

Linguistic diversity among Australian children in the first 5 years of life

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Like many English-dominant nations, Australia has a rich history of cultural and linguistic diversity. This diversity is the result of a melting pot of languages including languages spoken by Australia's Indigenous people and languages added by European settlement and subsequent waves of migration from various parts of the world. Despite this rich history of linguistic diversity, little has been documented on the languages spoken by Australian children. The first three waves of data from 5107 children in the nationally representative Longitudinal Study of Australian Children were analyzed to consider language diversity among Australian children in the first 5 years of life. Data were collected from birth at 2-year intervals. At 0–1 year of age, 10.8% of children were reported to have a language other than English used as the main language in their home. When children were 2- to 3-years old, 16.7% were spoken to and/or used a language other than English, and 15.3% were spoken to and/or used a language other than English at 4–5 years of age. The most common languages spoken by Australian children when aged 4–5 years after English were Arabic, Italian, Greek, Spanish, and Vietnamese. Personal and environmental factors significantly associated with use of a language other than English at 4–5 years were parental use of a language other than English, and being a first- or second-generation migrant.

Keywords: Children, Linguistic diversity, Bilingual

Increased international migration has given rise to a vast increase in cultural and linguistic diversity within English-dominant nations (Hugo, 2004; Ottaviano and Peri, 2006). However, in a number of English-dominant nations including the United States and Australia, data regarding the language use of children under 5 years are not reported in the national census (Australian Bureau of Statistics, 2012a; US Census Bureau, 2012). Therefore, little is known about the cultural and linguistic diversity of young children living in these contexts.

Like many other English-dominant nations, Australia embodies a rich tapestry of linguistic diversity. This diversity has long been documented, from the languages spoken by the original Indigenous custodians of the land, through British colonization and the various waves of economic, and post-war migration that have ensued since. Australia, along with other English-dominant nations such as Canada, the United States, and New Zealand, has been defined as a 'traditional immigration nation' (Hugo, 2004, p. 1), meaning that it has a long history of policies supporting immigration, *albeit*, at times, selective and exclusive (Lake, 2005).

Australia's cultural and linguistic diversity comprises over 400 different languages (Australian Bureau of Statistics, 2011) and over one quarter of the population was born overseas (Australian Bureau of Statistics, 2012b). Australia has been linguistically diverse from its earliest days with over 250 languages spoken by its Indigenous inhabitants prior to European settlement (Marmion *et al.*, 2014). Colonization of Australia under British rule in the 1700–1800s saw English become the dominant language used in Australian society, but the rich diversity of languages spoken by its people remained.

Australia is unique from other English-dominant countries (such as the United States and Canada) in that it does not have one dominant second language. Rather, Australia's linguistic landscape is made up of many languages from around the globe that co-exist in small numbers and communities within Australian society. These small language communities amount to a large number in terms of their collective proportion of the Australian population, with the 2011 census revealing that almost one in four (23.2%) Australians speak a main language other than English at home (Australian Bureau of Statistics, 2012a). According to this census, the most common languages other than English that were spoken by Australian adults were Mandarin (1.6%), Italian

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(1.4%), Arabic (1.3%), Cantonese (1.2%), and Greek (1.2%) (Australian Bureau of Statistics, 2012a). Interestingly, when comparing these findings to previous census results it can be seen that the languages spoken by Australians are not static, but are changing in accordance with new waves of migration influencing the composition of the Australian population. For example, in contrast to the most recent census finding, the common languages other than English spoken by Australian adults in the 2001 census were Italian (1.9%), Greek (1.4%), Cantonese (1.2%), Arabic (1.1%), and Vietnamese (0.9%) (Department of Immigration and Citizenship, 2008). Additionally, the number of Australians speaking a main language other than English at home increased from 20.9 to 23.2% in the 10-year period from the 2001 census to the 2011 census (Australian Bureau of Statistics, 2012a; Department of Immigration and Citizenship, 2008).

As previously highlighted, the Australian census does not report data regarding the language use of Australian children under 5 years of age. Therefore, national statistics are not necessarily representative of the languages spoken by young Australian children, as demonstrated by McLeod (2011). McLeod examined the languages spoken by the kindergarten (K) cohort of the nationally representative Longitudinal Study of Australian Children (LSAC) (Australian Institute of Family Studies (AIFS), 2007). Among children in the K cohort at wave 1 (ages 4–5 years), 86.0% used English as their primary language. A further 35 languages were primarily spoken by children, the most common being Arabic (1.6%), Cantonese (1.3%), Vietnamese (1.0%), Greek (0.8%), and Mandarin (0.8%). The languages and proportion of children speaking languages other than English in the McLeod study differed from the census results regarding Australian residents aged over 5 years in 2006, emphasizing the need to consider child-specific data.

This study aims to add to the data provided by McLeod (2011) who studied the K cohort at age 4–5 years by examining data from the birth (B) cohort of the nationally representative LSAC to describe a different group of young Australian children's exposure to, and knowledge of languages other than English from birth (0–1 year of age) to school entry age (4–5 years), and to extend this information by examining personal and environmental factors related to language use among children.

Context of this study

Growing up in Australia: The Longitudinal Study of Australian Children is a nationally representative study commissioned by the Australian government to describe the lives of Australian children in five key

areas: core measures (e.g. socio-demographics, child development, and functioning), family functioning (e.g. relationships, parenting practices), health (e.g. gestation, birth, and development), child care (e.g. use of non-parental care, quality of care), and education (e.g. schooling environments, direct cognitive assessment) (Solooff *et al.*, 2003). Commencing in 2004, the study is ongoing, with new waves of data being collected at 2-year intervals. Data are collected from two cohorts, which each began with approximately 5000 children: the birth (B) cohort (who were studied from birth) and the kindergarten (K) cohort (who were studied from kindergarten, aged 4–5 years).

Preliminary data regarding primary languages spoken by the B cohort were presented in the LSAC 2010 statistical report (Maguire, 2011). This study expands on these initial findings by examining the cultural and linguistic diversity of Australian children, their exposure to languages other than English in the home, their use of languages other than English in early childhood, and personal and environment factors related to the use of languages other than English at age 4–5 years. In addition to the cross-sectional demographic data presented in this study, longitudinal data about the languages spoken by Australian children in the B cohort and factors influencing home language maintenance are explored in Verdon *et al.* (2014).

Aims of this study

The aim of this study is to identify the cultural and linguistic composition of Australian children by examining data obtained during the first three waves of data collection (at ages 0–1, 2–3, and 4–5 years) from the LSAC B cohort.

The following research questions were addressed:

1. What are the main languages spoken in the homes of Australian children?
2. What proportion of Australian children is exposed to and/or speak languages other than English?
3. What are the main languages other than English that are spoken and/or understood by Australian children?
4. What are the demographics of Australian children who use languages other than English and what personal and environmental factors are associated with exposure to language other than English in early childhood (e.g. sex, generations since migration, parental language use, and socioeconomic status)?

Method

The Longitudinal Study of Australian Children **Participants**

Participants within LSAC were recruited using a two-stage clustered design sampling children from the Medicare Australia enrolment database, the most

comprehensive database of the Australian population (AIFS, 2008). Stage one involved the random selection of 311 Australian postcodes for inclusion in the study. In stage two, individual children were randomly selected from these postcodes (AIFS, 2011). To ensure a nationally representative sample, children selected for inclusion on the B cohort matched the Australian population of families with a 0- to 1-year-old child on key characteristics including ethnicity, country of birth, whether a language other than English was spoken at home, postcode, month of birth, education, and income (Gray and Sanson, 2005). Once selected, children's parents were invited to participate in the study. 'Very remote' postcodes, as defined by the Accessibility/Remoteness Index of Australia (Australian Population and Migration Research Centre, 2013) were not included in sampling procedures due to the high cost of undertaking longitudinal research in remote areas (AIFS, 2011).

Data collection

Data collection for LSAC is ongoing with new waves of data collected every 2 years. During wave 1, a face-to-face interview with parent 1, defined as the parent deemed to be the primary caregiver for each child (AIFS, 2007), was conducted in addition to the completion of a comprehensive questionnaire about their child and their family situation. Additional face-to-face interviews with parent 1, teachers, and the children themselves are undertaken at each wave. To date, six waves of data have been collected. During wave 1, interviews were undertaken by a data collection team from a social marketing research agency, contracted to collect data on behalf of the study developers (Soloff *et al.*, 2003). From wave 2 onwards, data collection and management were handled by the Australian Bureau of Statistics (Australian Institute of Family Studies, 2008). Interpreters were used during interviews with some non-English speaking parents during wave 1 ($n = 145$, 2.8%), wave 2 ($n = 55$, 1.1%), and wave 3 ($n = 45$, 0.9%). Full information about LSAC data collection and management is available from the Australian Institute of Family Studies (2007).

This study

This study was undertaken by the current authors analyzing data collected by the LSAC team.

Participants in this study

Participants in this study were the 5107 children and their parents/caregivers from wave 1 of the B cohort of LSAC and those who were retained in the study at waves 2 and 3. Overall retention rates were high with 91.2% of participants retained from wave 1 to wave 2 ($n = 4606$), and 88.2% retained from wave 2 to wave 3 ($n = 4386$) (Edwards, 2012). The B cohort consisted

of 51.1% ($n = 2610$) males and 48.9% ($n = 2497$) females. The socioeconomic position variable was applied to the data set to determine the level of advantage/disadvantage experienced at the family level. Socioeconomic position is a derived variable which combines information from LSAC regarding parental education, family income, and occupational prestige (Blakemore *et al.*, 2006). Socioeconomic position is a continuous variable with a negative score indicating a higher probability of family disadvantage. Children in the study scored between -4.28 and 3.08 , with mean score of 0.00 .

Children in the B cohort were born between March 2003 and February 2004. The vast majority of children in the sample were born in Australia ($n = 5088$, 99.6%). Of the 19 children born outside of Australia, 11 (0.2%) arrived in 2003, and 8 (0.1%) arrived in 2004. The majority of study children's parents were also born in Australia. For parent 1, 46 different countries of birth were listed, with the most common place of birth being Australia ($n = 3996$, 78.2%). Other places of birth for parent 1 included United Kingdom ($n = 202$, 4.0%), New Zealand ($n = 159$, 3.1%), Vietnam ($n = 65$, 1.3%), Philippines ($n = 56$, 1.1%), China ($n = 42$, 0.8%), and India ($n = 42$, 0.8%). Data were present for 4630 (90.7%) adults considered 'parent 2'. Analyses regarding parent 2 were undertaken on this reduced sample. For parent 2, 43 different countries of birth were listed. Again, the majority were born in Australia ($n = 3519$, 68.9%) and other most common places of birth were United Kingdom ($n = 273$, 5.3%), New Zealand ($n = 155$, 3.0%), Vietnam ($n = 65$, 1.3%), Lebanon ($n = 39$, 0.8%), and India ($n = 42$, 0.8%).

The Indigenous status of participants in the sample was also recorded. Of the original 5107 children in the sample, 192 (3.8%) children were Aboriginal, 2 (0.4%) were of Torres Strait Islander descent, and 18 (0.4%) children were identified as both Aboriginal and Torres Strait Islander. This is a slightly higher proportion than the latest census statistics which state that 2.5% of the Australian population is from an Aboriginal and/or Torres Strait Islander background (Australian Bureau of Statistics, 2012c). A small number of children's parents (parent 1: $n = 164$, 3.2%; parent 2: $n = 97$, 1.9%) also identified as being Aboriginal, Torres Strait Islander, or both.

Procedure

Data presented in this study were collected at three time points: wave 1 (when children were 0- to 1-year old), wave 2 (when children were 2- to 3-years old), and wave 3 (when children were 4- to 5-years old). Variables in the data set which pertained to the research questions of this study were extracted by the current authors. Data analyses were

undertaken using descriptive statistics as well as χ^2 and analyses of variance in the IBM Statistical Package for Social Sciences (SPSS) Statistics for Windows, version 20.0 (IBM Corporation, 2011). At wave 1, the question regarding languages spoken enquired as to the main language spoken in the home. By waves 2 and 3, when children had typically begun using oral language, a new question was used in data collection which asked about the main language spoken and/or used by the child. As such, the results for these two questions have been presented separately to reflect the different wording of the questions.

Results

Languages spoken in the homes of Australian children

When the study children were aged 0–1 year (wave 1, $n = 5107$), parents were asked to report the main language spoken in the home. In the majority of cases, the main language used at home was English (89.2%, $n = 4555$). A further 29 languages were identified as the main language used in the homes of children in the study. The most commonly identified languages other than English were Arabic ($n = 77$, 1.5%), Vietnamese ($n = 49$, 1.0%), Italian ($n = 28$, 0.5%), Spanish ($n = 27$, 0.5%), and Cantonese ($n = 25$, 0.5%) (see Table 1). Specific information about languages was not available for responses coded as 'other' ($n = 14$, 0.3%), 'don't know' ($n = 3$, 0.1%), or confidentialized data ($n = 86$, 1.7%). Confidentialized data were grouped together by LSAC to avoid the identification of individual participants. For example, languages spoken by less than five participants were not listed in order to protect confidentiality (Misson, 2007).

Exposure to and use of languages other than English among Australian children

During waves 2 and 3 of data collection, when the study children were aged 2–3 years ($n = 4606$) and 4–5 years ($n = 4386$), respectively, parents were asked 'Is the child regularly spoken to in a language other than English by anyone?' At wave 2, 16.7% of children were regularly spoken to in a language other than English. At wave 3, 15.3% of were regularly spoken to in a language other than English.

Main languages other than English spoken and/or understood by Australian children

Parents who answered 'yes' to the previous question regarding exposure to languages other than English were also asked 'What is the main other language that the child understands and/or speaks?' At wave 2, a total of 33 languages other than English were recorded as being understood and/or spoken by

children in the study, not including data that were confidentialized ($n = 119$, 2.6%). The five most common languages other than English were Arabic ($n = 76$, 1.7%), Italian ($n = 66$, 1.4%), Greek ($n = 53$, 1.2%), Spanish ($n = 51$, 1.1%), and Vietnamese ($n = 41$, 0.9%) (see Table 1). At wave 3, a range of 36 languages was recorded as the main language spoken and/or understood by children in the study, not including confidentialized data ($n = 87$, 2.0%). Again, the five most commonly used languages other than English were Arabic ($n = 65$, 1.5%), Italian ($n = 54$, 1.2%), Greek ($n = 41$, 0.9%), Spanish ($n = 40$, 0.9%), and Vietnamese ($n = 38$, 0.9%) (see Table 1). During wave 3 of data collection, parents of children who were identified as speaking a language other than English were also asked to identify additional languages spoken and/or understood by the child. Five children (0.1%) were identified as having French as an additional language other than English (i.e. a third language), a further 24 (0.5%) children were also identified as having an additional language other than English; however, these data were confidentialized by LSAC due to the small number of children who spoke individual languages. Just one child in the study was identified as speaking three languages other than English (i.e. four languages), the languages spoken by this child were also confidentialized.

The demography of Australian children who use languages other than English

The demography of the 770 children who were identified as being exposed to a language other than English at wave 2 (age 2–3 years) was examined. The following section provides a cross-sectional analysis of four personal and environmental factors (sex, generations since migration, parental language use and socioeconomic position) and their relationship to use of languages other than English by Australian children.

Sex

Among children who were identified as speaking and/or understanding a language other than English at wave 2, there was an even distribution between boys ($n = 380$, 49.4%) and girls ($n = 390$, 50.6%). A χ^2 analysis found no significant relationship found between sex and exposure to languages other than English ($\chi^2(1) = 1.032$, $p = 0.31$).

Generations since migration

Generations since migration was significantly related to language exposure with 100% of children who spoke and/or understood a language other than English at wave 2 being either first- or second-generation migrants to Australia. This means that the

Table 1 Main language spoken at home during wave 1 (age 0–1 year) and main languages children spoke/understood at wave 2 (aged 2–3 years) and wave 3 (aged 4–5 years)

| Language | 0–1 year (<i>n</i> = 5107) | | | 2–3 years (<i>n</i> = 4606) | | | 4–5 years (<i>n</i> = 4385) | | |
|---------------------|-----------------------------|-----------|------|------------------------------|-----------|------|------------------------------|-----------|------|
| | Rank | Frequency | % | Rank | Frequency | % | Rank | Frequency | % |
| English | 1 | 4555 | 89.2 | 1 | 3836 | 83.3 | 1 | 3713 | 84.7 |
| Arabic | 2 | 77 | 1.5 | 2 | 76 | 1.7 | 2 | 65 | 1.5 |
| Vietnamese | 3 | 49 | 1.0 | 6 | 41 | 0.9 | 6 | 38 | 0.9 |
| Italian | 4 | 28 | 0.5 | 3 | 66 | 1.4 | 3 | 54 | 1.2 |
| Spanish | 5 | 27 | 0.5 | 5 | 51 | 1.1 | 5 | 40 | 0.9 |
| Cantonese | 6 | 25 | 0.5 | 9 | 26 | 0.6 | 11 | 15 | 0.3 |
| Mandarin | 7 | 23 | 0.5 | 7 | 32 | 0.7 | 8 | 30 | 0.7 |
| German | 8 | 22 | 0.4 | 8 | 27 | 0.6 | 7 | 31 | 0.7 |
| Greek | 9 | 21 | 0.4 | 4 | 53 | 1.2 | 4 | 41 | 0.9 |
| Tagalog | 10 | 20 | 0.4 | 10 | 18 | 0.4 | 10 | 17 | 0.4 |
| Turkish | 11 | 15 | 0.3 | 14 | 11 | 0.2 | 14 | 11 | 0.3 |
| Hindi | 11 | 15 | 0.3 | 12 | 14 | 0.3 | 12 | 13 | 0.3 |
| Samoan | 12 | 13 | 0.3 | 12 | 14 | 0.3 | 16 | 9 | 0.2 |
| Serbian | 13 | 12 | 0.2 | 13 | 12 | 0.3 | 14 | 11 | 0.3 |
| Japanese | 14 | 9 | 0.2 | 13 | 12 | 0.3 | 12 | 13 | 0.3 |
| Macedonian | 15 | 8 | 0.2 | 11 | 15 | 0.3 | 14 | 11 | 0.3 |
| Assyrian | 15 | 8 | 0.2 | 17 | 8 | 0.2 | 18 | 6 | 0.1 |
| Dari | 15 | 8 | 0.2 | 0 | 0 | 0 | 0 | 0 | 0 |
| Urdu | 15 | 8 | 0.2 | 12 | 14 | 0.3 | 14 | 11 | 0.3 |
| Indonesian | 16 | 7 | 0.1 | 11 | 15 | 0.3 | 13 | 12 | 0.3 |
| Portuguese | 17 | 6 | 0.1 | 16 | 9 | 0.2 | 17 | 7 | 0.2 |
| Tamil | 17 | 6 | 0.1 | 19 | 6 | 0.1 | 18 | 6 | 0.1 |
| Punjabi | 17 | 6 | 0.1 | 17 | 8 | 0.2 | 17 | 7 | 0.2 |
| Maori* | 17 | 6 | 0.1 | 17 | 8 | 0.2 | 13 | 12 | 0.3 |
| Tongan | 18 | 5 | 0.1 | 0 | 0 | 0 | 0 | 0 | 0 |
| French | 18 | 5 | 0.1 | 8 | 27 | 0.6 | 9 | 29 | 0.7 |
| Bengali | 18 | 5 | 0.1 | 0 | 0 | 0 | 18 | 6 | 0.1 |
| Khmer | 18 | 5 | 0.1 | 0 | 0 | 0 | 0 | 0 | 0 |
| Russian | 18 | 5 | 0.1 | 16 | 9 | 0.2 | 16 | 9 | 0.2 |
| Polish | 18 | 5 | 0.1 | 15 | 10 | 0.2 | 15 | 10 | 0.2 |
| Maltese | 0 | 0 | 0 | 14 | 11 | 0.2 | 18 | 5 | 0.1 |
| Croatian | 0 | 0 | 0 | 12 | 14 | 0.3 | 12 | 13 | 0.3 |
| Maori† | 0 | 0 | 0 | 17 | 8 | 0.2 | 18 | 6 | 0.1 |
| Dutch | 0 | 0 | 0 | 16 | 9 | 0.2 | 15 | 10 | 0.2 |
| Hebrew | 0 | 0 | 0 | 19 | 6 | 0.1 | 14 | 11 | 0.3 |
| Malay | 0 | 0 | 0 | 19 | 6 | 0.1 | 19 | 5 | 0.1 |
| Filipino | 0 | 0 | 0 | 18 | 7 | 0.2 | 0 | 0 | 0 |
| Auslan | 0 | 0 | 0 | 17 | 8 | 0.2 | 0 | 0 | 0 |
| Persian‡ | 0 | 0 | 0 | 0 | 0 | 0 | 19 | 5 | 0.1 |
| Thai | 0 | 0 | 0 | 0 | 0 | 0 | 19 | 5 | 0.1 |
| Danish | 0 | 0 | 0 | 0 | 0 | 0 | 19 | 5 | 0. |
| Aboriginal English§ | 0 | 0 | 0 | 0 | 0 | 0 | 18 | 6 | 0.1 |

*New Zealand.

†Cook Islands.

‡Excluding Dari.

§So described.

child, their parent 1 or their parent 2 were born overseas.

Parent language use

An examination of parental language input in languages other than English was also undertaken. At wave 2, parent 1 spoke a language other than English in 69.5% (*n* = 535) of cases and parent 2 spoke a language other than English in 66.2% (*n* = 510) of cases. Both parents were reported to speak a language other than English in 57.9% (*n* = 446) of cases. A significant relationship was found between having both parents who spoke a language other than English and children's use of a language other than English at 2–3 years ($\chi^2(1) = 2150.96, p < 0.00$).

Socioeconomic status

Socioeconomic status was considered using socioeconomic position. Children's socioeconomic position scores ranged between -4.29 and 2.89 ($M = -0.475$, $SD = 1.07$). An independent samples *t* test revealed that family socioeconomic position was not significantly different between children who did ($M = -0.05$, $SD = 1.07$) or did not ($M = 0.01$, $SD = 0.99$) speak and/or understand a language other than English at wave 2 ($t(4600) = -1.44, p = 0.15$).

Discussion

The present sample of over 5000 Australian children studied longitudinally over the first five years of life quantifies the cultural and linguistic diversity of

Australia's children. Approximately one in seven (15.3%) Australian children in the study were speaking a language other than English at the age of school entry (4–5 years). This is comparatively lower than the 23.2% of the Australian population aged over 5 years speaking a first language other than English as recorded in the 2011 census (Australian Bureau of Statistics, 2012a). The lower rate of speaking languages other than English among Australian children, in comparison with the population as a whole could be related to the fact that the children in the B cohort were studied from near the time of their birth, meaning that most were born in Australia, whereas 24.6% of Australians in the population as a whole were born overseas (Australian Bureau of Statistics, 2012b) and therefore are more likely to speak a language other than English given the relationship between generations since migration and home language maintenance (Portes and Hao, 1998; Veltman, 1983). These data emphasize the importance of demographic data that specifically describe the language use of children, rather than census data that describe the population as a whole. Similar to the broader Australian population, no majority second language was identified among the sample. Rather, children spoke a diverse range of languages from all over the globe in small proportions.

Cross-sectional comparisons between the cultural and linguistic diversity of Australian 4- to 5-year-old children in the K cohort (2004) and B cohort (2008) of LSAC similarly reflect the findings of the national census data from 2006 to 2011, as they demonstrate that the linguistic diversity of Australia is steadily increasing and the languages that comprise this diversity are in constant transition. A comparison of the two cohorts at age 4–5 years reveals that 14.0% of children in the K cohort spoke a language other than English (McLeod, 2011) compared with 15.3% of the children in the B cohort who spoke and/or understood a language other than English. The most common languages spoken by the children also changed substantially between cohorts with the two Chinese languages, Cantonese and Mandarin, no longer being ranked in the top five languages other than English, but rather two European languages (Italian and Spanish) being reported as more commonly spoken in the B cohort. Additionally, Vietnamese went from being the second most common language used by Australian 4- to 5-year-old children to the fifth most common in the period of 4 years.

The acquisition of languages is dependent upon a number of factors including exposure, use, and attitudes toward languages in children's everyday lives (Patterson and Pearson, 2004). In keeping with

previous research, both parental use of languages other than English (De Houwer, 2007; Duursma *et al.*, 2007) and generations since migration were significantly related to Australian children's language use throughout the first five years of life. Frequent and rich exposure to languages facilitates the acquisition of these languages by children in early childhood (Hammer *et al.*, 2011). Additionally, positive attitudes toward the intergenerational exchange of languages can facilitate use of home languages by children from migrant families (Park and Sarkar, 2007). Languages are more likely to be maintained by recent migrants to maintain cultural identity, and relationships with extended family (Portes and Hao, 1998; Veltman, 1983). While findings regarding the influence of gender upon home language use have varied (Tannenbaum and Howie, 2002; Winter and Pauwels, 2005), in this study, gender was not found to be an influencing factor.

Interestingly, socioeconomic position was not found to be significantly related to children speaking a language other than English. This finding is in contrast to studies from other English-dominant countries where socioeconomic status is highly correlated with being from a non-English dominant background. For example, of the 37.6 million Spanish speakers in the United States, 25.3% live below the poverty line (U.S. Census Bureau, 2013a) in comparison with 15.0% of the population as a whole (U.S. Census Bureau, 2013b). The distribution of non-English-speaking families across different socioeconomic levels makes Australia an interesting context for the investigation of factors influencing language use during early childhood without results being confounded by the bias in socioeconomic status that exists in other non-English-speaking populations. For example, the study by Verdon *et al.* (2014) investigated patterns of home language maintenance and loss among children in the B cohort of LSAC. This study found that socioeconomic position also was not associated with language maintenance among children who spoke a language other than English, rather, significant factors included generations since migration, type of childcare setting and parents perceived level of support from their child's early education setting.

The availability of a rich dataset such as the LSAC combined with the applicability of the Australian context to other English-dominant countries provide the opportunity for examination and understanding of patterns of language use and maintenance among children from linguistically diverse backgrounds. Such research is useful to professionals and organizations (such as those in health care and education) in understanding and supporting the language development of all Australian children.

Limitations

These results are a conservative summary of Australia's cultural and linguistic diversity. While LSAC was designed as a nationally representative study of Australian children, it is important to note that percentages of multilingual children translate to small numbers in terms of participants and therefore conclusions about trends and patterns must be drawn with caution when considering generalizability to the entire population. It is possible, due to small numbers of children speaking some languages, that the absence of these languages from later waves of data may be explained by attrition of children who spoke those languages from the study and may not necessarily represent language loss among those language groups. Furthermore, the data confidentialized by LSAC for languages spoken by fewer than five children means that not all languages spoken in Australia have been explicitly named in these results.

Additionally, it is important to acknowledge that Indigenous children living in remote areas of Australia may be underrepresented in this sample due to the sample selection procedure which excluded very remote postcodes. Therefore, the children in this study who speak Indigenous languages may not accurately represent the Indigenous population nationwide. A separate longitudinal study has also been commissioned by the Australian government to specifically investigate the experiences of Indigenous Australian children. This study is called Footprints in Time: the Longitudinal Study of Indigenous Children (LSIC) (Department of Families Housing Community Services and Indigenous Affairs, 2012). Findings of the LSIC study regarding languages spoken by Australia's Indigenous children are reported elsewhere (McLeod *et al.*, 2014; Verdon and McLeod, 2014).

Conclusion

This study provides a distinctive offering in both the age of its participants and the linguistic context in which they are situated. It draws upon longitudinal data from a nationally representative sample of Australian children to report on linguistic diversity in the first 5 years of life as well as personal and environmental factors associated with the exposure to, and use of, languages other than English. The linguistic context of Australia is relevant to many countries with increasingly diverse populations, that is, a highly culturally and linguistically diverse, yet English-dominant, developed nation without a majority second language. These findings provide an important foundation of evidence upon which planning and funding can be built to support the needs of Australia's culturally and linguistically diverse children.

Disclaimer statements

Contributors Sarah Verdon – Designed research questions, analyzed data and drafted the manuscript. Sharynne McLeod – Provided advice on the data to be reported from the larger dataset and provided input on both content and structure of the article. Adam Winsler – Provided input on statistical analysis, reporting of method and helped to draft discussion.

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Conflicts of interest None.

Ethics approval This study presents data from a longitudinal study commissioned by the Australian government. A licence to obtain, analyze and report on the data was obtained but direct data collection and contact with participants was not undertaken by the current authors and therefore ethics approval for this study was not needed.

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