Li et al., *Cogent Education* (2016), 3: 1161958
http://dx.doi.org/10.1080/2331186X.2016.1161958

cogent education

STUDENT LEARNING, CHILDHOOD & VOICES | RESEARCH ARTICLE

Home language shift and its implications for Chinese language teaching in Singapore

Li Li[1]*, Chee Lay Tan[1] and Hock Huan Goh[1]

Received: 22 October 2015
Accepted: 26 February 2016
Published: 25 March 2016

*Corresponding author: Li Li, Singapore Centre for Chinese Language, Nanyang Technological University, Singapore, Singapore
E-mail: li.li@sccl.sg

Reviewing editor:
Sammy Hui, Hong Kong Institute of Education, Hong Kong

Additional information is available at the end of the article

Abstract: In a bilingual society like Singapore, home language environment (HLE) of Singaporean children is becoming increasingly concerned, especially for those who are yet to have formal education in schools. The reported rapid shift of family language has increased the tensions among families, schools and communities. This study examined some of the many facets of Singaporean Chinese preschoolers' HLE, and further discussed how these facets are related to children's Chinese language proficiency in oral and written forms. Three hundred and seventy-six Singaporean Chinese six-year olds completed Chinese oral and written language proficiency screening. Their parents completed a HLE survey. The findings revealed the possible trend of home language shift from Mandarin Chinese to English in the younger generation. Aside from home language use factors, the importance of other facets that form a rich language environment is also highlighted for children's language development.

Subjects: Bilingualism & Multilingualism; Chinese; Language Teaching & Learning

Keywords: Chinese language; preschoolers; home language environment; Singapore

1. Introduction

Family provides the children the very first learning environment and opportunities. The exposure and the input of language are prerequisite for children's language development. The quantity of language input from various learning settings and the quantity of language interactions with others are important for language acquisition (Ellis, 2002). This input-driven language learning theory is

ABOUT THE AUTHORS

Li Li is a senior researcher from Singapore Centre for Chinese Language, Nanyang Technological University. Her current research interest is in bilingualism, second language acquisition and education. She works closely with preschools and primary schools in Singapore studying children's language development in Mandarin Chinese, and/or English, as a second language.

The study reported in this paper comes from a research project investigating Singaporean Chinese preschoolers' language use and exposure. This project is funded by Lee Kuan Yew Fund for Bilingualism.

PUBLIC INTEREST STATEMENT

Today more and more children grow up learning and using more than one language. They may be exposed to different languages in daily activities such as conversing with others, watching TV, reading books and listening stories. This study explored and discussed the relations between language use in these daily activities and children's language ability. We asked six-year-old Singaporean children and their parents to complete a home language activity survey and tests measuring children's Chinese oral and written language abilities. We found that different language-involved activities have different influence on children's language ability in oral and written forms. Our findings also revealed that English become more favourable as the communicating language in the younger generation.

reflected in the usage-based language acquisition model as well (Bybee, 2010). The quantity of language input is particularly important for children who are learning a second language (L2) that differs from the dominant language of the society (c.f., Duursma et al., 2007; Gutiérrez-Clellen & Kreiter, 2003; Hammer, Davison, Lawrence, & Miccio, 2009).

In Singapore, home language is believed to be shifting rapidly from the mother tongues of the three major ethic groups to English. Taking Chinese ethic group as an example, the Census of Population 2010 stated that "Concurrent with the rise in the level of English literacy, the usage of English as home language became more prevalent, especially among the younger age groups. Among Singapore residents aged 5–14 years, English was the home language for 52% of the Chinese …"

(Singapore Department of Statistics, 2011,[1] p. 26) According to the Ministry of Education survey of Primary 1 children in 2009[2], 59.1% of Chinese children were reported by their parents as predominantly speaking English at home. Home language shift had marked the rise of English competence and the fall of Mandarin competence among young generations in the past few decades. Many have attributed the problems in children's Chinese language competence to this shift in the home language environment (HLE) (Cheah, 2003; Goh, 2004; Chinese Language Curriculum & Pedagogy Review Committee (CLCPRC), 2004; Zhao & Liu, 2008).

However, the aforementioned statistics were obtained with a very general question asking about the dominant language of the family (or the language that was used most frequently). The corresponding options are either English or Mandarin Chinese, without illustration of any bilingual situations. The percentage figures are too general to have a clearer picture of the language use or language dominance of the Singaporean Chinese family. Moreover, the various facets of the HLE were also overlooked and yet reflected from a simple survey's question. It is, thus, necessary to examine the multiple factors of HLE to understand the language use and language dominance of Singapore Chinese families with more accuracy, and to explore the relation between HLE factors to Chinese children's language development (in Mandarin Chinese).

This paper reports findings from a project enquiring Singaporean Chinese preschoolers' HLE and its relation to their Chinese language proficiency. The project adopted the common survey method to outline the facets of Singaporean Chinese preschoolers' HLE, and used the conventional testing approach to screen children's oral language proficiency in Mandarin and their written language proficiency in terms of Chinese character recognition. In the subsequent sections, we shall firstly review evidence found from previous studies of how HLE relates to children's oral language and literacy development. We will then list the research questions, methods and findings, and discuss on the implication of our findings to Chinese language teaching in Singapore.

2. HLE and children's language proficiency

Children are exposed to various forms of language at home. Studies have highlighted language exposure as the influence in both monolingual and bilingual children's language proficiency. For example, the amount of reading materials at home was found to have an impact on monolingual children's learning to read (Aram & Levin, 2001; Chiu & McBride-Chang, 2006), and children's regular reading experience with their parents has an impact on their concurrent and subsequent oral and written language abilities (Bus, van IJzendoorn, & Pellegrini, 1995; Senechal & LeFevre, 2002).

Among bilingual children, the association between language exposure and vocabulary development was found in young English–Spanish bilinguals' both languages (Pearson, Fernandez, Lewedeg, & Oller, 1997). Among the many enquires in bilingual children's oral vocabulary development, maternal language was found to be crucial to American Spanish–English bilinguals for maintaining their oral vocabulary proficiency in their heritage language (i.e. Spanish) (Hammer et al., 2009). Dixon (2011) studied Singaporean bilingual preschoolers and found that the exposure to various sources of oral language, e.g. watching TV programmes, influences children's oral vocabulary skills in English. Scheele, Leseman, and Mayo (2010) studied the relationships between home language learning

activities and receptive vocabulary among bilingual immigrant Moroccan–Dutch and Turkish–Dutch preschoolers. They found that for both groups, besides conversing with children in L1 (i.e. the Tarifit Berber language and Turkish, respectively), language- and literacy-related activities at home in L1, such as parent telling stories, were associated closely to children's oral vocabulary of that language as well.

The exposure to certain forms of oral language helps children in developing their written language knowledge as well. For instance, Dickinson and Tabors (2001) found that exposure to some specific forms and amount of adult talk around them is related positively to preschoolers' later reading proficiency. Snow and Ninio (1986) highlighted the importance of parent–child joint reading activities to children's literacy development. According to their studies, parent–child joint reading "provides a child with exposure to more complex, more elaborate and more decontextualised language than almost any other kind of interaction" (p. 118).

Besides, oral language abilities are argued to be mediating the impact of HLE factors on children's written language abilities. de Jong and Leseman (2001) surveyed Dutch children's preschool HLE and assessed their reading-related skills in Grade 1 and Grade 3. They found HLE a significant predictor of children's oral language skills such as awareness to phonemes and oral vocabulary knowledge in Grade 1. They also found prolonged influence of HLE on children's reading comprehension in Grade 3, which was mediated by children's vocabulary knowledge and Grade 1 reading achievement. Senechal and LeFevre (2002), in their five-year longitudinal study, focused on parent-involved reading activities among Canadian middle-class children from K2 to Grade 3. They surveyed children's preschool reading activities, and found that parent-involved preschool reading activities predicted children's oral language skills such as phonological awareness and receptive vocabulary in Grade 1 and Grade 3, as well as children's written language skills, such as reading achievement, indirectly via oral vocabulary knowledge.

Studies in the HLE of the Singaporean Chinese children concluded similar findings to those that were found in other bilingual and (or) monolingual settings. On investigating the many facets of HLE, Liu, Goh, and Zhao (2006) surveyed facets of Singaporean preschool children's HLE and put the children into a Chinese language competence continuum. Goh (2012) adapted Liu et al.'s (2006) survey, examined the HLE of Singaporean children and their Chinese oral language corpus; he described children's home language dominance as a continuum and discussed its relation to children's Chinese oral language competence. On the association between HLE and children's Chinese language abilities, Li, Zhang, and Zhao (2013) surveyed Singapore primary school Chinese students' HLE and tested their lexical knowledge and oral vocabulary skill in Chinese. They found that factors of children's HLE can predict their Chinese lexical knowledge and oral vocabulary skill. Given the association between lexical knowledge, vocabulary and reading, their findings implied that factors of HLE may also have an impact on children's reading ability via theiroral vocabulary skills and lexical knowledge. In another study conducted among Singaporean Chinese preschoolers, researchers found that the more Mandarin Chinese the children were using when conversing with their parents, the higher their Chinese oral language proficiency (or vice versa); the more Chinese language- and literacy-related activities conducted by the children, the higher their Chinese written language proficiency (Li & Tan, 2015).

3. The current study

From the literature reviewed, it is clear that in a bilingual society like Singapore, HLE of Singaporean children is becoming increasingly concerned, especially for those who are yet to have formal education in schools. The HLE, the reported rapid shift of the dominant home language and their impacts on Chinese children's Chinese language competence need to be examined with more details. In 2011, the Singapore Centre for Chinese Language conducted a research project on Singaporean Chinese preschoolers' HLE. A sample of 199 children aged 6–7 and 128 children aged 3–4 participated in the study with their parents. The parents completed a HLE questionnaire asking mainly about home language use. About half of the participating children from each age group completed

two tests on their overall Chinese oral language competence (picture description) and written language competence (character recognition). The study found that only some 40% of participating children use mainly Mandarin (or more Mandarin less English) at home in conversations with their parents.[3] But little was further reported from the study about other facets of HLE. To have a more complete picture of the facets of HLE beyond language use, and their relations to Chinese children's Chinese language competence among six-year olds, a research project was subsequently suggested and proposed in 2013. We hope to get more information from this group of children because they will soon enter primary schools with their diverse HLE and CL competences. A sample (mixed-sampling method) targeting preschoolers from both kindergartens (where children spend 4 h a day on average, 5 days a week) and childcare centres (where children spend about 10 h daily, 5.5 days a week) across Singapore was obtained.

Among the many enquiries made in this 2013 research project, this paper will focus on two of them. Our research questions are, firstly, what are the characteristics of the facets of Singaporean Chinese preschoolers' home language background? And secondly, how are these facets related to children's Chinese language proficiency in oral and written forms?

4. Research methods

4.1. Sampling

The study aims to get more information about the HLE of preschoolers, particularly those who will enter primary schools for formal education within a year. Thus, six-year-old Singaporean Chinese preschoolers are the target population. Cluster sampling was used among the different types of preschools according to the information acquired from government statistics. The proportion of the preschool types was estimated from the data collected by the Ministry of Community Development, Youth and Sports. Parent and school consents were collected from the selected preschools. Those who chose to opt out of the project were excluded from the study. Supplement samples were drawn from other preschools of the same type for a proportionally balanced sample. Finally, data of both questionnaire and proficiency tests from 376 preschoolers (178 boys, 188 girls and 10 missing of gender information) and their parents were collected.

4.2. Instruments

An earlier version of a systematic home language use survey for Singaporean children was designed by Kwan-Terry (1991) with the aim of understanding their language backgrounds. Her survey classified language use into three categories, namely: predominantly English, English and Chinese (bilingual) and predominantly Chinese. The Background Information Questionnaire for Parents developed by the Centre for Research in Pedagogy and Practice (Liu et al., 2006; the CRPP questionnaire) further developed Kwan-Terry's survey questionnaire and with a different method of analysis placed children on a continuum instead of categories. The only instrument that has been validated was the self-report classification tool for determining language dominance in English–Mandarin bilinguals by Valerie PC Lim, Rickard Liow, Lincoln, Chan, and Onslow (2008) which was intended for clinical use. Although the instrument was designed for Singaporean adults, its methodology and findings serve as a good reference for our research design. Lim's instrument made use of independent variables such as language proficiency, frequency of language use and domain of language use in both languages to classify the respondents into three categories of language dominance, namely: English-dominant, Mandarin-dominant and balanced bilinguals. The instrument uses single-word receptive vocabulary test to verify the dominance classifications, substantiating that self-ratings can provide valid and reliable measures of language dominance.

In view of the approaches employed by past studies, the current study adopted a similar survey method to outline the outside classroom environment (mainly home environment) of Singaporean Chinese preschoolers. Conventional testing approach was used to identify children's CL proficiency.

5. Parent questionnaire

We want to identify the characteristics (language dominance, in particular) of Singaporean Chinese preschoolers' HLE. Considering the young age of the participants, a parent self-report questionnaire was used. The questionnaire measures potential facets of children's HLE, including:

- Home language use: the language used in the conversations between the child and his/her parents, siblings and peers.
- Children's CL exposure: the sources of both spoken and written language input the child is exposed to including children's literacy-related activities (by themselves); parents' oral language and literacy support (oral language- and literacy-related activities) towards children's Chinese language learning.
- Children's age of initiating CL learning.
- Parents' Chinese language exposure in both oral and written forms.
- Family socio-economic status (SES) (e.g. family housing status and parents' educational levels).

Our questionnaire surveyed the parents with two sets of questions about their language use at home. The first set of questions asked children's language preference when talking to parents, siblings and peers (e.g. friends). The second set of questions asked parents' own language preference and the siblings' and peers' language preference when talking to the child. The parent answering the survey was asked to rate in a five-point scale (1 = Generally English; 2 = More English, less Chinese; 3 = Equally using Chinese and English; 4 = More Chinese, less English; and/or 5 = Generally Chinese).

Children's CL exposure was measured with four sets of questions:

(1) Self-conducted activities relating to oral CL, e.g. child watches Chinese cartoons or children's programmes (on TV or DVDs).
(2) Self-conducted activities relating to print CL, e.g. child reads Chinese storybooks.
(3) Joint activities with parents on oral CL, e.g. parents telling story to child.
(4) Joint activities with parents on print CL, e.g. parents bringing child to the library.

We also asked the amount of children's CL books at home as another indicator of children's print CL exposure.

Participants were to choose the frequency of carrying out the above-mentioned activities with five points, where the higher points chosen, the more frequent they were involved in the activities (1 = Rarely or never; 2 = Once in a while; 3 = 1 to 3 times per week; 4 = 4 to 6 times per week; and/or 5 = Everyday). The amount of Chinese books for children at home was also measured with five points, representing that the number of books ranges from less than 10 to 40 and above (1 = less than 10; 2 = 10–19; 3 = 20–29; 4 = 30–39; and/or 5 = 40 and above).

Parents' exposure to oral and written CL was measured with five points indicating how frequently they were exposed to CL (1 = never; 2 = less than three hours a week; 3 = three to six hours a week; 4 = six to nine hours a week; and/or 5 = more than nine hours a week). These items include frequencies of parents watching Chinese TV programmes (e.g. drama and news); parents listening to Chinese radio programmes or songs; mother reading Chinese materials; and father reading Chinese materials.

Children's initial age exposed to CL oral and print forms was measured with 6 points representing the age ranging from one-year old to six-years old (1 = before one-year old; 2 = one to two years old; 3 = two to three years old; 4 = three to four years old; 5 = four to five years old; and/or 6 = five to six years old).

Table 1. Groups of questions in the parent questionnaire

	Groups	Sub-groups	Number of items
Home language environment facets	Family language use	Children's language preference	4
		Language used when child was talking to	4
	Children's CL exposure	Self-conducted oral CL activities	3
		Self-conducted print CL activities	2
		Joint conducted oral CL activities with parents	2
		Joint conducted print CL activities with parents	3
		Children's CL books at home	1
	Parents' CL exposure	Oral CL activities	2
		Print CL activities	2
	Age of child exposed to CL	Oral CL	1
		Print CL	1
Family SES		Parents' educational levels	2
		Family housing status	1

Family SES factors were measured with six points, including two questions asking about parents' educational levels (1 = primary school; 2 = O-Level; 3 = A-Level; 4 = Diploma or advanced diploma; 5 = Bachelor; and/or 6 = Postgraduate and higher) and one question asking about family housing conditions (1 = Rented HDB flat; 2 = one to three room HDB flat; 3 = four room HDB flat; 4 = five room HDB flat; 5 = Private apartment; and/or 6 = Landed property). The higher the points, the higher the family's SES.

In sum, the HLE facets considered in this study can be categorized into four main groups. They are family language use, children's CL exposure, parents' CL exposure and the age of the child exposed to CL. We also considered other influencing factors that may affect the relationship between HLE and children's language proficiency, such as family SES factor.

Table 1 listed the groups, sub-groups and number of questions used in the questionnaire.

Parents of each participating child completed the questionnaire at their own convenience. The answered questionnaires were gathered in each preschool and then mailed back to the research team.

6. Language proficiency testing

Most of the measurements on young children's (L2) oral language proficiency use tests either on children's (expressive or receptive) oral vocabulary (c.f. Dunn & Dunn, 2012) or tests that require transcribing children's narratives (e.g. calculating syntactic complexity, Fey, Catts, Proctor-Williams, Tomblin, & Zhang, 2004). Given the unique bilingual status of the Singaporean Chinese children, the sample size and constrains of the current study, we adopted the method of scoring children's oral language production from general aspects. It is also important to measure children's character recognition skills as they are a prerequisite for acquiring CL reading skills later on. In particular, we shall attempt to see if there is any link between a child's readiness for character recognition, his (/her) overall oral language skills and the HLE.

Due to a lack of standardized tests suitable for examining Singaporean preschoolers' Chinese language proficiency in oral and written/print forms, the instrument for testing children's Chinese language proficiency was self-developed by the research team. The instrument was piloted in a previous study conducted in 2011 on the same age group of Singaporean preschoolers (c.f. Li & Tan, 2015). It includes a picture description and conversation task for measuring children's overall oral CL ability and a character recognition task for measuring children's written/print CL ability.

For the part on picture description and conversation, preschoolers were asked to describe what they see in two given pictures which relates to their everyday lives and interest. They were required to answer questions about their experiences or thoughts, in relation to the pictures. Their utterances were recorded and graded by two scorers according to an established rubric for speaking skills. Selected recordings were transcribed for further analysis.

The scoring rubrics were also piloted in the 2011 study with four aspects to rate between 1 point and 6 points each. The four aspects are:

(1) The overall language ability, which relates to the description of the pictures, expression of opinions, ability in answering the questions raised by the tester, etc.
(2) The organization, which refers to the sequencing of the utterance in the narration.
(3) The lexical, syntactical and discourse skills, which refer to the choice of words, the variety of vocabulary, sentence syntax and coherent of the discourse.
(4) The delivery, which refers to the fluency of the utterance.

Two trained researchers rated the oral CL proficiency of each child with the rubric and the inter-rater reliability was calculated with the correlations between the scorings of the two raters given to children's picture description tasks. The (Spearman) correlations between the two raters for the two picture descriptions are .824 and .814, respectively.

In this study, character recognition test was included and the list of 78 characters tested was those that commonly appear across various reading materials for young learners. The characters are arranged into 24 words and phrases on the flash cards, e.g. "三个人" (three persons), "嘴巴" (mouth). Children were given enough time to recognize the characters and were asked to read aloud each character. Character recognition task is scored by trained testers on site, with each correctly pronounced character scoring one point.[4]

The minimum scores of the picture description and conversation task and character recognition task are 4 and 0, respectively. The maximum scores of the two tasks are 24 and 78, respectively. We use the average of the two picture description and conversation scores as children's oral CL proficiency, and character recognition scores as their print CL proficiency.

7. Results

With the data from the parent surveys and children's CL proficiency tests, we firstly looked at several facets of Singaporean preschoolers' HLE. In relation to children's CL proficiencies, we would then discuss about the impact of the facets of HLE on children's CL proficiencies in consideration of family SES. Specifically, we would expect that children's language use and oral CL exposure factors will associate to their oral CL proficiency, while their print CL exposure factors will correlate with their written/print CL proficiency. Family SES and parents' CL exposure may also play an important role in influencing children's CL proficiencies.

7.1. Family SES

On the family SES aspects, the average of parents' education levels is "above diploma or advanced diploma" (M_{mother} = 4.10, SD_{mother} = 1.37, N_{mother} = 360; M_{father} = 4.19 SD_{father} = 1.45, N_{father} = 359), but with relatively large variation among the participants. The average family housing status is "five room

housing" (about mid-level SES, *M* = 3.88, SD = 1.06, *N* = 364). As family SES may affect children's opportunities of accessing certain language resources and materials, the variation found among Singapore preschoolers' family SES in this study may reveal its link to children's CL proficiencies.

7.2. Home language use

Home language use was measured with two sets of questions asking the parents their children's language preference when conversing with the parent, siblings and children's peers, and the language use of the parents, siblings and children's peers when they are talking to the children.

Table 2 showed the percentage distribution of each question. In general, children were reported to prefer English to Chinese (Mandarin) when conversing with their parents, siblings and peers, and their parents, siblings and peers echoed this pattern of language use in conversations with the children. In the conversation with fathers, for instance, about 2 out of 10 children use "generally English" (18.88%), about 4 out of 10 children use "more English, less Chinese" (38.83%), about 1 out of 10 children uses "equally Chinese and English" (13.56%), about 2 out of 10 children use "more Chinese and less English" (16.76%) and about only 1 of 10 children uses "generally Chinese" (8.24%). Children's preference of using English in conversations with their siblings[5] and peers is more obvious as compared to that of with their parents. Over 30% of the children converse mainly in English with their peers, another 30% converse more in English and less in Chinese with their peers. From the percentage of children's language use when talking to their mothers and the language use of the mothers, we can also infer that, even though the mothers tried to include more Chinese in the conversation, children still prefer using English to respond.

With a rough comparison between the proportions of language used by parents and the children in conversations, we can see some trace of language shift. In the big picture, more English than Chinese was used in the conversations. Even though parents, especially mothers, tried to use more Chinese, children were more inclined to use English.

7.3. Children's CL exposure (CL activities)

As shown in Table 3, generally, children's CL activities at home that involve the exposure to CL oral form and print form were not very frequent among surveyed participants. The average of the frequency scores is between 1.37 and 2.96, with the scores ranging from 1 to 5.

Children were reported to have activities that involved oral CL exposure by themselves at a frequency of about 3 to 6 h a week or less (the average of *M* is between 2 and 3). These surveyed activities include: watching CL cartoons or children's programme (*M* = 2.04, SD = .88, *N* = 363); watching

Table 2. Singapore Chinese preschoolers' language preference and language used when conversing

		Generally English (%)	More English, less Chinese (%)	Equal Chinese and English (%)	More Chinese, less English (%)	Generally Chinese (%)	Missing (%)
Child language when talking to	Mother	26.06	36.97	10.90	16.22	6.91	2.93
	Father	18.88	38.83	13.56	16.76	8.24	3.72
	Siblings	32.98	22.61	6.38	11.17	5.59	21.28
	Peers	34.04	39.63	12.23	6.38	3.72	3.99
Language using when talking to child	Mother	13.83	38.56	17.82	18.09	8.24	3.46
	Father	17.82	42.29	13.83	17.02	6.12	2.93
	Siblings	29.52	23.94	8.78	10.37	6.12	21.28
	Peers	32.98	41.22	11.70	7.18	2.39	4.52

Table 3. Descriptives of children's language exposure

			N	(*M*) Mean	(SD) Std. deviation	Scoring range
Self-conducted activities	Oral CL	Watch Chinese cartoons or children's programmes (on TV or DVDs)	363	2.04	.88	1–5
		Watch other Chinese TV programmes (e.g. drama, variety and news)	360	2.18	1.07	1–5
		Listen to Chinese songs	357	1.83	.76	1–5
	Print CL	Read Chinese storybooks	362	2.45	.95	1–5
		Play Chinese games on the computer	361	1.37	.68	1–5
Joint activities	Oral CL	Read a Chinese book with child (not related to homework or enrichment class)	364	2.46	.91	1–5
		Tell child stories in Chinese (not related to homework or enrichment class)	364	2.19	.93	1–5
	Print CL	Help child with his/her Chinese homework or enrichment work	366	2.96	1.00	1–5
		Bring child to the library to borrow Chinese books	365	2.34	1.21	1–5
		Buy Chinese books for child	365	2.00	.78	1–5
		Children's Chinese books at home	348	2.56	1.48	1–5

other Chinese TV programmes (M = 2.18, SD = 1.07, N = 360); and listening to Chinese songs (M = 1.83, SD = .76, N = 357). It is interesting to find that the frequency of children watching children's programmes is slightly lower than that of watching other CL TV programmes, which may reflect the lack of appropriate CL media resources for children.

The frequencies that the children were exposed to CL print forms when having activities by themselves are between "once in a while" and "1–3 times a week" for reading CL story books (M = 2.46, SD = 1.01, N = 1,220) and between "seldom" and "once in a while" for playing CL video games (M = 1.14, SD = .73, N = 1,208).

Among parent–child joint activities, parents reported supporting their children in exposing to CL on an average frequency of between "once in a while" and "1–3 times a week". These surveyed activities include: expose children to oral CL when reading CL story books with the children (M = 2.46, SD = .91, N = 364) and telling CL stories to the children (M = 2.19, SD = .93, N = 364); expose the children to print CL when helping children with their homework (M = 2.96, SD = 1.00, N = 366); bringing child to the library to borrow Chinese books (M = 2.34, SD = 1.21, N = 365); and buying children books in CL (M = 2.00, SD = .78, N = 365).

The availability of CL books for children at home was reported between 10 books and 29 books, with a relatively large variation among the participating families (M = 2.56, SD = 1.48, N = 348). This may reflect the wide range of SES of the surveyed participants (Chiu & McBride-Chang, 2006).

7.4. Parents' CL exposure

Descriptive results showed the averages and variations of each question measured regarding parents' language exposure (see Table 4). The two questions asking about the frequency of parents' exposure to CL oral form are watching CL TV programmes and listening to CL songs or radios. The two questions regarding parents' CL print exposure are the frequencies of father's and mother's reading of CL materials (e.g. newspapers and books). The results showed that the average frequency of parents' exposure to CL oral forms was between "3 h a week" and "3–6 h a week" (M_{TV} = 3.01, SD_{TV} = 1.25, N = 365; M_{RADIO} = 2.28, SD_{RADIO} = 1.13, N = 362), a bit higher than that of parents' print CL exposure (M_{m_read} = 2.38, SD_{m_read} = 1.27, N = 365; M_{f_read} = 2.20, SD_{f_read} = 1.33, N = 362). Parents'

exposure to oral and print CL is both with relatively great varieties, indicating the possible wide range of CL exposure among the participants.

7.5. The initial age of children exposed to CL

On average, Singaporean Chinese children were exposed to both CL oral and print forms at an early age (below three years old). As shown in Table 4, children's initial age exposed to CL oral form is between "1 and 2 years old" on average (M = 1.54, SD = .99, N = 363). Their initial age exposed to CL written/print form is between "2 and 3 years old" (M = 2.28, SD = 1.08, N = 359).

7.6. Correlations between children's CL proficiencies and HLE facets

As illustrated above, we surveyed five facets of Singaporean children's HLE, including family SES, home language use, children's CL exposure, parents' CL exposure and children's initial age exposed to CL. These are all possible factors that shape children's CL proficiencies in oral and print forms, but their influence may not be (and sometimes is found not to be) the same. In order to better understand the relations, we analysed that "to what extend these facets correlated to children's CL proficiencies". The items representing each facet are not structured set as scales; therefore, correlations between single item and proficiency scores are performed, instead of treating each facet as one factor. Nonparametric correlation (Spearman) was performed. Cases with missing data were excluded across the accessed variables in order to examine the interrelations among the facets of HLE as well. This process also serves as a preparation for the regression analyses later.

The correlation results (see Table 5) showed that all the HLE facets investigated in this study have an impact on children's oral CL proficiency, including family SES factors (parents' educational level negatively correlated to children's CL proficiencies), home language use, most of children's self-conducted activities and some joint activities with parents relating to oral CL exposure, parents' CL exposure and children's initial age exposed to CL. However, for children's print CL proficiency (character recognition), the influencing factors revealed are only father's educational level, frequency of children's reading of CL books, number of children's books at home and children's initial age exposed

Table 4. Parents' exposure to CL and children's initial age exposed to CL

Group	Items	(M) Mean	(SD) Std. deviation	N	Scoring range
Parent exposure to oral CL	Parents watch Chinese TV programmes (e.g. drama and news)	3.01	1.25	365	1–5
	Parents listen to Chinese radio programmes or songs	2.28	1.13	362	1–5
Parent exposure to print CL	Mother reads Chinese materials	2.38	1.27	365	1–5
	Father reads Chinese materials	2.20	1.33	362	1–5
Children's initial age exposed to CL	Initial age exposed to spoken Mandarin	1.54	.99	363	1–6
	Initial age exposed Chinese characters	2.25	1.06	359	1–6

Table 5. Correlations among HLE facets and children's CL proficiencies

	Items	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
1	Oral_prof	–																											
2	Print_prof	**.12**	–																										
3	Ed_Level_M	**−.14**	.09	–																									
4	Ed_Level_F	**−.14**	**.13**	.56	–																								
5	Housing	−.06	.10	.28	.34	–																							
6	Lan_C_to_M	**.33**	−.04	**−.32**	**−.15**	**−.20**	–																						
7	Lan_C_to_F	**.24**	−.10	**−.31**	**−.22**	**−.33**	**.75**	–																					
8	Lan_C_to_P	**.27**	−.04	**−.29**	**−.17**	**−.25**	**.69**	**.67**	–																				
9	Lan_M_to_C	**.29**	−.03	**−.26**	−.09	**−.17**	**.87**	**.63**	**.62**	–																			
10	Lan_F_to_C	**.20**	−.09	**−.30**	**−.20**	**−.30**	**.66**	**.88**	**.60**	**.69**	–																		
11	Lan_P_to_C	**.24**	−.03	**−.28**	**−.16**	**−.24**	**.63**	**.67**	**.80**	**.59**	**.64**	–																	
12	C_O_ChildTV	**.19**	−.06	**−.23**	**−.17**	**−.27**	**.38**	**.39**	**.44**	**.39**	**.36**	**.42**	–																
13	C_O_OtherTV	**.14**	.05	**−.29**	**−.36**	**−.32**	**.27**	**.35**	**.35**	**.26**	**.34**	**.35**	**.42**	–															
14	C_O_Song	**.17**	.04	−.11	−.10	**−.19**	**.34**	**.32**	**.32**	**.28**	**.30**	**.31**	**.37**	**.31**	–														
15	C_P_Read	.07	**.17**	.03	**.14**	.07	**.17**	**.17**	**.14**	**.17**	**.16**	**.15**	**.33**	**.13**	**.24**	–													
16	C_P_Game	.10	.06	**−.15**	**−.17**	**−.15**	**.25**	**.26**	**.29**	**.19**	**.22**	**.32**	**.34**	**.25**	**.32**	**.24**	–												
17	J_O_Read	.10	.06	−.03	**.13**	.02	**.21**	**.20**	**.12**	**.24**	**.19**	.10	**.35**	.11	**.28**	**.68**	**.22**	–											
18	J_O_TellStory	**.23**	.03	**−.15**	.04	−.04	**.29**	**.26**	**.20**	**.34**	**.29**	**.19**	**.38**	**.15**	**.27**	**.49**	**.24**	**.64**	–										
19	J_P_Home-work	.09	.04	−.02	.04	.00	**.17**	.10	**.18**	**.19**	**.14**	**.19**	**.20**	**.24**	**.19**	**.27**	.06	**.37**	**.30**	–									
20	J_P_Library	.08	.01	−.06	.05	−.09	**.16**	**.20**	**.19**	**.21**	**.18**	**.17**	**.26**	**.22**	**.20**	**.41**	**.34**	**.44**	**.44**	**.28**	–								
21	J_P_Buy-Books	.09	.01	.07	.01	.07	**.15**	**.15**	**.14**	**.13**	**.13**	**.21**	**.22**	**.15**	**.25**	**.23**	**.31**	**.30**	**.29**	**.21**	**.29**	–							
22	No_Child-Books	.09	**.23**	**.12**	**.15**	**.14**	.10	.02	.04	.11	.02	−.03	.07	.01	**.18**	**.34**	**.20**	**.35**	**.33**	**.19**	**.23**	**.30**	–						
23	P_O_TV	.08	−.02	**−.24**	**−.20**	**−.22**	**.21**	**.32**	**.27**	**.18**	**.31**	**.32**	**.24**	**.48**	**.19**	.02	**.14**	.05	.07	**.19**	**.12**	.11	−.05	–					
24	P_O_Radio	**.16**	.03	**−.20**	**−.12**	**−.12**	**.23**	**.28**	**.25**	**.25**	**.31**	**.27**	**.22**	**.25**	**.39**	.04	**.22**	**.21**	**.27**	.11	**.19**	**.30**	**.12**	**.33**	–				
25	P_P_MRead	**.18**	.00	**−.16**	−.07	**−.18**	**.37**	**.32**	**.31**	**.40**	**.37**	**.32**	**.31**	**.30**	**.29**	**.23**	**.27**	**.30**	**.38**	**.23**	**.32**	**.33**	**.18**	**.25**	**.39**	–			
26	P_P_FRead	.11	−.02	**−.23**	−.11	**−.22**	**.27**	**.45**	**.31**	**.27**	**.49**	**.33**	**.34**	**.29**	**.24**	**.18**	**.24**	**.19**	**.30**	**.20**	**.23**	**.24**	.11	**.33**	**.30**	**.52**	–		
27	Ini_Age_O	**.14**	−.08	**−.28**	**−.21**	**−.15**	**.54**	**.53**	**.46**	**.56**	**.55**	**.45**	**.24**	**.24**	**.22**	−.02	**.17**	.09	**.13**	.09	.10	**.13**	−.05	**.26**	**.18**	**.28**	**.30**	–	
28	Ini_Age_P	.10	**−.15**	**−.24**	**−.18**	−.10	**.33**	**.29**	**.31**	**.33**	**.29**	**.29**	**.14**	**.15**	**.14**	**−.12**	.03	.02	.02	.03	.00	−.03	−.06	**.18**	.09	**.13**	.10	**.51**	–

Notes: .11 < *r* < .14, *p* < .05; .15 < *r* < .17, *p* < .01; *r* > .17, *p* < .001, *N* = 298.

to CL print form. The correlation between children's oral CL proficiency and print CL proficiency is not high, though found statistically significant ($r = .12$, $p < .05$). This may imply that it is reasonable to look at children's CL proficiency in oral and print forms separately.

Looking at family SES factor, it seemed that the higher the parents' educational levels, the more English was used at home and the less frequent both children's and parents' activities were in CL at home. The older the initial age that the child was exposed to oral CL is, possibly and consequently, the lower the children's CL oral proficiency is. It is interesting to find that father's educational level negatively correlated to children's oral CL proficiency ($r = -.14$, $p < .05$), but positively correlated to children's print CL proficiency ($r = .13$, $p < .05$). It is possible that highly educated parents tend to use English at home, but may pay special attention to children's CL literacy enhancement. After all, print CL proficiency still plays a dominant role in primary school examination system.

Children's initial age exposed to CL is positively correlated to their oral CL proficiency (r = .14, p < .05), but negatively correlated to their print CL proficiency (r = −.15, p < .01). This may imply the need for additional effort from parents on the enhancement of children's CL print knowledge with other methods, rather than the natural CL exposure at home.

Correlations among the HLE facets are revealed as significantly positive, except for the relations with family SES. Children that use more CL in communications have CL activities more frequently either by themselves or with their parents. Their parents use more CL in the conversations and are exposed to CL more frequently as well. But parents with higher educational levels tend to use more English at home, be exposed to CL less frequently and conduct less CL-related activities with their child. Only the number of children's CL books at home correlated to family SES positively, indicating the higher the family SES, the more abundant the availability of learning materials at home.

8. Discussion

8.1. Home language use

This study profiled Singaporean Chinese children's HLE in various facets in relation to their oral and print CL proficiencies. Family language use showed a combination of using both English and Chinese. This, to a certain extent, corrects the perception that most of the Singaporean Chinese children generally or only speak English at home. Indeed, most of the children are reported bilinguals, using both Chinese and English (although in different proportions) in their daily communication with different persons. A noticeable trend is that more children use English among their peers and siblings, as compared to when they speak to their parents. This trend, if to continue, indicated the continuing shift of home language from Chinese to English when these children grow up and become parents. The different functions of Chinese (one of the mother tongue languages in Singapore) and English may also explain a bit about our finding and this possible trend of language shift. On the one hand, because English is promoted for the convenience of communication among different ethnic groups in Singapore, it is also regarded as an important means of national unity. With this established social consensus, children naturally switched to English when communicating with their friends often, regardless of their ethnic groups. On the other hand, English has established its position to facilitate science learning, higher education, economic advancement and social success of an individual in Singapore, while Chinese is promoted as constituting cultural identity, intra-ethnic communication and ethnic solidarity (Bokhorst-Heng, 1999). Hence, an equally rich, if not richer, environment of English would be built at home, together with that of Chinese by Singaporean parents. These language choices made by parents and children shaped the current home language shift and may continue their influences on the young generation.

In general, children's CL-related activities at home were found not frequent, indicating the lack of CL exposure at home in both oral and print forms for the children. There may be several plausible reasons. Firstly, most of the mass media programmes for children are in English in Singapore. The opportunities of being exposed to Chinese oral language and print materials are somehow limited. Secondly, a possible cultural difference lies between Chinese parents and parents in Western countries. Chinese parents tend to be less engaged and spend less time with their children reading together or telling bed time stories as compared to their Western counterparts (Johnston & Wong, 2002).

We have illustrated the significant and differential effects of home language use on Singaporean children's Chinese oral language proficiency. Our finding on home language use somehow echoed the findings from children learning heritage languages in the USA. (c.f. Duursma et al., 2007). The lack of usage in the mother tongue (or heritage language) within and out of the language community is getting evident. The less young children use the language, the less they were exposed to the rich environment of the language outside the family, all of which would accelerate language shift in young generations. If we hope to elevate the standards of Singaporean children's Chinese oral

language abilities, language choice of the family is a crucial decision and habit which should not be taken lightly by any Chinese family.

Our findings should also raise the attention of preschool teachers. Although home language use is uncontrollable, creating a most conducive CL environment and maximizing children's exposure to oral CL play an important role for CL acquisition of children attending preschools, where the major care givers for the day time are preschool teachers.

8.2. Other HLE factors

Except for language use, our findings also highlighted the importance of other HLE factors in children's CL learning. We found that children's CL activities, both oral CL and print CL related, are correlated to children's oral language ability, which strongly suggested that creating a CL-rich environment in either oral or written form will help with children's oral CL development. The findings on children's oral CL proficiency also indicate the importance of parents' participation in the activities in children's learning and practicing of oral CL. For parents, the findings meant that except for using more CL when having conversations with the children, joint activities, such as storytelling, will also enhance children's oral CL. For teachers, more CL-rich activities will enhance children's oral CL ability other than providing more CL resources. This will also inform the future curriculum design for preschools.

The findings on children's print CL proficiency emphasized the close link between reading resources and literacy development. Specifically, we found evidence that implies the impacts of literacy-related activities (reading), and the availability of reading materials, on children's CL character recognition. Despite the low frequency of children's CL reading activities at home, these activities have close relation with children's written language proficiency. This finding is in line with the arguments from most of the previous studies in other countries (c.f. Chow, McBride-Chang, Cheung, & Chow, 2008). Reading is expanding the print exposure, which may enhance character and word recognition. When more words are learnt, children's reading proficiency will improve.

It is, however, surprising to find that the effect of joint activities on print CL was not revealed in the current study, as compared to the findings in previous literature in other educational settings (c.f. Chow et al., 2008). Parents are playing important roles in children's literacy development as children grow up, not only by providing materials, but more importantly, by facilitating children's reading activities with more interaction to enhance comprehension, as well as setting up role models with good reading habits. Extended studies are needed to explore the reasons of why the current study did not find the effect of parent–child joint activities on children's CL proficiency in written form.

8.3. Implications and future studies

There are more and more children around the world learning a second language or living in a society where the dominant language is not their home language. Our findings in this study showed the many facets of HLE and their impact on children's language learning in a typical multilingual society. From the previous studies in other countries (and other educational settings), our findings confirmed once again the importance of home language use on children's learning of that language. It seems to be a universal finding across multilingual societies, which also supports the input-driven language learning theory. Although family language choices are made by parents, educators could also help with children's learning by creating a language-rich environment at school. Findings on the relations between language activities and children's language proficiencies showed some mechanism to teachers of how to tailor children's diverse learning needs in acquiring a language outside home with different kinds of activities and resources.

There are also many other possible further explorations and researches that can be done based on the current findings. For instance, besides the quantity, the quality of the activities at home is also very important which parents should be aware of. Although not discussed in the current study, previous studies found that exposure to story books helps with children's oral language development,

and additional support in the form of teaching by parents may be necessary to enhance children's written language (or literacy) skills (Sénéchal, Lefevre, Thomas, & Daley, 1998), and that parents-involved interactive (or dialogic) reading was more helpful in children's language and literacy development as compared to parent reading or telling a story to the child(e.g. Hargrave & Sénéchal, 2000). Extended studies in these areas will further our knowledge about bilingual young learner's language development and appropriate assistance that parents and educators can provide.

Acknowledgements
Data from this article are drawn from a research project approved by the Institutional Review Board of Singapore Centre for Chinese Language. Any findings, opinions and conclusions or recommendations expressed in this article are those of the authors and do not necessarily reflect those of the research centre and the funding party. The authors thank Mdm. Phua Lynn Dee and the previous members of the research team for their assistance in the data collection of this project.ERG-2013/06-TCL

Funding
The project was funded by the Lee Kuan Yew Fund for Bilingualism [grant number ERG-2013/06-TCL (ERG)] An Investigation of Singaporean Chinese Preschoolers' Language Use and Exposure.

Author details
Li Li[1]
E-mail: li.li@sccl.sg
Chee Lay Tan[1]
E-mail: cheelay.tan@sccl.sg
Hock Huan Goh[1]
E-mail: hockhuan.goh@sccl.sg
ORCID ID: http://orcid.org/0000-0002-2194-3601
[1] Singapore Centre for Chinese Language, Nanyang Technological University, Singapore, Singapore.

Citation information
Cite this article as: Home language shift and its implications for Chinese language teaching in Singapore, Li Li, Chee Lay Tan & Hock Huan Goh, *Cogent Education* (2016), 3: 1161958.

Notes
1. http://www.singstat.gov.sg/docs/default-source/default-document-library/publications/publications_and_papers/cop2010/census_2010_release1/cop2010sr1.pdf
2. Speech by Mr Lee Kuan Yew, Minister Mentor, at Speak Mandarin Campaign's 30th Anniversary Launch, 17 March 2009, 5:00 pm at the NTUC Auditorium.
3. http://news.singtao.ca/vancouver/2013-09-13/world1379066386d4695830.html
4. Standard Mandarin pronunciation of each character is used as the reference for the correct answers. However, considering the possible influence of dialects or English, the mistakes made in the tones of the characters are ignored. Besides, for the characters with multiple pronunciations, e.g. "长", either of them was considered correct.
5. The percentage of the missing data for the questions of the language use when conversing with siblings is high (21.28%) because a considerable amount of participating parents have only one child and they chose to omit the answers to these questions.

References
Aram, D., & Levin, I. (2001). Mother–child joint writing in low SES. *Cognitive Development, 16*, 831–852. http://dx.doi.org/10.1016/S0885-2014(01)00067-3

Bokhorst-Heng, W. (1999). Singapore's speak mandarin campaign: Language ideological debates and the imagining of the nation. In J. Blommaert (Ed.), *Language ideological debates* (Vol. 2, pp. 235–265). Berlin: Walter de Gruyter.

Bus, A. G., van IJzendoorn, M. H., & Pellegrini, A. D. (1995). Joint book reading makes for success in learning to read: A meta-analysis on intergenerational transmission of literacy. *Review of Educational Research, 65*(1), 1–21. http://dx.doi.org/10.3102/00346543065001001

Bybee, J. (2010). *Language, usage and cognition*. Cambridge: Cambridge University Press. http://dx.doi.org/10.1017/CBO9780511750526

Cheah, C. M. (2003). *Jiaoxue yu ceshi [Teaching and testing]*. Singapore: Singapore Chinese Teachers' Union.

Chiu, M. M., & McBride-Chang, C. (2006). Gender, context, and reading: A comparison of students in 43 countries. *Scientific Studies of Reading, 10*, 331–362. http://dx.doi.org/10.1207/s1532799xssr1004_1

Chow, B. W. Y., McBride-Chang, C., Cheung, H., & Chow, C. S. L. (2008). Dialogic reading and morphology training in Chinese children: Effects on language and literacy. *Developmental Psychology, 44*, 233–244. http://dx.doi.org/10.1037/0012-1649.44.1.233

CLCPRC (Chinese Language Curriculum and Pedagogy Review Committee) (2004). *Report of the Chinese language curriculum and pedagogy review committee*. Singapore: Chinese Language Curriculum and Pedagogy Review Committee.

Dickinson, D. K., & Tabors, P. O. (2001). *Beginning literacy with language: Young children learning at home and school*. Baltimore, MD: Paul H. Brookes.

Dixon, L. Q. (2011). The role of home and school factors in predicting English vocabulary among bilingual kindergarten children in Singapore. *Applied Psycholinguistics, 32*, 141–168. http://dx.doi.org/10.1017/S0142716410000329

Dunn, L. M., & Dunn, D. M. (2012). *Peabody picture vocabulary test, (PPVT™-4)*. Johannesburg: Pearson Education.

Duursma, E., Romero-Contreras, S., Szuber, A., Proctor, P., Snow, C., August, D., & Calderón, M. (2007). The role of home literacy and language environment on bilinguals' English and Spanish vocabulary development. *Applied Psycholinguistics, 28*, 171–190. http://dx.doi.org/10.1017/S0142716406070093

Ellis, N. C. (2002). Frequency effects in language processing. *Studies in Second Language Acquisition, 24*, 143–188.

Fey, M. E., Catts, H. W., Proctor-Williams, K., Tomblin, J. B., & Zhang, X. (2004). Oral and written story composition skills of children with language impairment. *Journal of Speech, Language, and Hearing Research, 47*, 1301–1318. http://dx.doi.org/10.1044/1092-4388(2004/098)

Goh, Y. H. (2004). *Huayuwen zai Xinjiapo de xianzhuang yu qianjing [The current practice and prospect of Chinese language education in Singapore]*. Singapore: Chuangyiquan Chubanshe [Candid Creation Publishing].

Goh, H. H. (2012). *A study of lexical diversity, syntactic complexity and code-switching in spoken mandarin of Chinese preschoolers in Singapore: A corpus-based analysis (Unpublished doctoral dissertation)*. Singapore: National Institute of Education, Nanyang Technological University.

Gutiérrez-Clellen, C., & Kreiter, J. (2003). Understanding child bilingual acquisition using parent and teachers reports. *Applied Psycholinguistics., 24*, 267–288.

Hammer, C. S., Davison, M. D., Lawrence, F. R., & Miccio, A. W. (2009). The effect of maternal language on bilingual children's vocabulary and emergent literacy development during head start and kindergarten. *Scientific Studies of Reading, 13*, 99–121. http://dx.doi.org/10.1080/10888430902769541

Hargrave, A. C., & Sénéchal, M. (2000). A book reading intervention with preschool children who have limited vocabularies: The benefits of regular reading and dialogic reading. *Early Childhood Research Quarterly, 15*, 75–90. http://dx.doi.org/10.1016/S0885-2006(99)00038-1

Johnston, J. R., & Wong, M. Y. A. (2002). Cultural differences in beliefs and practices concerning talk to children. *Journal of Speech, Language, and Hearing Research, 45*, 916–926. http://dx.doi.org/10.1044/1092-4388(2002/074)

de Jong, P. F., & Leseman, P. P. (2001). Lasting effects of home literacy on reading achievement in school. *Journal of School Psychology, 39*, 389–414. http://dx.doi.org/10.1016/S0022-4405(01)00080-2

Kwan-Terry, A. (1991). Home language and school language: A study of children's language use in Singapore. In A. Kwan-Terry (Ed.), *Child language development in Singapore and Malaysia* (pp. 12–34). Singapore: Singapore University Press.

Li, L., & Tan, C. L. (2015). Home literacy environment and its influence on Singaporean children's Chinese oral and written language abilities. *Early Childhood Education Journal,* 1–7. doi:10.1007/s10643-015-0723-4.

Li, L., Zhang, D., & Zhao, S. (2013). Singaporean Chinese children's home literacy environment and its influence on Chinese lexical knowledge and reading ability. *Journal of Chinese Language Teaching, 10*(4), 109–130.

Lim, V. P. C., Rickard Liow, S. J., Lincoln, M., Chan, Y. H., & Onslow, M. (2008). Determining language dominance in English-Mandarin bilinguals: Development of a self-report classification tool for clinical use. *Applied Psycholinguistics, 29*, 389–412.

Liu, Y., Goh, H. H., & Zhao, S. (2006). *Transcribing Chinese language classroom talk: To build a computer corpus (Technical Report)*. Singapore: CRPP, NIE, Nanyang Technological University.

Pearson, B. Z., Fernandez, S. C., Lewedeg, V., & Oller, D. K. (1997). The relation of input factors to lexical learning by bilingual infants. *Applied Psycholinguistics, 18*, 41–58. http://dx.doi.org/10.1017/S0142716400009863

Scheele, A. F., Leseman, P. P., & Mayo, A. Y. (2010). The home language environment of monolingual and bilingual children and their language proficiency. *Applied Psycholinguistics, 31*(01), 117–140. http://dx.doi.org/10.1017/S0142716409990191

Sénéchal, M., Lefevre, J. A., Thomas, E. M., & Daley, K. E. (1998). Differential effects of home literacy experiences on the development of oral and written language. *Reading Research Quarterly, 33*, 96–116. http://dx.doi.org/10.1598/RRQ.33.1.5

Senechal, M., & LeFevre, J. A. (2002). Parental involvement in the development of children's reading skill: A five-year longitudinal study. *Child Development, 73*, 445–460. http://dx.doi.org/10.1111/cdev.2002.73.issue-2

Singapore Department of Statistics (2011). *Census of population 2010*. Republic of Singapore: Department of Statistics, Ministry of Trade & Industry.

Snow, C. E., & Ninio, A. (1986). The contracts of literacy: What children learn from learning to read books. In W. H. Teale & E. Sulzby (Eds.), *Emergent literacy: Writing and reading* (pp. 116–137). Norwood, NJ: Ablex.

Zhao, S., & Liu, Y. (2008). Xinjiapo huazu shequn jiating yongyu de shehui yuyanxue fenxi [A sociolinguistic study on home-language use in Singapore Chinese community]. *Shehui Kexue Zhanxian[The Social Science Frontier], 158*, 131–137.

Cogent Education **(ISSN: 2331-186X) is published by Cogent OA, part of Taylor & Francis Group.**