full Court held that academic literature that underpinned Federal Magistrate O’Dwyer’s finding that the father had alienated the children from their mother had not been properly admitted into evidence, therefore depriving the father of an opportunity to make submissions about this evidence.

The Full Court provided guidance for the proper approach to admitting material such as academic literature as evidence in proceedings for parenting orders. The Full Court stated that where “evidence of an opinion is sought to be tendered, a judge must carefully address the admission of such opinion evidence and the weight to be afforded it” [88]. Accordingly, a judicial officer must first be satisfied that the opinion evidence is both relevant and not unfairly prejudicial (pursuant to s 55 and s 135 of the Evidence Act), and then must evaluate the appropriate weight to accord to the evidence.

The Full Court allowed the appeal and remitted the matter to be reheard by another Federal Magistrate on the basis that:

- the academic literature had not been properly tendered;
- no consideration had been given to whether it should be excluded and, if not, what weight should be accorded to it; and
- the father had not been provided with an opportunity to make submissions about the academic literature.

Interpretation of the new family violence provisions

The new family violence provisions introduced by the Family Law Legislation Amendment (Family Violence and Other Measures) Act 2011 (Cth), discussed in the previous issue of Family Matters (Issue 90, p 106) have been interpreted in Carra and Schultz [2012] FMCAFam 930, a recent decision of the Federal Magistrates Court.

The father in this case filed an application seeking orders to spend time with his daughter (six years of age), together with a Notice of Child Abuse, Family Violence or Risk of Family Violence. The father alleged that the mother had engaged in family violence (according to the revised definition) by failing or refusing to allow him to spend time and communicate with his daughter, save for the occasional telephone call.

The revised definition of family violence introduced into the Family Law Act 1975 (Cth) by the Family Law Legislation Amendment (Family Violence and Other Measures) Act 2011 (Cth) provides that family violence “means violent, threatening or other behaviour by a person that coerces or controls a member of the person’s family (the family member), or causes the family member to be fearful” (s 4AB(1)). A selection of non-exhaustive examples are provided in s 4AB(2) and are as follows:

- assault;
- sexual abuse;
- stalking;
- repeated derogatory taunts;
- intentionally damaging or destroying property;
- intentionally causing death or injury to an animal;
■ unreasonably denying the family member the financial autonomy that he or she would otherwise have had;
■ unreasonably withholding financial support to meet reasonable living expenses;
■ preventing the family member from making or keeping connections with his or her family, friends or culture; or
■ unlawfully depriving the family member, or any member of the family member’s family, of his or her liberty.

Federal Magistrate Hughes stated that the examples do not form part of the definition and that presumably their inclusion “was designed to have an educative effect by illustrating the types of behaviour which might constitute family violence or exposure to it” [6]. Federal Magistrate Hughes held that the father’s reliance on s 4AB(2)(i)—“preventing the family member from making or keeping connections with his or her family, friends or culture”—was misconceived. It was further held that the “withholding of time or communication with a child, without more, does not constitute family violence” (emphasis added) as the “essence of the definition of family violence is behaviour which ‘coerces or controls’ a family member ‘or causes [them] to be fearful’” [7]. The critical element identified by the Federal Magistrate in this case, was that there was no evidence that the mother was trying to coerce or control and there was no evidence that the father felt fearful. Indeed, it was held that on the father’s own material there “may be good reason” for the mother preventing contact.

Federal Magistrate Hughes contrasted the case before her with a hypothetical scenario involving a parent fleeing from family violence who is prevented by the other parent from communicating with their child, identifying that this could amount to family violence if it was a measure used to coerce or control the fleeing parent or to cause them to be fearful for their safety or that of their child.

The father in the present case was ordered to withdraw his Notice of Child Abuse, Family Violence or Risk of Family Violence because if “every parent who alleges the other is withholding a child files such a Notice, regardless of whether or not there is associated coercive or controlling behaviour, the child protection authorities will be swamped with Notices and have their genuine child protection work hampered” [10].

Changes to the Federal Magistrates Court

The Federal Magistrates Court will be known as the Federal Circuit Court of Australia and the title of Federal Magistrates will be replaced with Judge, following the passing of the Federal Circuit Court of Australia Legislation Amendment Bill 2012 in the Senate on 19 November. The changes are expected to commence in the first half of 2013.

The changes were made following a consultation process with the Federal Magistrates Court announced by the Attorney-General on 8 June, following the release of the Strategic Review of Small and Medium Agencies in the Attorney-Generals Portfolio: Report to the Australian Government (Skehill Review) discussed in Family Matters 90 (p. 108).

Federal Attorney-General Nicola Roxon announced the proposed changes on 13 September 2012. Ms Roxon explained that changes would better reflect the Court’s role in the federal judicial system, highlighting its program of regular court circuits in regional and rural Australia, with the title of Judge “better reflect(ing) the role and responsibilities of a federal judicial officer which is significantly different from that of a state or territory Magistrate” (Roxon, 2012a).

When introducing the Bill for a second time, Ms Roxon explained that from the outset, the court has “actively pursued ways to provide court services to communities that experienced difficulties in accessing justice—whether that be due to low socio-economic conditions, remoteness or lack of services and facilities” (Roxon, 2012b). This amendment and other measures (including an injection of $38 million over four years to the Federal and Family Law Courts via a change in fee structures) are part of a wider federal courts reform package being undertaken by the Gillard Government.

Announcement of additional funding for children’s contact services nationwide

Sixty-three contact services across the country will receive a “one-off” funding boost of over $1 million dollars ($1,065,359), announced Federal Attorney-General Nicola Roxon on 6 September. This provision of additional funding was identified as enabling an increase in services providing a “safe and child-focused venue for supervised visits and changeovers” for families going through separation and divorce (Roxon, 2012c). Of the 63 services receiving this additional funding, seven are
in New South Wales, nine in Victoria, six in Queensland, four in Western Australia, four in South Australia and one each in Tasmania, the Australian Capital Territory and Northern Territory.

Release of the third edition of the Family Violence Best Practice Principles

The Family Court of Australia and the Federal Magistrates Court of Australia have released a revised edition of the Family Violence Best Practice Principles, taking into account the recent legislative amendments introduced by the Family Law Legislation Amendment (Family Violence and Other Measures) Act 2011 (Cth) that place greater emphasis on recognising and responding to family violence.

The Best Practice Principles provide practical guidance to courts, legal practitioners, litigants and others involved in family law matters involving issues of family violence and/or child abuse. The principles were first introduced after the major 2006 amendments to the Family Law Act, and while they are voluntary and do not operate as a fetter to judicial discretion, they provide a detailed (although not exhaustive) checklist of considerations in cases involving family violence or child abuse or the risk of family violence or child abuse in family law cases.

This revised edition of the principles reflects the legislative changes to the definitions of “family violence” and “abuse”, as well as the changes to the statutory framework within which the principles operate. (See Family Matters 90, p. 106, for summary of the key measures introduced by the Family Law Legislation Amendment (Family Violence and Other Measures) Act 2011 (Cth).) In addition to accommodating the revised s 60CC considerations, the changes to the principles incorporate, for example, the obligations arising from s 67ZBA and s 67ZBB. Together, these provisions require the filing of a Notice of Child Abuse, Family Violence or Risk of Family Violence where family violence or risk of family violence is alleged, and the courts to take prompt action to protect the child and to facilitate the timely gathering of evidence.


Endnotes

1 In Family Court decisions, the matter is reported as Garning & Department of Communities, Child Safety and Disability Services and anor [2012] FamCA 839.

References

In Family Court decisions, the matter is reported as Garning & Department of Communities, Child Safety and Disability Services and anor [2012] FamCA 839.

2 Garning & Department of Communities, Child Safety and Disability Services and anor [2012] FamCA 839.

3 Refer to the discussion in Garning & Department of Communities, Child Safety and Disability Services and anor [2012] FamCA 839 [19-22].


Cases and legislation

Carr and Schultz [2012] FMCAFam 930

Convention on the Civil Aspects of International Child Abduction

Department of Communities (Child Safety Services) & Garning [2011] FamCA 485

Family Law Act 1975 (Cth)

Family Law (Child Abduction Convention) Regulations 1986

Garning & Department of Communities, Child Safety and Disability Services and anor [2012] FamCA 839

Federal Circuit Court of Australia Legislation Amendment Bill 2012 (Cth)

 McGregor and McGregor [2012] FamCAFC 69

RCB as litigation guardian of EKV, CEV, CIV and LRV v. The Honourable Justice Colin James Forrest, one of the judges of the Family Court of Australia & Ors [2012] HCA 471
Rev. the Hon. Professor Brian Howe AO

Seminar held at the Institute on 14 August 2012

Report by Ken Knight

Following the release of Lives on Hold: Unlocking the Potential of Australia’s Workforce, the report of the ACTU-sponsored Independent Inquiry into Insecure Work, Professor Brian Howe—who chaired the inquiry—gave an eloquently passionate and insightful presentation at the Institute.

Professor Howe highlighted the increasing polarisation, over recent decades, of the Australian workforce, between those who are part of the core, and those who are at the periphery. The data suggest that casualisation and fixed-term employment are affecting millions of Australian workers and families, most often with adverse consequences. Despite significant academic research in this area, known as “insecure work”, there has not been sufficient public recognition of the extent to which Australian workplaces have changed, and the implications of those changes for the people most affected.

Our society has changed significantly in the last 50 years. Technological and communications revolutions have shrunk the world, and the transfer of manufacturing to developing countries and the internationalisation of banking and finance have transformed national economies. The gender revolution, momentous changes in living patterns, and the rapid ageing of populations in developed countries have similarly reshaped social structures. These changes have had far-reaching implications for the way in which people live and work.

Professor Howe argued that these implications represent a serious challenge to the values of fairness and social equality in Australia.

In October 2011 the Australian Council of Trade Unions (ACTU) initiated an independent inquiry to help understand the impact of these changes on the nature and distribution of work.

The terms of reference required the inquiry to consider:
- the extent and causes of insecure work in Australia;
- who is most at risk;
- the levels of compliance with applicable labour laws;
- the effects on workers, their families and communities;
- the social and economic costs of insecure work; and
- protections that could be more effective if improved or better enforced.

Over 550 submissions were received, including 458 from individual workers. The inquiry also held 6 weeks of public hearings, visiting every capital city, every state and territory, and a number of major regional centres.

The inquiry described insecure work as “poor quality work” that provides people with little economic security and a lack of control over their working lives.

Characteristics of insecure work include:
- unpredictable or fluctuating pay;
- inferior rights and entitlements;
- limited or no paid leave;
- no certainty over job tenure; and
- a lack of a say in the workplace.

These characteristics are most often associated with:
- casual work;
- fixed-term contracts;
- independent contracting; and
- labour hire.

Professor Howe contrasted this trend with the International Labour Organization’s definition of “decent work”:

Work that is productive and delivers a fair income, security in the workplace and social protection for families, better prospects for
The harsh reality is that insecure work is growing in Australia. The steady trend in casualisation, short-term or fixed-term contracts, the reduction of hours worked per week, combined with an increase in participation, has resulted in a wave of under-employment, especially for younger people (up to 18% of 15–24 year olds).

While many employers argue that insecure work has many benefits, including flexibility—especially in the face of economic downturn—many part-time workers would like more hours, and few casual employees enjoy any control or security over their working hours.

This trend has resulted in significant financial and emotional consequences for many individuals and families.

The inquiry report offered a range of recommendations, including:

- a broader focus on work–life transitions, rather than the narrow preoccupation with the transition between employment and unemployment that has led to an emphasis on ‘welfare-to-work’ initiatives;
- a commitment to lifelong learning, including a call for the ACTU to investigate learning accounts as a model for investing in the capability of workers over the lifetime;
- reforming Australia’s tax and transfers system to provide a stronger safety net by:
  - addressing the inadequacy of the Newstart Allowance;
  - simplifying income declaration systems; and
  - abolishing the Liquid Assets Waiting Period; and
- changing the way Job Services Australia interacts with forms of insecure work, such as labour hire.

Professor Howe concluded philosophically, stating that his firm belief is that people should be able to find dignity and meaning in their work—to realise their potential and contribute something meaningful. In this sense, he thinks that we have “lost the plot” when it comes to thinking about work, and that the time is ripe for further reflection on the fundamental principles outlined so elegantly by the International Labour Organisation.


Professor Scott outlined a number of compelling reasons for immediate reforms in the child protection sector:

- The prevalence estimates of child physical abuse, penetrative sexual abuse and children witnessing domestic violence are very alarming. This may be the case in other forms of child maltreatment as well, where we do not have data available.
- The long-term effects of child abuse can be devastating and very serious in terms of the life chances of children.
- Demand has outstripped the capacity of statutory child protection systems. The large numbers of children coming into contact with the child protection system make it difficult for the system to respond effectively to that small minority of children who are in greatest need. There is a similar demand pressure on the out-of-home care system.
- Removing children from home has serious long-term risks to their wellbeing.

The presentation raised pertinent questions that the sector will need to consider time and again to be able to respond effectively.

The co-occurrence and frequency of parental factors such as family violence, substance misuse and mental illness—the unholy trinity as Professor Scott calls them—point to the multiple and complex needs of families that enter the child protection system.
The strong association between child protection involvement and the complex needs of families in turn highlights a major challenge in child protection – the challenge of breaking the link between adults’ problems and children’s pain. This would mean enhancing the capabilities of specialist adult services to take a wider role of responding to the needs of any children of the parents being treated.

Professor Scott pointed out the present misalignment that exists in the service response to the needs of families, with the current system organised almost exclusively around single-input services. This compels families with multiple needs to connect with a large number of organisations and to end up in a revolving door of referrals and fragmented care.

Moving to a child- and family-inclusive practice needs service reforms at three levels:
- workforce development in terms of values, knowledge and skills;
- organisational setting; and
- the policy context that mandates the practice.

The initial step in the process of reform would be an audit of current practice, to be followed by widespread workforce development in terms of knowledge and skills relating to alcohol and drugs, mental health, family violence and parental intellectual disability. Effective collaboration between adult specialist services and the child and family services sector would be another vital step to enhance the capacity of services to respond to both child protection and parental needs.

Professor Scott argued that the type of reform that child protection needs is one that would restrict the Statutory Child Protection Service to only those children who are in need of a forensic investigation and possible placement in out-of-home care.

While there are isolated exemplars of best practice in the sector, Professor Scott emphasised that the problem of child abuse and neglect will not be solved by service solutions alone. There is an urgent need for population-level approaches to tackle identified risk factors, such as alcohol abuse by parents, and to promote protective factors, such as parent–child attachment and social support.

In conclusion, Professor Scott raised the vision of a 21st century child protection movement built on a population-based whole-of-government approach that will address the key social determinants of child abuse and neglect based on sound research and workforce development. This system will also have the capacity to respond to children who have already been abused in ways that reduce and do not increase the risk of further harm.

Dr Michael Flood

Seminar held at the Institute on 9 October 2012

Summary provided by
Dr Michael Flood

The debate over men’s versus women’s domestic violence is becoming increasingly prominent, both in academic scholarship and in popular culture. There is no doubt that both women and men can be victims of violence by
a partner or ex-partner, and that both can be perpetrators. At the same time, Dr Flood emphasised that there is no “gender symmetry” in domestic violence. There are important differences between men’s and women’s typical patterns of victimisation and perpetration.

The term “domestic violence” long has been understood to refer to a systematic pattern of power and control being exerted by one person against another, involving a variety of physical and non-physical tactics of abuse and coercion, in the context of a current or former intimate relationship. Much of the existing data on domestic violence, however, focuses only on physically violent acts. Claims that men are half or one-quarter of domestic violence victims only are possible if we draw on studies that focus on “counting the blows”.

The Conflict Tactics Scale (CTS), a popular tool for measuring domestic violence, which typically finds gender symmetries in its perpetration, is widely criticised for not gathering information about the intensity, context, consequences or meaning of violent behaviours. It typically neglects issues of injury and fear, omits sexual violence, ignores the history or context for the violence, relies on reports by either husbands or wives despite evidence of lack of agreement between them, and draws on samples shaped by high rates of refusal, particularly among individuals either practising or suffering severe and controlling forms of violence.

Both Australian and international data suggest that the problem of intimate partner violence continues to be one largely of men’s violence against women. Dr Flood highlighted a series of contrasts in women’s and men’s patterns of victimisation and perpetration, drawing on both unpublished data from the Australian Bureau of Statistics and a review of contemporary scholarship. Among adult victims of intimate partner violence, women are more likely than men to be subjected to frequent, prolonged and extreme violence. Women are far more likely than men to be sexually assaulted by an intimate partner or ex-partner. Women are far more likely than men to sustain injuries, to fear for their lives, and to experience other negative consequences, such as psychological harms. In short, women are far more likely than men to live with what Johnson calls “intimate terrorism” or “coercive controlling violence”.

Gender contrasts in women’s and men’s levels of fear are not the result of reporting biases. Women don’t show higher levels of fear in the context of domestic violence because they are more willing than men to report fear, but because the violence they experience is worse.

Dr Flood argued that there are also contrasts in the intentions, motivations and nature of men’s and women’s uses of domestic violence. Women’s physical violence towards intimate male partners is more likely than men’s to be in self-defense. When a woman is violent to her male partner, it is often in the context of his violence to her. Male perpetrators are more likely than female perpetrators to identify instrumental reasons for their aggression, with their violence directed towards particular goals. Male perpetrators are more likely, and more able, to use non-physical tactics to maintain control over their partners. At the same time, women are not immune from using violence to gain or maintain power in relationships.

Men are less likely to report their own perpetration of violence, especially severe violence, than women are to report theirs. Most past findings point to a tendency for men to under-report. Both male and female victims under-report their own victimisation. There is mixed evidence regarding whether male victims of domestic violence are more or less likely than female victims to report their experience. In some studies, there is evidence that men were less likely than women to report their experiences of partner violence because they did not find them serious or threatening.

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"It is my imagination running wild"
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Australian Institute of Family Studies

The Institute is a statutory authority that originated in the Australian Family Law Act 1975. It was established by the Australian Government in February 1980. The Institute promotes the identification and understanding of factors affecting marital and family stability in Australia by:

- researching and evaluating the social, legal and economic wellbeing of all Australian families;
- informing government and the policy-making process about Institute findings;
- communicating the results of Institute and other family research to organisations concerned with family well-being and to the wider general community; and
- promoting improved support for families, including measures that prevent family disruption and enhance marital and family stability.

The objectives of the Institute are essentially practical ones, concerned primarily with learning about real situations through research on Australian families.