

The Importance of Home Literacy Environments in Terms of Children's Reading Attitudes: A Study of Chinese Grade 5 Students

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Abstract: A great deal has been written about family literacy environments and their effects in the field of Western education, yet there remains a lack of relevant research in China. In addition, the sparse literature that does exist focuses exclusively on reading attitudes and home environments in upper primary grades. The purpose of this study was thus to determine the status of family literacy environments in China and to examine the relationship between students' reading attitudes and these environments. The object of study for this article is the largest and most popular public primary school in a city in northern Jiangsu province, on China's east coast. To achieve this, 185 fifth grade students and their guardians participated in this study, and PIRLS 2011 parent and student questionnaires were used online to collect participants' data; the resulting information was then systematically analyzed in SPSS. The results showed that, in China, parents' reading attitudes tended to be positive and their expectations of their children were high. Overall, both parents are important in the influence of the family environment, though there was no significant difference between girls' and boys' reading attitudes. In the main, there is a significant positive correlation between parents' attitude towards reading and students' attitude towards reading at school: the better the parents' attitude towards reading, the better the children's attitude towards reading. These findings imply that the effects of family environment on reading attitudes in the Chinese context differ little from those identified in the Western world, and that there are many similarities.

Keywords: Home Literacy Environment; Reading Attitude; Chinese; 5th Grade of Primary School.

1. Introduction

The home literacy environment (HLE) is a term that is used to describe the engagement that children have with others in their home. HLE includes all the literacy related interactions that take place. This includes children's interactions with their primary carers, siblings and other adults who may live in the home. These interactions will include interactions with texts, both in terms of reading and production of texts at the concrete level, but at the more abstract level they include attitudes to reading that children internalize from those around them. In addition to interactions HLE is taken to mean the resources that are provided and available for the participants in the home.

The family environment is the main denominator of home education happens, and Stanovich (2009), discussing the operation of the Matthew effect in the field of reading refers to the connection between a passive organism and its environment (Scarr McCartney, 1983, as cited in Stanovich, 2009). The concept of the Matthew effect stems from findings by Walberg and Tsai (1983, as cited in Stanovich, 2009) that individuals with superior early educational experiences can use further educational experiences more effectively. Put simply, in educational terms, it is a fact that the rich get richer. According to Stanovich (2009), "the genotypes of a child's parents partially determine both the home environment of the child and the child's 's genotype'" (p.38). This confirms that a child's home environment is mainly determined by their parents, who in turn are affected by certain unassailable factors about their own development and lives. As Rutter and Madge (1976 as cited in Stanovich, 2009) indicate, many unfortunate individuals are provided with poorer home educational environments, while some more fortunate

individuals have better home environments, and these home environment, as well as having a degree of influence on children's cognitive development (Gottfried, 2013), also impact health issues, such as obesity (Strauss & Knight, 1999), and educational focuses such as literacy (van Bergen, van Zuijen, Bishop & de Jong, 2017; Niklas & Schneider, 2013).

Although many studies have attempted to define the concept of the Home Literacy Environment (HLE), a generally accepted definition has not yet been agreed upon; in particular, different studies use different methods of operation to assess family literacy environments (Niklas & Schneider, 2013). One widely accepted version, however, is that used by Burgess, Hecht, and Lonigan (2002), who summarised the conceptualisations of six interrelated HLE concepts, based on previous researchers' descriptions of HLEs from multiple aspects, to begin to synthesise these different theories into a coherent whole. The Overall HLE is a combination of all of the categories and is therefore highly inclusive; in this study, the Overall HLE was therefore chosen as the framework for assessing and improving home literacy environments.

Determining the literacy environment of a family can be approached in several dimensions. Many previous studies have noted that the socio-economic status of a child's parents and their level of education are key factors in determining the family literacy environment. According to Bradley and Corwyn (2002), an individual's socio-economic status is thus determined by a combination of three parental factors: income, level of education, and occupational status, where educational level is generally assessed as the highest level of education that either of the parents has completed. Nevertheless, the educational level of parents can determine the direction of home education and thus have a direct impact on the education of the child; the educational background of parents,

as a representative aspect of SES, is thus often used independently as a dimension of measurement for HLE. In the assessment of HLE and its influence in approximately 300 6-year-olds by Wiescholek et al. (2018), the parent's educational background was used as a predictor of HLE, and the researchers discovered that the higher the parents' level of education, the better the home literacy environment tended to be.

There has been a lack of relevant research on family literacy environments in China, despite this being a topic well worth exploring. As China is deeply influenced by traditional culture, most Chinese parents have high expectations for their children (Chen et al., 2010; Zhang, Georgiou & Shu, 2019). According to Huntsinger et al. (1997), Chinese parents are therefore more involved in their children's learning than North American parents, consistent with the results reported by Li (2003). In other words, Chinese parents are investing more in their children, whether in time or money. Additionally, in both Chinese and Western societies, the default basic family structure is often seen as a mother, a father, and their children. The differences in the roles that mothers and fathers play within such a nuclear family are also expected to lead to differences in their influence on their children. While some reports claim that fathers have a significant influence on their children, other studies suggest that mothers are more devoted to their families and thus have a more profound effect on their children. For example, Clark (2009), in a study investigating fathers' influence on children's academic achievement, found that when fathers were more frequently involved in their children's education, this led to more significant achievement, especially for boys. However, Foster et al. (2016) and Pancsofar et al. (2010) instead suggested that mothers are usually more dedicated to their children's education and therefore have a more profound impact on their children, both from a physiological and sociological point of view. This debate is also being held in China's education sector, and in recent years, although an increasing number of reports have highlighted the importance of fathers in education (Wu et al., 2012), the vast majority of the research has suggested that mothers retain more influence over their children's success than fathers (Hang, 2015).

Reading attitudes, as hypothetical constructs, must be conceptualised within a particular theoretical framework, however (Stokmans, 1999). According to Alexander and Filler (1976), reading attitude is "a system of feelings related to reading which causes the learner to approach or avoid a reading situation" (p. 1). It is this theoretical framework that the current study uses to define reading attitudes. There are currently two dominant views in the educational community regarding the reading attitudes of primary school children. One group of educationalists argues that girls' attitudes toward reading are consistently more positive than boys' (Kush & Watkins, 1996), while another group of scholars argues that while that girls' attitudes toward reading are indeed more positive than boys' in the early primary grades, these differences diminish over time (Davies & Brember, 1993).

As there is currently little research on family literacy environments in China, however, the following research questions were posed in order to verify whether the above observations are consistent with the current Chinese situation in order to fill in the research gaps:

1. What is the general environment of family literacy in China?

2. What is the relationship between Chinese children's reading attitudes and their home literacy environments?

3. Are there gender differences in Chinese children's attitudes towards reading?

2. Method

2.1. Design

Data are reported here from student participants who were attending Year 5 classes in three branch schools of a large-scale primary school in the north part of Jiangsu province in Eastern China. Measures of the home school literacy environment and attitudes to reading were administered to participants and their guardians.

Ethical permission was granted by the University of Reading, Institute of Education's Ethics Committee. Informed consent was gathered from the participants and their reporting guardian. Permission to conduct the investigation in the school was given by the Head Teacher.

2.2. Participants

There were 260 potential participants aged 11- or 12- years old from the five integral classes in Year 5. No child had a diagnosis of dyslexia, and each student participant was identified as having an adult guardian who was also asked to participate. The students' participation required the active consent of their guardians as well as their own informed consent.

Because of impact of the Covid-19 pandemic a decision was made to conduct the study entirely remotely. In order to minimize disruption to pupils' lives, the materials used for the study were made available online for the first weekend at the end of the fifth-grade midterm examinations. Out of the potential 260 pupil participant, 185 responses were received over the weekend the materials were open: 106 boys and 79 girls. This 71% response rate was considered acceptable. There was a guardian's response for every pupil participant: 149 mothers/female guardians, 35 fathers/male guardians and one other. (As the overwhelming number of responses cited being the mother or father, so ease of reading the terms Mother and Father will be used for the rest of this paper).

2.3. Measures

Since 2001 there have been four international studies investigating reading conducted by the International Association for the Evaluation of Educational Achievement (IEA) (Mullis et al., 2003, 2007, 2012, 2017). These are the Progress in Reading Literacy Studies (PIRLS). PIRLS is a wide ranging and in-depth programme investigating many aspects of reading at cognitive and social levels. For example, it is most common to discuss student reading achievement from PIRLS (Klemenčič, Mirazchiyski & Sandoval-Hernández, 2014). They have developed a Student Questionnaire and a Home Literacy Environment Questionnaire. These two questionnaires were used in the current study with some minor adaptations to fit the Chinese cultural context. For example, the options in the parent questionnaire for parental occupations were rewritten to match China's default occupational classifications, while in references to a particular interactive activity with children, the original term bridge cards were replaced with cards.

The questionnaire was published on the popular free questionnaire platform in China. The school leader sent the link generated by the online questionnaire system, along with

a copy of the informed parental consent form, directly to the WeChat class groups for five targeted classes in Year 5. The parent and student questionnaires were combined into one large file; the format presented to parents thus consisted of two pages (two sections), with questions 1 to 20 on the first page, which was entitled Home Literacy Environment Questionnaire, and questions 21 to 32 on the second page, which was entitled Student Questionnaire. It was important that parent questionnaires and student questionnaires from the same households were matched with each other; combining the two questionnaires into one large questionnaire thus avoided any potential difficulties of matching parents with their children. The instructions were that once the parent had filled in their section of the questionnaire the pupils participant should be left to fill in their element prior to returning the documents electronically.

2.4. Data Collection

In order to minimise disruption to students’ normal school life, the distribution of the online questionnaire and a copy of the informed parental consent form was scheduled for the first weekend after the end of fifth grade midterm exams.

3. Results

3.1. Parental Questionnaires

3.1.1. HLE and Parental Attitudes to Reading

The responses to the adult questionnaire relating to the HLE were coded 0-2 with 0 being never, 1 being sometimes, and 2 being often. The range of possible scores was 0 to 41. Figure 1 shows a histogram of parent’s responses. A score of 0-13 was classified as a low HLE score, 14-27 was classified as medium and 28-41 was classified as high.

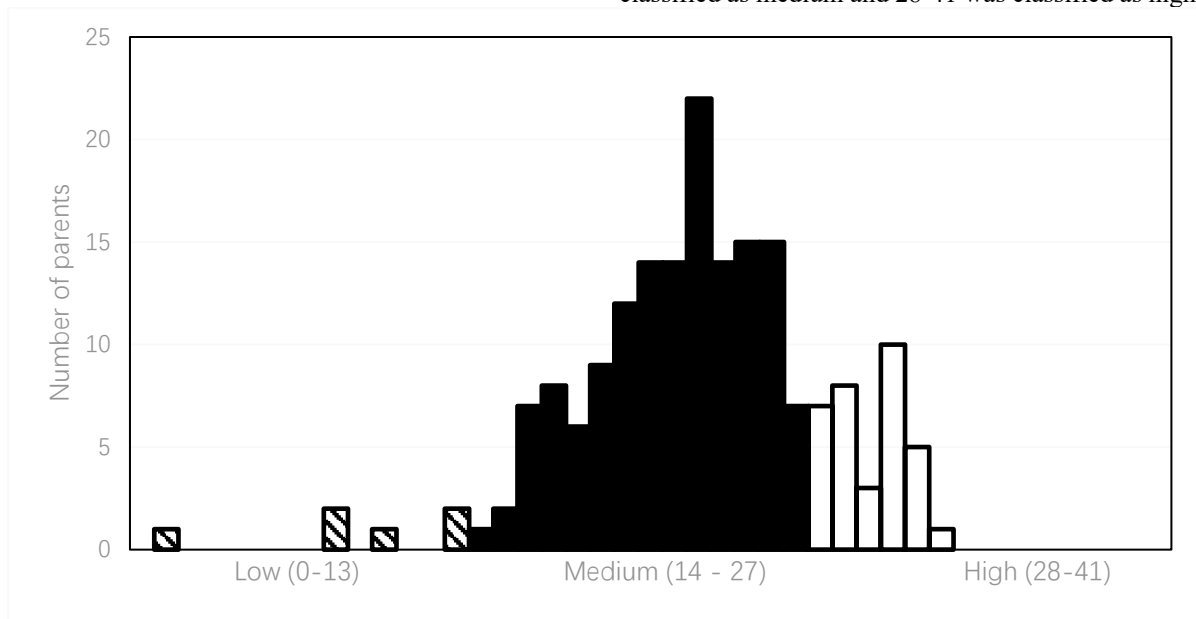


Fig 1. Distribution of parental responses to the Home Literacy Environment Questionnaire

The majority of reported HLE scores fell into the high to medium range: with 34 reporting high levels of HLE and just 6 reporting low levels. These responses suggest that the majority of the students came from homes that had a positive HLE.

Figure 2 shows the distribution of scores on the parental

attitudes and activities to reading scale with scores ranging from a possible 0 to 27. For each question there were four possible answers: 1=Disagree a lot; 2=Disagree a little; 3=Agree a little; 4=Agree a lot. A score of 0-8 was classified as low, 9-18 was classified as medium, and 19-27 was classified as high.

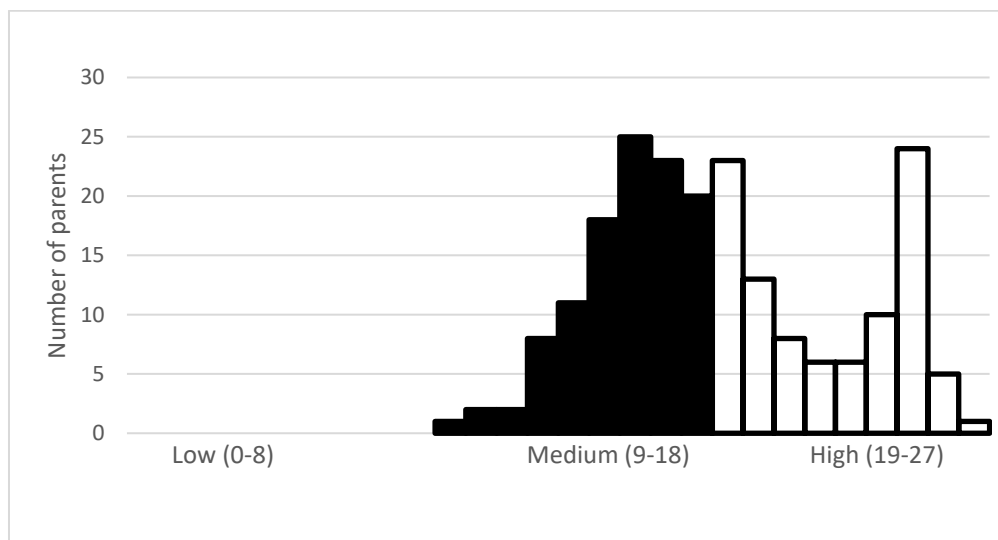


Fig 2. Distribution of parental responses to attitudes to reading and reading activities

No parents' responses were classified as low to in terms of attitudes to reading. Eighty-nine were classified as having a medium positive attitude and 96 were classified as having a

high positive attitude.

Table 1 shows the mean responses to the questions relating to the HLE and the parents' personal attitudes to reading.

Table 1. Means and standard deviations of responses to the Home Literacy Environment and Attitudes to Reading questions.

	Home Literacy Environment				
	Total	Mothers	Fathers	Parents of girls	Parents of boys
Mean	26.45	26.53	26.14	22.57	22.43
STD	4.61	4.46	5.24	4.75	5.20
	Attitudes to Reading				
	Total	Mothers	Fathers	Parents of girls	Parents of boys
Mean	26.57	26.55	26.64	17.94	18.25
STD	3.71	3.60	4.21	3.47	3.51

T tests were used to investigate whether there were differences between mothers and fathers' responses, and parents' relative to whether their child was male or female. These showed that there were no significant differences relative to parental gender or pupil gender.

We investigated the relationship between the HLE responses and Attitude to Reading responses investigated using Pearson product-moment correlation coefficient. There was a significant medium correlation: $r = .38$, $n = 185$, $p < .001$.

3.1.2. Parents' Educational Levels, Occupation and HLE

According to the basic education system designated by the

Education Law of the People's Republic of China (1995), China's education system is divided into four levels: preschool education (kindergarten), primary education (elementary school), secondary education (junior high school, high school, technical school), and higher education (junior college education, undergraduate, graduate, and doctoral). In the design of the questionnaire, primary, secondary and higher education were thus used as the levels of education that parents might have attained.

Table 2 shows the distribution of parental level of education achieved.

Table 2. Distribution of parental level of education achieved.

	Mother	Father
Secondary school	13.5%	9.2%
High school	21.6%	17.3%
Technical school	24.3%	25.9%
Junior college education or Undergraduate degree	32.9%	36.7%
Postgraduate degree/qualification	6.5%	8.1%
Doctorate	1.1%	2.2%

Out of the 185 family groups, 88 had two parents with secondary education, 65 had two parents with higher education, and the remaining 32 had parents with different levels of education (secondary and higher).

We first examined the strength of the relationship between parents' education level and their expectations for their children using Pearson product-moment correlation coefficient. There was a small positive correlation between the two for both male respondents, $r = .26$, $n = 185$, $p < .01$, and female respondents, $r = .23$, $n = 185$, $p < .01$ suggesting that the higher the parents' education level, the higher their

expectations of their children. Pearson product-moment correlation was also used to investigate the relationship between the global HLE as measured by the parental questionnaire and the parental educational levels. For father' responses the correlation was small but only marginally significant: $r = .14$, $n = 185$, $p = .053$. However, for the mothers there was a significant medium correlation: $r = .34$, $n = 185$, $p < .001$. The difference between the two r values was statistically different ($z_{obs} = 2.03$) suggesting that maternal aspirations for their offspring was more related to their educational level than paternal aspirations were.

Table 3. Distribution of reported parental occupations.

	Mother	Father
Upper middle Class	35.67%	49.19%
Merchant (large enterprise or corporation)	3.78%	8.65%
Corporate manager or civil servant	14.59%	18.92%
Professional (e.g. scientist, engineer)	15.14%	8.65%
Technician (e.g. computer associates)	2.16%	12.97%
Middle class	40.53%	43.77%
Small business owner (e.g. retail shops, restaurants)	14.04%	21.62%
Clerk (e.g. office clerks)	16.22%	14.59%
Service or sales workers	10.27%	4.32%
General labourers (e.g. agriculture, fisheries)	0%	1.62%
Craft (e.g. carpenters, bricklayers)	0%	1.62%
Not classified	19.46%	0%
Has never worked for pay	19.46%	0%
Not applicable	4.32%	12.97%

We next the relationship between investigated parental occupation and the HLE. Table 3 shows the distribution of

parental occupations reported. According to the hierarchy of social prestige in China (Chunling, 2005), the occupational

options covered in the questionnaire were divided into two levels, with occupations such as small business owner, clerk, service or sales worker, general labourers, craftspeople, or those not working outside of the home belonging to the middle level, and merchants, corporate managers or civil servants, professionals, and technicians belonging to the upper middle class. The largest proportion of fathers were small business owners followed by 19% reporting their occupation as being a Corporate manager or civil servant. At the time of reporting, 19% of mothers were not working outside the home. This was followed by 16% being clerks. Not untypically in occupational classification systems, some people are unable to place themselves. In this group 13% of fathers, and 4% of mothers could not identify a classification label.

An independent samples t-test was conducted to compare the reported HLE responses for the Upper Middle Class and the Middle Class families. There was no significant effect for class, $t(185) = 1.31, p = .097$, despite Upper Middle class families ($M = 18.08, SD = 2.13$) reporting higher scores than Middle Class families ($M = 17.5, SD = 2.83$).

We further investigated the strength of the relationship between parental occupation and the quality of the HLE using Pearson product moment correlation analysis. There was a small but significant positive correlation between fathers' occupation and the HLE, $r = .24, n = 185, p < .01$ and a medium significant correlation between mothers' occupation

and the HLE, $r = .34, n = 185, p < .01$. This suggests that the higher the parental occupation, the more positive the HLE. The difference between the two r values for fathers and for mothers was not statistically different ($z_{obs} = 1.05$).

We then investigated the strength of the relationship between the quality of the HLE and parental attitudes to reading using correlation analysis. There was a medium positive correlation between the HLE and parental attitudes to reading, $r = .38, n = 185, p < .01$. We further investigated this relationship relative to the parental gender. There was a medium significant positive correlation between the mothers' attitudes to reading and the HLE, $r = .29, n = 149, p < .01$, and a strong significant correlation between fathers' attitudes and the HLE, $r = .60, n = 36, p < .001$. The difference between the two r values was statistically significant: ($z_{obs} = 3.61$) suggesting that there was a stronger relationship between the fathers' attitudes to reading and that of the mothers.

3.2. Pupil Questionnaires

Table 4 shows the mean responses to the questions relating to attitudes to reading in general, attitudes to reading specifically in relation to in school activities and their own assessment of their reading ability. T tests were conducted to investigate whether there were gender differences in responses. A t values were less than 1, indicating that there were no differences in attitudes to reading or self-assessment of reading ability between girls and boys.

Table 4. Means and standard deviations of responses to the pupil questionnaire relative to attitudes to reading in general; attitudes to reading in school and assessment of own reading ability.

	Attitudes to reading in general	Attitudes to reading in school	Assessment of own reading ability
Whole cohort (n = 185)	7.63 (2.31)	13.58 (2.63)	14.45 (3.03)
Girls (n = 79)	7.34 (2.25)	13.80 (2.53)	14.40 (2.92)
Boys (n = 106)	7.87 (2.33)	13.45 (2.73)	14.46 (3.12)

Figures 3, 4 and 5 show the distributions of the pupils' responses to their questionnaire. Relating to attitudes to

reading in general, attitudes to reading in school, and their assessment of their ability in reading.

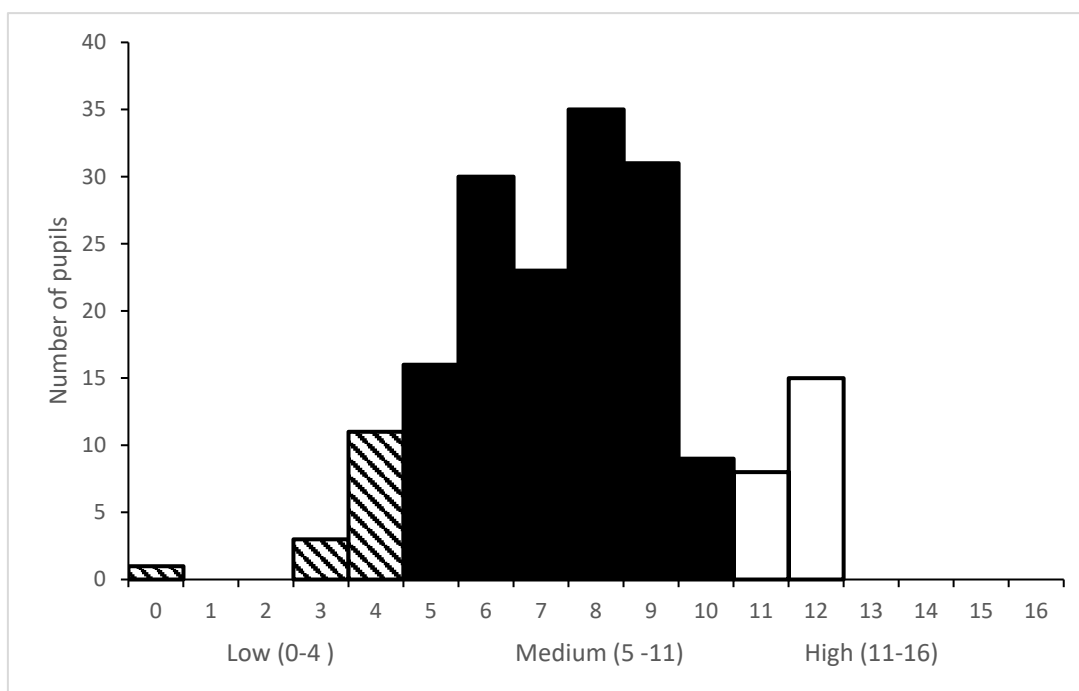


Fig 3. Pupils' attitudes to reading in general

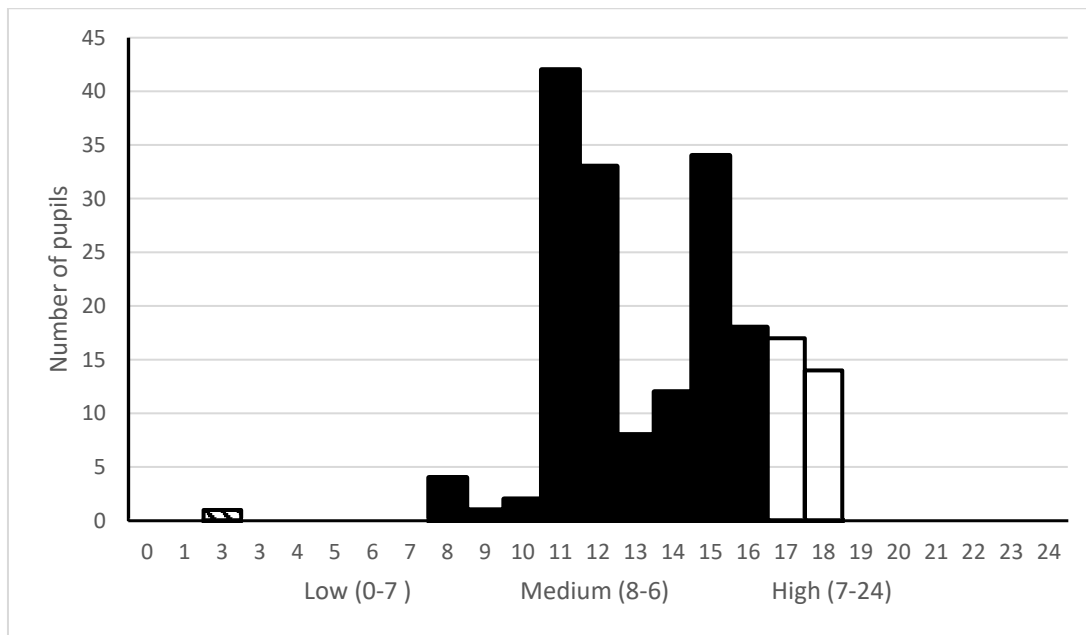


Fig 4. Pupils' attitudes to reading in school

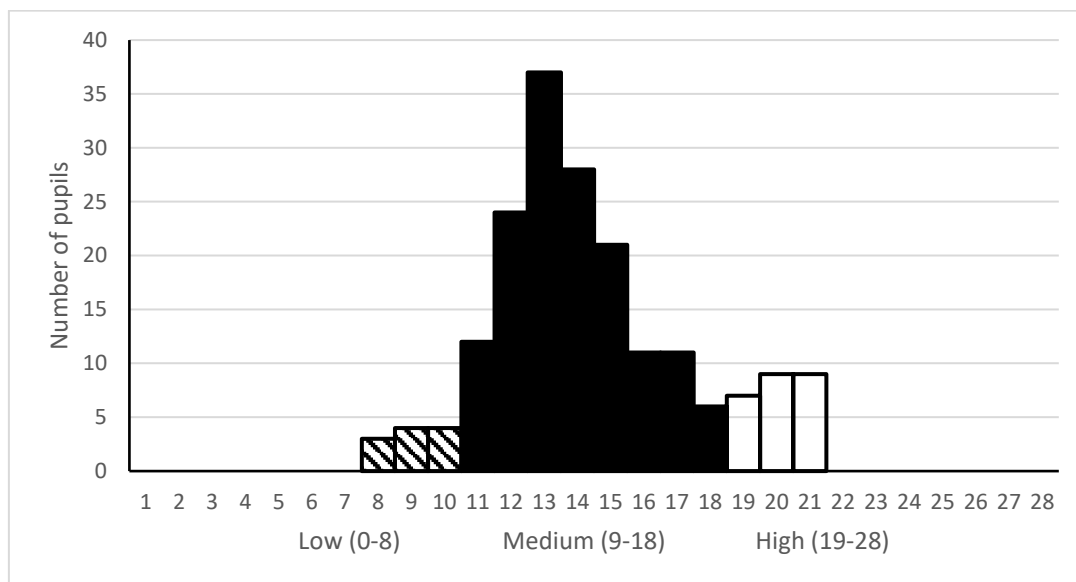


Fig 5. Pupils' assessment of their reading ability

All three figures show that the overwhelming number of pupils had positive attitudes to reading and had positive views about their own reading ability.

Pearson product moment correlation was used to investigate the relationships between these three variables. There was a small positive correlation between attitudes to reading in general and attitudes to reading in school: $r = .23$, $n = 185$, $p < .05$. There was a medium positive correlation

between attitudes to reading in general and views about reading ability: $r = .31$, $n = 185$, $p < .01$. And there was a large positive correlation between attitudes to reading in school and views about reading ability: $r = .56$, $n = 185$, $p < .001$.

Pearson product correlation was used to investigate the relationship between these pupil variables and the HLE as reported by the parents and their attitudes to reading. These are reported in Table 5.

Table 5. Pearson product moment correlations between the HLE and attitudes to reading reported by the parents and the attitudes to reading and assessment of reading ability reported by the pupils.

		Pupils		
		Attitudes to reading in general	Attitudes to reading in school	Assessment of reading ability
Parents	HLE	.02 (NS)	-.04 (NS)	-.05 (NS)
	Parental attitudes to reading	.20 ($p < .05$)	.38 ($p < .01$)	.16 ($p < .05$)

There was no relationship between the reported HLE and the pupils responses, but significant correlations between the parental attitudes to reading and the pupils responses. This was particularly the case for the parental attitudes to reading

and the pupils' attitudes to reading in school.

4. Discussion

To facilitate both comprehensiveness and convenience of data collection, an online questionnaire was used for this study. Detailed analysis of the data collected in this manner produced some findings deserve to be discussed and analysed.

In the current study, as the Pearson product moment correlation analysis shows that the higher the educational level of mothers, the greater their expectations of their offspring. However, it is not only highly educated mothers who have high expectations for their children; high expectations for their children are present in the majority of Chinese families. Much of the literature suggests that Chinese parents have higher expectations for their children than those in other countries, such as North America (Chen et al., 2010; Zhang, Georgiou & Shu, 2019), which is consistent with this study, in which over 75% of parents wanted their children to complete postgraduate or doctoral education. According to data provided by the National Bureau of Statistics, as of 2019, the number of Chinese bachelor's degree graduates was only 3.8% of the country's total population. It could be surmised that parents have high expectations of their children probably because as China's overall national power continues to increase and its economy develops further, the pressure for job opportunities is increasing, and the default social rule is that good academic achievement is likely to increase access to good job opportunities (Chen et al., 2010).

Some scholars firmly believe that girls have more positive attitudes toward reading than boys, while other educators note that the differences in reading attitudes between boys and girls diminish with age. For instance, in Kush and Watkins' (1996) study of the long-term stability of children's attitudes toward reading, they claimed that not only were girls' attitudes toward reading more stable than boys', but that girls consistently showed more positive attitudes toward reading than boys, both in early grades and upper grades. However, in the current study, the vast majority of students have positive attitudes towards reading and there was no significant difference in the reading attitudes of the fifth-grade boys and girls in the sample. Davies and Brember (1993) compared the reading attitudes of boys and girls at three different grade levels, second grade, fourth grade, and sixth grade, and found that the younger the children, the more significant the difference in reading attitudes between the boys and girls, with the difference decreasing as the age increases. Similar patterns also emerge from the PIRLS 2016 international findings. This might explain why this study found no significant differences between boy and girl students' attitudes towards reading, as the sample was taken from fifth graders, and by this age, any difference between their attitudes towards reading may have already decreased.

The third key finding of this study was that while there was no significant relationship between HLE and children's responses, there was a significant association between parents' attitudes to reading and children's responses, particularly parents' attitudes to reading and children's attitudes to reading in school; most of the previous literature on this subject partly supports this view. For example, van Bergen et al. (2017) argued that children's reading attitudes are relatively directly related to the parents' reading attitudes in the HLE, consistent with the findings of this study that parental reading attitudes are significantly and positively correlated with children's reading attitudes. In other words, the better the parents' reading attitudes, the better the

children's reading attitudes. However, they further noted that family environment is related to children's reading, and that the better the HLE or the higher the parental literacy levels, the greater the likelihood that the family will produce good readers. This finding is contrary to the results of this study, probably because the student questionnaire designed for this study did not include an appropriate amount of questions relating to the two factors of home environment and children's attitudes to reading.

5. Conclusion

The purpose of this study was to investigate family literacy environments in the Chinese context and to examine whether and how the reading attitudes of primary fifth students are related to these home environments, with the ultimate aim being to make appropriate, evidence-based recommendations for schools and parents. Based on previous literature, three research questions (What is the general environment of family literacy in China?; What is the relationship between Chinese children's reading attitudes and their home literacy environments?; Are there gender differences in Chinese children's attitudes towards reading?) were developed.

In terms of the family environment, the vast majority of families have a positive literacy environment and the higher the parental occupation, the better the literacy environment. We also found that fathers' attitudes to reading are more influential in the family literacy environment, as well as the fact that highly educated mothers have greater expectations of their children. According to the Matthew effect, such families build on their previous superiority in a virtuous circle, suggesting that all parents should seize the opportunity to maximise access to superior educational experience for their children. Generally speaking, both fathers and mothers play an extremely crucial role in the education of children, and neither can be absent. The final results also indicate that parents in China have higher expectations for their children likely because of the enormous pressure of competition for jobs in China currently. While previous studies have shown a difference in reading attitudes between boys and girls at the beginning of primary school, no significant difference in reading attitudes between boys and girls in the fifth grade was found in this study. Finally, parental attitudes to reading was seen to have a significant effect on children's reading attitudes.

Based on these phenomena, suggestions include schools recommending high-quality books to students and parents, encouraging parents to read, which will motivate pupils to read, as well as conducting regular sharing and exchange of reading ideas in, for example, book clubs. This would not only promote home-school relationships but also provide a way for parents and children to grow together. While it is also a good idea to organise regular reading activities at home, parents should be encouraged to spend more time with their children and provide them with a healthy and comfortable family environment. Reading together with children is not only a good way for children to accumulate reading knowledge and to experience a conducive learning atmosphere but also supports the cultivation of family relationships. However, in addition to the efforts that need to be made by schools and families, communities or education authorities could also build public reading rooms and host reading activities for the whole population in order to improve citizens' overall cultural literacy.

As this study was conducted during the COVID-19 pandemic, many parents faced unemployment, and thus

questions specifically involving monthly income were removed from the parent's questionnaire to avoid causing distress, which made it more challenging to obtain objective insights about parents' socioeconomic status, which could then only be assessed through their education level and occupation. In addition, this study was conducted in an economically developed coastal city in eastern China, and the participating primary school is the largest public school in the local area; these results may thus not be generalisable, especially not to primary schools in rural, remote, or deprived areas.

This study has nevertheless left some questions that need to be addressed by subsequent research, particularly as, while much of the previous literature has focused on reading achievement, there have been few studies examining reading attitude. Thus, there is scope for further research on why the difference in boys' and girls' attitudes to reading is diminishing in primary school.

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