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Chow, Bonnie Wing-Yin; Chui, Barbie Hiu-Tung; Lai, Michael Wei-Chun; Kwok, Sylvia Y.C.L.

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**Differential influences of parental home literacy practices and anxiety in English as a foreign language on Chinese children's English development**

Bonnie Wing-Yin Chow, Barbie Hiu-Tung Chui, Michael Wei-Chun Lai and Sylvia Y.C.L.

Kwok

Department of Applied Social Sciences, City University of Hong Kong, Hong Kong, China

**Abstract**

This study investigated the differential influences of maternal and paternal factors on Chinese children's English as a foreign language development. It took into account both behavioral (i.e. parental home literacy practices, HLP; and children's vocabulary knowledge) and emotional (i.e. parental and children's foreign language reading anxiety, FLRA) aspects of home literacy environment and children's language outcomes. Forty-eight Chinese first graders were tested individually on English vocabulary knowledge. Subsequently, both parents of participating children completed a questionnaire rating their HLP on English as a foreign language, their FLRA and their child's FLRA. Results from hierarchical regression analysis showed that paternal HLP predicted children's English vocabulary knowledge and paternal FLRA predicted children's FLRA, after controlling for children's age, family income and parental education level. However, when the effects of maternal factors were accounted for, these paternal factors did not uniquely contribute to children's English vocabulary knowledge or FLRA. In contrast, maternal HLP and FLRA explained unique variance in both children's English vocabulary knowledge and FLRA, even after paternal factors were accounted for. These results have provided a more comprehensive picture of how home literacy environment contributes to children's foreign language development, by indicating maternal and paternal contributions both behaviorally and emotionally.

**Keywords:** Parental home literacy practices; foreign language reading anxiety; Chinese children; vocabulary knowledge; English as a foreign language

## **Introduction**

Home literacy environment plays a prominent role in children's language development. Robust research evidence has shown that mothers' home literacy practices (HLP) in their first language contribute to children's first language development (e.g. Aram, Korat, and Hassunah-Arafat 2013; Umek, Podlesek, and Fekonja 2005; Weigel, Martin, and Bennett 2006). Recently, researchers have also started investigating the role of fathers in home literacy environment in their first language (e.g. Aram 2010; Burgess 2011; Martini and Sénéchal 2012; Morgan, Nutbrown, and Hannon 2009). However, little remains known about the differential influences of maternal and paternal foreign language HLP on children's foreign language development. Previous studies have largely focused on the behavioral aspects of home literacy environment and children's language performance in their first language. Therefore, the present study extended previous research in two major ways. First, it investigated the influences of maternal and paternal foreign language HLP on Chinese children's English as a foreign language (EFL) development. Second, it examined both maternal and paternal influences on children's EFL development, while taking into account both behavioral (i.e. parental HLP and children's vocabulary knowledge) and emotional aspects (i.e. parental and children's foreign language reading anxiety; FLRA) of home literacy environment and children's language performance. Findings from this study enhanced our understanding of the impacts of home literacy environment on children's foreign language development.

### *HLP and children's language acquisition*

HLP include direct instructional learning and observational learning activities. Both behavioral practices are important to children's language development (Burgess, Hecht, and Lonigan 2002). Robust research evidence has highlighted the contributions of HLP to

children's first language development in different languages and countries. For instance, exposure to books at home predicted first language vocabulary knowledge in both English (Sénéchal and LeFevre 2002; Sénéchal et al. 1998) and French languages (Sénéchal 2006) for first graders and kindergarteners in Canada. Similarly, parent-child shared reading promoted kindergarteners' first language vocabulary knowledge and literacy growth in the English language in Canada (Lonigan and Whitehurst 1998), as well as in the Chinese language in Hong Kong (Chow et al. 2008). In Canada, parental teaching was also found to contribute to children's first language early literacy skills in English (Martini and Sénéchal 2012; Sénéchal and LeFevre 2002; Sénéchal et al. 1998). Long-term effects of HLP have also been reported in longitudinal studies. For instance, parent-child reading and parental teaching about reading and writing for preschoolers have been found to be significant predictors of grade one children's first language skills in English in Australia (Hood, Conlon, and Andrews 2008) and Canada (Stephenson et al. 2008).

Previous studies on the relationship between HLP and children's language development have mostly focused on first language development in a context where English is the native language (e.g. Burgess, Hecht, and Lonigan 2002; Martini and Sénéchal 2012; Sénéchal and LeFevre 2002; Sénéchal et al. 1998). A number of studies have explored the relationship between HLP and first language development in other language contexts: Arabic (Aram, Korat, and Hassunah-Arafat 2013); Chinese (Chow and McBride-Chang 2003; Chow et al. 2008); German (Niklas and Schneider 2013); French (Sénéchal 2006); Hebrew (Aram 2010) and Slovenian (Umek, Podlesek, and Fekonja 2005). Only a few studies have investigated the relationship between HLP and children's foreign language development, most of which have focused on a specific component in HLP, namely parent-child reading. For example, in Spanish families, the frequency of parent-child reading in English as reported by parents was

found to predict their toddlers' English vocabulary knowledge (Patterson 2002). Additionally, parent-child reading in English was also shown to enhance English word reading skills in Hong Kong Chinese kindergarteners (Chow, McBride-Chang, and Cheung 2010). The relationship between HLP in general (not just parent-child reading) and children's foreign language development remains unclear. It should also be noted that the bulk of such research has focused on mothers' contributions or included predominantly mothers as the parent participants. Therefore, this study aimed to extend past research by assessing both maternal and paternal HLP and their contributions to Chinese EFL children's English language development.

#### *Maternal and paternal HLP*

In studies assessing the impact of maternal contributions, maternal HLP has consistently been reported to be strongly associated with children's language development (Aram, Korat, and Hassunah-Arafat 2013; Weigel, Martin, and Bennett 2006). For example, research showed that children had greater gains in first language print knowledge and reading interest if their mothers reported a higher frequency of carrying out shared reading and language activities with them in a first language (Weigel, Martin, and Bennett 2006). In addition, mother-child interactive reading and mother-child joint writing in their first language were positively associated with children's first language expressive language ability and literacy achievement in Arabic (Aram et al. 2013) and Slovene (Umek, Podlesek, and Fekonja 2005). Nonetheless, paternal contributions to children's language development should not be neglected, especially as fathers become more involved in nurturing their children in today's society.

The role of paternal HLP in children's language development has recently started to attract researchers' attention. According to mothers' reports, almost all fathers in the participating

families were involved in first language home literacy activities with their children by providing literacy opportunities, recognizing children's achievement, interacting with children and modeling literacy activities. However, fathers were reported to be less involved in providing literacy opportunities than mothers (Morgan, Nutbrown, and Hannon 2009). In fact, provision of reading opportunities to children was significantly associated with maternal, but not paternal, first language reading behavior (Burgess 2011). However, a potential caveat with these findings is that the surveys employed by such studies were often predominantly completed by mothers instead of by the fathers themselves (e.g. Burgess 2011). Mothers' responses to questions about paternal HLP may thus have been a source of bias, and findings on paternal HLP may have been less accurate than if had been provided first-hand by the fathers. The potential bias of obtaining only mothers' ratings or not distinguishing between maternal and paternal HLP has been underscored by research findings. For instance, a videotape of first language parent-child joint writing activities in Israel showed that mothers tend to provide a higher level of guidance and interaction with their child in comparison to fathers (Aram 2010). Therefore, the current study invited both parents in the family to provide self-report data on HLP individually and independently in order to distinguish between paternal and maternal practices.

#### *Foreign language anxiety and children's language acquisition*

Foreign language anxiety (FLA) is a type of situation-specific anxiety defined as a complex combination of self-perceptions, beliefs and feelings of tension and apprehension uniquely associated with foreign language usage (Horwitz, Horwitz, and Cope 1986; MacIntyre and Gardner 1994). FLA in children is conceptualized as the emotional aspect of their language development in the current study. Previous studies have consistently reported a negative correlation between FLA and performance on language tasks (Horwitz, 2010). In one of these

studies, Israeli seventh graders' FLA was significantly negatively correlated with their English language skills and literacy skills (Abu-Rabia 2004; Argaman and Abu-Rabia 2002). FLA was also found to negatively correlate with native English-speaking students' achievements in Irish (Murtagh 2007), French (Saito, Garza, and Horwitz 1999) and Arabic (Elkhafaifi 2005). Furthermore, a negative correlation was also observed between FLA and English performance in EFL students in Korea (Thompson and Lee 2013), Spain (Hewitt and Stephenson 2012) and China (Shao, Yu, and Ji 2013). In line with these findings, a higher level of FLA was also found to be associated with lower self-rated English skills in Chinese EFL undergraduates (Liu and Jackson 2008). While these studies have investigated FLA and language acquisition in adolescents and emerging adults, the present study extended this line of research to young children.

Foreign language acquisition research has begun to distinguish between general FLA and FLA that is experienced only during certain aspects of foreign language use, for example, reading (Saito, Horwitz, and Garza 1999). Despite this distinction, FLRA has also been reported to have a similarly negative effect on foreign language achievement (Saito, Horwitz, and Garza 1999; Ipek, 2004). Previous studies have shown that anxiety often runs in families, such that children of anxious parents are more likely to be anxious themselves (Aktar et al. 2014; Beidel and Turner 1997; Turner, Beidel, and Costello 1987). It has also been suggested that fathers and mothers play a similarly important role in transferring anxiety to children (Aktar et al. 2014). Through observational learning of parental behavior, children may learn anxious responses from their parents (Fisak and Grills-Taquechel 2007; Murray, Creswell, and Cooper 2009). In line with this notion, parental FLRA may have an effect on children's FLRA, although there is currently no evidence that FLRA also runs in families. Specifically, children of parents with high FLRA may develop FLRA themselves as a result of observing



their parents' behavior during language-related activities. Additionally, individuals with higher FLA level tend to be less willing to communicate in a foreign language (Liu and Jackson 2008). Therefore, parents with higher FLRA may also be less willing to communicate with their children in a foreign language, thus engaging in fewer foreign language literacy activities with their children, which may in turn lead to an increased FLRA in these children due to unfamiliarity with the foreign language. Gaining a deeper understanding of FLRA in young children is of importance as findings can help to provide insight into how to reduce FLRA at an earlier age and hence minimize its detrimental effect on foreign language acquisition. However, to date, there remains a lack of research investigating the relationship between parental and children's FLRA. Therefore, this study aimed to fill in this research gap by investigating the relationship between parental and children's FLRA in Chinese EFL families.

Many of the past studies examining general FLA have focused on examining general anxiety experienced by learners in the classroom, measured by the Foreign Language Classroom Anxiety Scale (Horwitz, Horwitz, and Cope 1986). While this measure of anxiety has enhanced our understanding of general FLA experienced in the classroom, it is not an effective measure to be administered on parents in a home environment. Given that many literacy practices at home revolves around reading-related activities, such as reading a book/textbook/magazine, shared reading, and taking the child to the library, it was deemed more appropriate to measure FLRA in parents and their children in this study using the Foreign Language Reading Anxiety Scale (Saito, Garza, and Horwitz 1999). Hence, the present study not only extended the line of research to young children, it further extended the examination of FLA to the home environment.

### *The present study*

This study examined how foreign language home literacy environment influenced Chinese EFL children's English language development. Specifically, it investigated the roles of maternal and paternal foreign language HLP and FLRA in children's foreign language vocabulary knowledge development and FLRA. This study aims to extend previous research by investigating maternal and paternal influences on children's foreign language development while taking into account both behavioral (i.e. parental foreign language HLP; and children's foreign language vocabulary knowledge) and emotional (i.e. parental and children's FLRA) aspects of home literacy environment and children's language performance. Vocabulary knowledge was chosen to be a measure of children's language development as it has been indicated to have a direct relationship with HLP in past studies, including longitudinal studies (e.g. Chow et al. 2008; Hood, Conlon, and Andrews 2008; Patterson 2002; Sénéchal 2006; Sénéchal et al. 1998; Stephenson et al. 2008). To assess FLRA, the Foreign Language Reading Anxiety Scale (Saito, Garza, and Horwitz 1999), a widely used measure, was employed.

There are two major research questions in the present study. First of all, how do mothers' and fathers' foreign language HLP in English differentially contribute to Chinese EFL children's English vocabulary knowledge and FLRA? Second, how does maternal and paternal FLRA differentially contribute to Chinese EFL children's English vocabulary knowledge and FLRA? We investigated these research questions while controlling for family socioeconomic status as reflected by parental educational level and income.

## **Method**

### *Participants*

Forty-eight primary first graders and their parents in Hong Kong were recruited in this study. There were 30 boys and 18 girls in total, with a mean age of 6.70 years (SD: 0.36 years). All child participants were native speakers of Cantonese and were learning English as a foreign language. Monthly family income ranged from HK\$10,000 or less (US\$1290 or less) to HK\$45001 or more (US\$5805 or more), with a median income of HK\$20,001–HK\$25,000 (US\$2580–US\$3225). Parental education level ranged from primary education or lower to a bachelor's degree, with a median education level of secondary education.

In Hong Kong, students start to receive formal English language instruction in schools at primary grade one; however, most of them begin learning English in kindergarten or at home prior to the formal instruction. Children in the present study received the English Language curriculum adopted in majority of local primary schools. In general, a total of 17–21% of lesson time is allocated to English Language. The English Language curriculum focus for students at this stage is to build the foundation of English language development with positive values and attitudes through interesting activities. Under this curriculum, considerable emphasis is placed on the following aspects of the English language: communicative functions, generic skills, language skills and strategies of listening, speaking, reading and writing, as well as language forms (Curriculum Development Council HKSAR 2004).

### *Procedures*

Invitation letters and consent forms were sent to parents through the primary school. After obtaining consent from the parents, children were individually administered tests of

vocabulary knowledge at their school by trained experimenters during regular school days in the spring semester. The test lasted about 20 minutes. Take-home questionnaires on HLP and FLRA relating to English usage were then given to both parents of the participating children to complete.

### *Measures*

#### English receptive vocabulary

Children's English receptive vocabulary knowledge was assessed using the Receptive One-word Picture Vocabulary Test – Fourth Edition (ROWPVT-4; Martin and Brownell 2011). A total of 20 items of varying difficulty were chosen from the ROWPVT-4, which has been successfully administered in Chinese EFL children previously (Wong et al. 2014). To make the task more suitable for testing Chinese EFL students, 15 items selected from the vocabulary lists in the students' English textbook were added. The English receptive vocabulary task therefore consisted of 35 items in total. For each item, children were asked to indicate by pointing which one of four presented pictures best represented the meaning of a word spoken by the experimenter. The maximum score on this task was 35 and the Cronbach's  $\alpha$  was 0.82.

#### English expressive vocabulary

Children's English expressive vocabulary knowledge was assessed using the Expressive Vocabulary Test – Second Edition (EVT-2; Williams 2007). A total of 18 items of varying difficulty were chosen from the first 60 items in the EVT-2. They were of a difficulty level suitable to our participants as demonstrated in a pilot test. To make the task more suitable for testing Chinese students learning English as a foreign language, 12 items selected from vocabulary lists in the students' English textbook were also included. The English expressive

vocabulary task therefore consisted of 30 items in total. For each item, children were asked to say an English word that best represented the picture shown by the experimenter. The maximum score on this task was 30 and the Cronbach's  $\alpha$  was 0.91.

#### Maternal and paternal questionnaire

This questionnaire consisted of items on English HLP, self-rated FLRA and their child's FLRA. Demographic information including family income, parental educational level and children's age was also collected. All items were translated into Chinese and then back-translated into English to ensure the accuracy of the translation.

*HLP.* The frequency of various home literacy activities in English of the parents and the children was measured by the 16-item Parental literacy practices subscale adapted from the HLP Inventory (Wu and Honig 2010). Parents were asked to report on the frequency of their HLP in English as a foreign language. Sample items include 'You read a children's picture book to the child at bedtime' and 'You teach your child how to read words'. As electronic materials such as E-books are widely used by this generation, 6 items about HLP with electronic materials were included to improve the validity of the home literacy environment assessment. All responses were scored on a 4-point Likert scale (1 = never or rarely; 2 = once a while; 3 = often; 4 = very often). There were 22 items in total. Both paternal and maternal HLP scales had the same maximum score of 88. Cronbach's  $\alpha$  for the maternal and the paternal HLP scales was 0.94 and 0.95, respectively.

*Parental self-rated FLRA.* Parental FLRA was measured using items adapted from the Foreign Language Reading Anxiety Scale (Saito, Garza, and Horwitz 1999). This 20-item scale assesses anxiety relating to using English in reading contexts. Parents were asked to rate

their level of FLRA in each item. Sample items include ‘When reading English, I get nervous and confused when I don’t understand every word’; ‘When reading English, I often understand the words but still can’t quite understand what the author is saying’. All responses were scored on a 5-point Likert scale (1 = strongly disagree; 2 = disagree; 3 = neutral; 4 = agree; 5 = strongly agree). The maximum score on this scale was 100, whereby a higher score indicates a higher level of anxiety. Both parents were asked to complete the scale individually, thus yielding two separate scores: a maternal and a paternal FLRA scores. Cronbach’s  $\alpha$  for the maternal and the paternal FLRA scales was 0.90 and 0.91, respectively.

*FLRA of children rated by parents.* Children’s FLRA was rated by their parents using the FLRA scale described above. This 20-item scale assesses children’s anxiety relating to using English. The child’s final FLRA score was the mean of the scores given by both parents, whereby the maximum score was 100 and Cronbach’s  $\alpha$  was 0.91.

## Results

Descriptive statistics of children's age, English receptive and expressive vocabulary knowledge, as well as parents' HLP and FLRA are shown in Table 1. Paired-samples *t*-tests revealed no significant differences between paternal and maternal HLP, as well as between paternal and maternal FLRA. Additionally, independent-samples *t*-tests showed no significant differences between boys and girls on vocabulary skills and FLRA.

Table 1. Means and standard deviations of all measures.

Variables (max. score)	Mean	S.D.
Child's age (year)	6.70	0.36
Paternal HLP [88]	30.91	9.19
Maternal HLP [88]	31.60	8.25
Paternal FLRA [100]	65.21	8.50
Maternal FLRA [100]	67.12	10.04
Children FLRA [100]	67.83	7.71
English receptive vocabulary [35]	22.73	5.68
English expressive vocabulary [30]	10.10	6.15

Next, a bivariate correlation analysis was conducted to examine the relationship between vocabulary knowledge, FLRA and HLP variables. There were several interesting features among these correlations as displayed in Table 2. First of all, both paternal and maternal HLP were observed to be significantly correlated with children's English vocabulary knowledge (*r* ranges from 0.49 to 0.62; see Table 2). Second, paternal HLP was negatively correlated with paternal FLRA (*r* = -0.41), while maternal HLP was negatively correlated with maternal FLRA (*r* = -0.40). Third, maternal HLP (*r* = -0.40), but not paternal HLP was found to be negatively associated with children's FLRA. Finally, paternal, maternal and children's FLRA were moderately to highly correlated with each other (*r* ranges from 0.56 to 0.72), whereby children's FLRA was positively correlated with not only their same-sex parent's FLRA, but also that of their opposite-sex parents (*r* ranges from 0.61 to 0.75, *p* < .05).

Table 2. Correlations among HLP, FLRA and vocabulary knowledge.

	English receptive vocabulary	English expressive vocabulary	Paternal HLP	Maternal HLP	Paternal FLRA	Maternal FLRA	Children FLRA
English expressive vocabulary	.85**	–					
Paternal HLP	.49**	.60**	–				
Maternal HLP	.54**	.62**	.68**	–			
Paternal FLRA	-.18	-.19	-.41**	-.21	–		
Maternal FLRA	-.33*	-.26	-.16	-.40*	.56**	–	
Children FLRA	-.25	-.30*	-.30	-.40*	.60**	.72**	–

\**p* < .05.

\*\**p* < .01.

### Parental HLP

Hierarchical regression analyses were conducted to investigate the unique contributions of paternal and maternal HLP to children’s English vocabulary knowledge and reading anxiety. Two models were conducted to test for children’s receptive and expressive vocabulary knowledge and FLRA respectively (Table 3). In both models, background variables including children’s age, family income and parental education level were entered at the first step as control variables. In the first model, maternal HLP was entered at the second step and paternal HLP was entered at the third step. In the second model, paternal HLP was entered at the second step and maternal HLP was entered at the third step. Table 3 shows the final beta weights for parental HLP and background variables in explaining children’s English vocabulary knowledge and FLRA.

Table 3. Hierarchical regressions predicting children’s English vocabulary knowledge and FLRA with parental HLP in English.

	Steps	Variables	English receptive vocabulary			English expressive vocabulary			Children FLRA		
			$\beta$	<i>t</i> -Value	$\Delta R^2$	$\beta$	<i>t</i> -Value	$\Delta R^2$	$\beta$	<i>t</i> -Value	$\Delta R^2$
Model I & II	1.	Children’s age	-.08	-0.49	.21	-.11	-0.67	.20	.08	0.43	.14
		Paternal income	.22	1.27		.12	0.66		-.38	-1.99 <sup>#</sup>	
		Maternal income	.26	1.41		.24	1.32		.05	0.24	
		Paternal education level	.06	0.31		.13	0.67		.16	0.72	
		Maternal education level	.11	0.57		.16	0.83		-.15	-0.70	
Model I	2.	Maternal HLP	.44	2.97**	.17**	.55	3.97**	.26**	-.42	-2.57*	.15*
	3.	Paternal HLP	.12	0.53	.01	.27	1.33	.03	.13	0.53	.01
Model II	2.	Paternal HLP	.40	2.18*	.10*	.57	3.36**	.20**	-.23	-1.10	.03
	3.	Maternal HLP	.38	1.95 <sup>#</sup>	.07 <sup>#</sup>	.40	2.27*	.08*	-.49	-2.32*	.13*

<sup>#</sup>*p* < .06.

\**p* < .05.

\*\**p* < .01.

### English vocabulary knowledge

In the first model, maternal HLP significantly predicted children’s English receptive vocabulary knowledge ( $\beta = .44, p < .01$ ) and English expressive vocabulary knowledge ( $\beta = .55, p < .01$ ), after controlling for the background variables. In this model, maternal HLP accounted for 17% and 26% of variance in children’s English receptive and expressive vocabulary knowledge respectively, while paternal HLP did not significantly predict either of the English vocabulary variables (see Model I in Table 3).



In the second model, paternal HLP significantly predicted children's English receptive vocabulary knowledge ( $\beta = .40, p < .05$ ) and English expressive vocabulary knowledge ( $\beta = .57, p < .01$ ). Paternal HLP was found to explain a significant 10% and 20% of variance in children's English receptive and expressive vocabulary knowledge respectively (see Model II in Table 3). In this model, maternal HLP significantly predicted children's English expressive vocabulary knowledge ( $\beta = .40, p < .05$ ) and marginally predicted children's English receptive vocabulary knowledge ( $\beta = .38, p < .06$ ) even when the effects of paternal HLP were controlled for. In particular, maternal HLP explained 7% and 8% of variance in children's English receptive and expressive vocabulary knowledge, respectively (see Model II in Table 3). This pattern of results suggests a stronger contribution of maternal HLP to English vocabulary knowledge. When controlling for the effects of maternal HLP (Model I), paternal HLP was no longer a significant predictor of vocabulary knowledge, whereas maternal HLP showed a significant predictive effect on vocabulary knowledge even when the effects of paternal HLP were controlled for.

#### *FLRA*

After controlling for the background variables, maternal HLP significantly predicted children's FLRA ( $\beta = -.42, p < .05$ ), accounting for 15% of its variance (see Model I in Table 3). When further controlling for the effects of paternal HLP, maternal HLP remained a significant predictor of children's FLRA ( $\beta = -.49, p < .05$ ), explaining 13% of its variance (see Model II in Table 3). In contrast, paternal HLP was not found to be a predictor of children's FLRA in either of the two models.

### Parental FLRA

Hierarchical regression analyses were conducted to examine the unique contributions of paternal and maternal FLRA to children’s English vocabulary knowledge and reading anxiety. Again, two models were conducted to test for children’s receptive and expressive vocabulary and FLRA, respectively (Table 4). In both models, children’s age, family income and parental education level were entered at the first step. For the first model, maternal FLRA was entered at the second step and paternal FLRA was entered at the third step. For the second model, paternal FLRA was entered at the second step and maternal FLRA was entered at the third step. Table 4 shows the final beta weights for parental FLRA and background variables in explaining children’s English language vocabulary knowledge and anxiety.

Table 4. Hierarchical regressions predicting children’s English vocabulary knowledge and FLRA with parental FLRA.

	Steps	Variables	English receptive vocabulary			English expressive vocabulary			Children FLRA		
			$\beta$	<i>t</i> -Value	$\Delta R^2$	$\beta$	<i>t</i> -Value	$\Delta R^2$	$\beta$	<i>t</i> -Value	$\Delta R^2$
Model I & II	1.	Children’s age	-.06	-0.38	.21	-.12	-0.75	.21	.11	0.69	.14
		Paternal income	.29	1.71		.16	0.92		-.36	-2.05*	
		Maternal income	.17	0.92		.26	1.44		-.04	-0.21	
		Paternal education level	.06	0.30		.10	0.54		.12	0.62	
		Maternal education level	.12	0.65		.13	0.70		-.08	-0.43	
Model I	2.	Maternal FLRA	-.26	-1.68	.06	-.21	-1.30	.04	.71	6.12**	.44**
	3.	Paternal FLRA	.24	1.27	.03	.16	0.82	.02	.25	1.79	.04
Model II	2.	Paternal FLRA	.02	0.13	.00	.00	-0.02	.00	.58	4.03**	.27**
	3.	Maternal FLRA	-.39	-2.11*	.09*	-.29	-1.53	.05	.58	4.30**	.21**

\* $p < .05$ .  
\*\* $p < .01$ .

### English vocabulary knowledge

Among the models predicting children’s English vocabulary knowledge, only maternal FLRA was found to significantly predict children’s English receptive vocabulary knowledge ( $\beta = -.39, p < .05$ ), after background variables and paternal FLRA were controlled for (see Model II in Table 4). In this model, maternal FLRA accounted for 9% of the variance in English receptive vocabulary knowledge. No significant results were found for the other models.

### *FLRA*

After controlling for background variables, maternal FLRA but not paternal FLRA was revealed as a significant predictor of children's FLRA ( $\beta = .71, p < .01$ ) in the first model, accounting for 44% of variance in children's FLRA (see Model I in Table 4).

In Model II, paternal FLRA significantly predicted children's FLRA ( $\beta = .58, p < .01$ ), explaining 27% of the variance (see Model II in Table 4). When further controlling for the effects of paternal FLRA, maternal FLRA remained a significant predictor of children's FLRA ( $\beta = .58, p < .01$ ), explaining 21% of the variance (see Model II in Table 4).

## **Discussion**

This study investigated the differential influences of maternal and paternal factors on children's English as a foreign language development. It extended previous studies by examining both behavioral and emotional aspects of home literacy environment and children's language performance in children learning English as a foreign language. There were four major findings. First, both paternal and maternal HLP contributed to Chinese EFL children's vocabulary knowledge in English as a foreign language. Second, both paternal and maternal FLRA contributed to children's FLRA. Third, maternal HLP was negatively associated with children's FLRA while maternal FLRA was negatively associated with children's receptive vocabulary knowledge. Finally, our results indicated that maternal factors played a more important role in children's English vocabulary knowledge and FLRA than paternal factors.

The present study showed that both paternal and maternal HLP contributed to children's English vocabulary knowledge, explaining 10–26% of its variance, after the effects of children's age, family income and parental educational level were accounted for. Our results are consistent with previous findings in which parents who engaged in more HLP in English with their children, such as reading English newspaper articles and storybooks, provided their children with more opportunities to learn and actively use English, thus enhancing their children's vocabulary knowledge (e.g. Hood, Conlon, and Andrews 2008; Lonigan and Whitehurst 1998). When taken together with findings from past research, our results underscore the importance of engaging in home literacy activities on children's language learning not only in first language learning, but also in foreign language development.

In an extension of previous research on home literacy environment, this study also examined the links between parental and children's FLRA. Both maternal FLRA and paternal FLRA were found to contribute to children's FLRA, explaining 27–44% of its variance. Such a finding suggests that FLRA tends to run in families. On the one hand, from the nature perspective, a genetic basis is assumed for trait anxiety and hence anxiety tends to run in families (Aktar et al. 2014; Beidel and Turner 1997; Hettema, Neale, and Kendler 2001; Turner, Beidel, and Costello 1987). On the other hand, from the nurture perspective, observation learning plays a part in the association between parental and children's FLRA (Fisak and Grills-Taquechel 2007; Murray, Creswell, and Cooper 2009). When encountering unfamiliar scripts and writing systems in a foreign language, parents may feel overwhelmed, nervous and confused due to their difficulty in processing the unfamiliar text (Saito, Horwitz, and Garza 1999). Subsequently, their children may then observe and imitate these emotional responses, thus developing a similarly negative response to the foreign language. At the same time, it is likely that parents with higher level of FLRA may also engage in less HLP with children, thus minimizing their child's experience in using a foreign language. This may in turn lead to FLRA in children as they experience difficulty in processing the unfamiliar text. In fact, the present study observed significant negative correlations between parental FLRA and HLP, providing support for this explanation. Further research with behavioral genetic designs is useful to elucidate the etiology of FLRA through genetic and environmental pathways. Overall, our findings suggest that parents play a role in children's language learning through both behavioral and emotional mechanisms. While previous home literacy environment studies have illustrated the role of behavioral factors on children's learning performance, the present findings also highlight the importance of emotional factors, such as reading anxiety, in explaining how home literacy environment affects children's language development. It is thus beneficial to create a learning environment that reduces children's

learning anxiety, as this is likely to enhance their confidence in using a foreign language (Spielmann and Radnofsky 2001).

It is interesting to note that paternal HLP did not predict children's English vocabulary knowledge when controlling for the effects of maternal HLP, but maternal HLP was still able to predict children's English vocabulary knowledge even after controlling for the effects of paternal HLP. Moreover, only maternal HLP contributed to children's FLRA, and only maternal FLRA contributed to children's receptive vocabulary knowledge. However, it should be noted that the amount of variance explained by maternal factors after controlling the effects of paternal factors was relatively small, aside from the variance in children's FLRA. Nevertheless, these results imply that maternal HLP and FLRA play more important roles in children's acquisition of English as a foreign language than paternal HLP and FLRA. Even today, when fathers are taking more responsibility for nurturing children than in the past, mothers still play the predominant role in their children's learning, at least in the acquisition of English as a foreign language. In general, mothers are more likely to provide literacy opportunities and to engage in literacy activities with children than fathers (Morgan, Nutbrown, and Hannon 2009). Apart from engaging in more HLP with children, mothers also tend to provide more guidance to their children in literacy learning and interact more with children during parent-child joint literacy activities in comparison to fathers (Aram 2010). These findings motivate further investigation on how to facilitate effective father-child literacy activities.

#### *Limitation and further studies*

There are three caveats to these results. First of all, this study recruited a relatively small sample of first graders. Further research could extend the findings in the present study by

recruiting a larger sample, including children of different ages to examine developmental changes. Second, there could be social desirability bias present as FLRA and HLP were only obtained from parents' self-reports despite previous successful administration of self-report measures of FLRA on children (e.g. Gürsoy and Akin 2013). However, as younger children were included in this study, parental reports were employed. It should be noted that this measure is a widely used method in the field of child development, and also has a high reliability in this study. Nevertheless, further research could explore other effective ways to assess FLRA in young children, including measurements that are more objective. For instance, HLP could be measured through observation, while FLRA could be operationalized in terms of physiological responses like heart rate, which is one of the most commonly used physiological indicators of anxiety (e.g. Daley, Willett, and Fischer 2014; Daly, Chamberlain, and Spalding 2011). Finally, the third limitation of this study is that it only assessed vocabulary knowledge as a measure of language development. Further research could also assess other aspects of language ability in children, such as word reading and spelling skills, in order to provide a more comprehensive view of the effect of HLP and FLA on foreign language development.

## **Conclusion**

This study has provided evidence for the contributions of maternal and paternal factors to children's foreign language development, while taking behavioral and emotional factors into consideration. Findings from the present study have three major implications. First, both mothers and fathers play an important role in creating a better home literacy environment for their children. Although mothers' contributions to children's language development have long been emphasized, the role of fathers should not be neglected. As such, community and school activities which promote both mothers' and fathers' involvements in children's literacy

learning should be encouraged. Such activities are useful for educating parents on the importance of parent–child literacy activities, and for providing opportunities for both mothers and fathers to engage in these literacy activities effectively and regularly. Second, this study has illustrated the links between parental and children’s FLRA, highlighting the importance of understanding parents’ and children’s emotional responses in foreign language learning. This finding suggests that interventions that enhance children’s foreign language learning and reduce anxiety in learning a foreign language should target not only the children but also their parents. Lastly, this study has provided a more comprehensive view of how home literacy environment contributes to children’s foreign language development, by taking into account of both behavioral and emotional domains of home literacy environment and children’s language performance and by indicating the differential roles of maternal and paternal factors.

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