Early reading and writing development among Chinese kindergarten children in Montessori and traditional Chinese schools

by

Jing Zhang

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Department of Human Development and Applied Psychology
Ontario Institute for Studies in Education of the
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Abstract

This study was conducted to discover whether Chinese children would go through a similar process of building their theories of print as their English-speaking peers, and whether different schooling (traditional Chinese schooling and Montessori schooling) in the same cultural context affect children's literacy development in different ways. 79 children of age four and age five respectively from one traditional school and one Montessori school were participated in the study. This study found that there were similarities in the early phases of reading and writing development between two languages, Chinese and English. Children from different schooling systems in the same cultural context showed different developmental performance in these tasks indicating that different schooling may have different impacts on children's development of reading and writing. Children from traditional Chinese kindergarten performed better than those from Montessori school in both tasks.

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Chapter 1: Literature Review

1.1 Introduction

Learning to read is one of the most important skills for young children all across the world because most societies value literacy. In learning to read and write, children must also learn to "hear" and "think" differently about their own speech in a new way (Olson & Pelletier, 2002). That is why learning to read is both somewhat difficult, yet extremely important. In general, researchers are more interested to find how and to what degree young children learn to read and write. Although there are some common notions on this question, such as children learning to read and write simply by observing and imitating literate models, different languages may demand that different skills develop in the process of learning to read and write. For example, English-speaking children, in order to learn to read, need to learn the alphabetic code and learn to synthesize printed letters together to recognize spoken words in printed form; however, Chinese children have to learn to map the spoken syllables onto written characters (McBride-Chang & Kail, 2002). In English, writing is different from painting, but in Chinese, there are some similarities in writing and painting because some Chinese characters root from the painting for the objects that these characters represent. All these may affect the way that young children learn to read and write.

Building on Ferreiro and Teberosky's (1979/1996) work with Spanish children's interpretations of print, Pelletier (2002) examined children's early English literacy, and found that young English-speaking children had their own theories of print even at the early age of three years. For instance, they could distinguish print from pictures, and know

what can be read and what cannot. Most three-year old children know that "ccccc" cannot be a word because all the letters are same. She also found that young children are willing to think "apud" is a word because it looks like a word. Using The Early Writing Tasks and The Early Reading Tasks (Pelletier, 2002), she also demonstrated that young children have difficulties in distinguishing the number of the objects and the number of words in their reading process. For example, when the last word is covered in the phrase "three little pigs" and the child is asked "what does it say now", the young child may subtract "objects" instead of words. They may answer "two little pigs". It is interesting that young children have their own theory or notion of print. Knowing this theory or notion will help us teach and support children who are learning to read and write.

The current study will focus on how Chinese children's theories or notions of print develop. Pelletier (2002)'s Early Writing Tasks and Early Reading Tasks will be translated into Chinese and will be used in this study because it allows me to discover young Chinese children's notions of print, and their early reading and writing development. The purpose of this study is to discover whether Chinese children come to literacy in a similar way as their English-speaking counterparts, and whether different schooling in the same cultural context will affect children's literacy development in different ways. This means I will compare young Chinese children's early literacy development with Canadian children's early literacy development. A comparison between children from traditional Chinese kindergarten and children from Montessori kindergarten in the same Chinese cultural context will also be made.

This research is important because research on learning to read and write Chinese is still in its infancy, especially for young children. Understanding young children's

notions about print may give educators and researchers new views on how young children learn to read and write Chinese. Maybe there is some effective way to help young children become skilled readers other than through repeated exposure and memorization. This research is also important to Canadian educators because nowadays, more and more ESL (English as Second Language) children are being schooled in classrooms across Canada, many of them whose mother tongue is a non-alphabetic language. Knowing how these children develop an understanding of their mother tongue is as important as understanding their knowledge of English because research has found that fluency in the first language will foster second language learning (Ho, & Bryant, 1999). Recognizing the differences (if there are any) or similarities may help teachers to offer better scaffolding to ESL students in class.

1.2 Cultural context

The cultural context in which children learn to read and write is very different in China and in North American countries. Cultural differences are evident in parents' and society's academic expectations of young children, young children's academic experiences, and the cognitive skills to be mastered (McBride-Chang & Kail, 2001). These three factors will be detailed in the following sections.

1.2.1 Academic Expectations

Chinese society and parents tend to be much more concerned about their children's academic development than are parents from Western countries (Garden, 1987; Li, 2002). The academic performance of Asian children in general has received particular attention in cross-national comparisons of children school achievement; Chinese and Japanese

children are consistently among the highest achievers in international comparisons of mathematics and science achievement (Garden, 1987). The unique education systems are the main reasons that can explain this. Examinations are the primary path of selecting persons with ability in contemporary China. Because of the huge population, demanding job market, and significant economic differences between urban-rural areas, the best way, if not the only way that an individual can move up in the society is to pass the annual National College Entrance Examination, which is extremely competitive. Currently only 15-20% of those taking the exam are admitted to college (Li, 1999). Chinese children are arranged or "forced" to prepare for this "key exam" beginning in kindergarten. Parents believe that the earlier and better education a child can get in childhood, the better university and job he/she will get later.

The characteristics that parents hope to develop in their children and the parenting beliefs that parents hold may be very different in different cultural contexts. In a survey of twenty kindergartens in Beijing, Zhang (2001) found out that the most common question parents ask their child when the children come home from kindergarten school was "what did you learn in school today"? Zhang (2001) pointed out that North America parents were more likely to ask questions such as " Were you happy in school today"? Or "Did you have fun"? Zhang (2001) believed that this survey shows that Chinese parents are more likely to emphasize their children's academic achievement even at an early age. Meanwhile, research revealed that North America parents start to cultivate a happy and independent child, while Chinese parents aim to have a child with knowledge, obedience (Xiong, 2000).

1.2.2 Academic Experiences

Children from different cultural contexts have very different academic experiences from their peers. Play is a very important part of children's kindergarten life in North America. Play is viewed significantly in a Western orientation of a child's development. It is seen as related to cognitive development, emotional development, language development, and intelligent development as well. Piaget (1962) believed that play involves both a different intent than adaptive problem solving and a different treatment of materials included in an activity. Piaget recognized that adults affect child's play by the kinds of objects that they make available to child, the kind of activities that child observes or learns from them, and especially the role relationships that they have with children.

Children's play is considered unimportant for development, or a waste of time, in Chinese history and culture (Xiong, 2000). In his *need to know for raising children*, Zhu Xi, a famous ancient educator whose ideas affect Chinese people over thousands of years, clearly stated his opinion about play. Zhu (1178/1976) suggested that young children should be far away from crowd, should not raise small animals such as birds, dogs, or cats. He also suggested parents or other adults who were responsible for educating young children should make sure that young children don't waste their time on playing balls, flying kites, or other useless things. Although time changing, Zhu's ideas still are having great impact on today's Chinese education beliefs. It is generally believed that only through instructing or training, can a child learn something useful. Due to this reason, unlike Western children, who often interact with each other in a play activity in kindergarten, young Chinese children engage more in learning knowledge in their

kindergartens. For instance, many young children at ages 3 to 4 years are taught to recognize simple characters in the first or second year of kindergarten in Mainland China.

More recently, Chinese educators have begun to realize the importance of play in a child's development. Currently, some kindergartens have lowered their "pre-school education goal in academics" and offered programs such as " play with your child", "teach your child through play" in order to give children more opportunities to play. The National Education Ministry has announced a statute to liberate primary school students from heavy homework and give them more time to enjoy their "golden childhood" (Zeng, 2000). Chinese children's early learning experience is expected to be involved with more play activities.

1.2.3 Language Background

Chinese is a language that is very different from English. It is usually called a logographic writing system, and is well known for its visual complexity. One Chinese character usually represents one morpheme. There are around 70000 morphemes in Mandarin, but there are only 1200 syllables (Shu, 2003). This means that about five Chinese characters share one syllable. A major task for Chinese readers, is to learn what character is associated with what spoken syllable in context. In other words, a major task in early Chinese character acquisition is clarifying a given meaning from among several choices for a single sound (McBride-Chang, Shu, Zhou, Wat, & Wanger, 2003).

The smallest unit of the Chinese writing system is the stroke (similar to the usage of letters in alphabetic languages). Strokes make up components, which are called radicals or phonetics. There are about 200 radicals and 800 phonetics in the Chinese writing

system (Hoosain, 1991). Chinese characters are formed from combinations of these components. In general, the radical in a character determines the semantic category of the character, while the phonetic provides sound cues to a compound character (Shu, Chen, Anderson, Wu, & Xuan, 2003).

Chinese characters can be categorized four different ways: semantic-phonetic compounds, pictographs, ideographs and semantic compounds. Pictographs are simple characters that can be easily seen as picturing objects in Ancient Chinese, but there are only a few pictographs in current Chinese writing system. Ideographs are meaningful characters too. Some simple examples are 上 (up) and 下 (down). The majority of Chinese characters are semantic-phonetic compounds, which consist of the two major components: the semantic component (often called a radical) and the phonetic component (Shu et al., 2003). For example, the character 妈 (mother, pronounced as *ma*) consists of the radical 女 (female) and the phonetic 马 (horse, pronounced as *ma*).

Because of the Chinese language's specific characteristics, Chinese children are generally taught to read using the "look and say" method (Hanley, Tzeng, & Huang, 1999), whereas English-speaking children are usually taught some phonics to aid in word recognition (Adams, 1990). It is also believed that young children learn to read and write Chinese primarily by memorizing or imitating. Chinese scholars (Zhang, 2001; Zhu, 1993) believed that it is necessary to familiarize children with some characters in order to help them to read.

Pinyin is the pronunciation system in Mainland China, which is used to help to pronounce the characters. The main purpose of introducing the Pinyin system into Chinese is to enhance and simplify the self-learning process. The function of Pinyin in Chinese is

the same as phonetic symbols in English: it is only a tool to help in sounding out the Chinese characters. However, it cannot be much help in writing Chinese characters (Fu, 1985). Some research (Hoosain, 1986; Chung, 2002) claims that Pinyin can effectively promote the Chinese character learning because they found that Pinyin helps new learners to pronounce new characters correctly and easily even without the help from the teacher or other adults when Pinyin is presented with the characters at the same time so that children can refer to Pinyin. However, Wu and her colleagues (2002) found that the influences of Pinyin patterns on the students' reading performance varied with their different language ability; for children with poor language ability or young children with low language ability, Pinyin adding of new characters was even disadvantageous to them. They also believed that Pinyin does very little to help in writing Chinese characters.

In Mainland China, Pinyin and Chinese characters are usually introduced to young children at the same time, but some children may be exposed more and earlier to one system over the other at home or in their particular schooling environment. The current study will only examine young Chinese children's notions of character; children's knowledge of Pinyin or the ability of using Pinyin does not carry much weight in Chinese characters' reading.

1.3 Kindergartens in Mainland China

Traditional kindergartens have been the main providers of Chinese early childhood education ever since 1949, the foundation of the People's Republic of China. The main purpose of kindergartens is to "offer good qualified childcare and primary education" (Li, 2001). After the launching of the One Child Policy in 1978, kindergarten's purpose weighed heavily on education rather than on childcare. Mainland China's unique One

Child Policy has gained much worldwide attention ever since its first proposal. Although there are many criticisms of this policy, it has been a long-term policy because of the great population and limited resources in China. The One Child Policy changed people's parenting styles, and gave parents and families more opportunities and energy to offer a better education for their only child. Parents and grandparents want this only child to have a great future, and they believe that the earlier and better education a child can get in early childhood, the better university and job he/she will get later. The family catches every opportunity to give the only child the best life with the best start.

Traditional Chinese kindergarten schools focus more on preparing young children to be ready for school by promoting their social development, such as sitting quietly in rows, listening to the teachers, and some academic skills such as memorizing, reading, calculating and writing. Children are required to sit quietly with their hands behind their backs in rows. A traditional Chinese kindergarten classroom is very different from either a regular Western kindergarten classroom or a Montessori classroom. It is basically equipped with desks and chairs that are suitable to children's size. Desks and chairs are arranged in rows, and faced to the teacher. There are not many toys or other materials in the classroom either. Usually there are 20 to 25 children in one classroom with one teacher and one assistant. Children are not allowed to move freely in the classroom unless during the break time. Reading, writing, and other academic activities are the routine of children's daily life in a traditional Chinese school. Usually, children learn to read and write with repeating after the teacher or copying the character many times until they master it.

Teachers are more likely to be expected to transfer knowledge to the children. Teachers are called "feeders of knowledge". Wu, Li and Anderson (1999) stated that traditional Chinese educational practice encourages children to learn explicitly each and every character and repeatedly practice memorizing each character. They also stated that childish attempts at guessing are greatly discouraged in traditional Chinese school settings. However, other research (Shu et al, 2003) has supported the idea that if children can understand or even guess some rules or logic formation of Chinese characters, it will be very useful and helpful when they acquire, remember, and use characters. That is to say, if young children have their own theory of Chinese characters, it will help them to develop early literacy skills.

Because of the "Reform Opening Policy", which is directly translated from Chinese, there are some new education methods challenging traditional Chinese teaching in the last ten years. Montessori is one of them. Montessori schools first were introduced into China as international schools mainly to serve children whose parents are foreigners or from Hong Kong or Macau, and are currently working in China. Montessori schools have become a very hot commodity in contemporary China in the past 5 years and have expanded even to some of the countryside areas because the rapid economic and social changes have put many Chinese traditional values in doubt. For example, more concerns have been given to cultivate independent thinking, more creative children than obedient children who can memorize more knowledge (Huo, 2002).

Montessori schools work to develop culturally literate children and nurture their fragile sparks of curiosity, creativity and intelligence. They have a very different set of priorities from traditional Chinese schools, and a very low regard for mindless

memorization and superficial learning (Huo, 2002). The Montessori classroom is supposed to be a "prepared environment" where children can work at their own level of ability, and be permitted to have the freedom to move around the classroom to choose activities that interested them. Many of the materials in the classroom are self-correcting (Lillard, 1972).

Montessori teachers functioned as designers of the environment, resource persons, role models, demonstrators, and meticulous observers, are trained to "follow the child" through careful observation, allowing each child to reveal her strengths and weaknesses, interests and anxieties, and strategies that work best to facilitate the development of each child (Lillard, 1972). Extensive training is required for a full Montessori credential, including a minimum of a college degree and a year's student teaching under supervision - specialized for the age group with which a teacher will work, i.e. infant and toddler, pre-primary, or elementary level. However, in contemporary China, in order to meet the rapidly increasing demands of Montessori kindergartens, some teachers from traditional school can become Montessori teachers after very short-term training. Some of them have only less than one week training.

Different from traditional Chinese kindergartens' routine reading and writing instructions in the classroom, Chinese Montessori kindergartens usually do not have the instructional reading and writing lessons for children. The teachers are required to observe whether each child is ready for reading and writing. Since these children are not "forced" to read and write at early ages in Montessori kindergartens, the current study aims to find out whether there is any difference between Montessori kindergarten children's notions of print and traditional Chinese kindergarten children's notions of print.

1.4 Early Reading and Writing

Many researchers have reached some common agreements on how young children learn to read and write. For example, it is generally agreed that before learning to read and write, children need to have the correct notion of print. That is, young children need to realize that alphabets represent properties of speech (Pelletier, 2002; Bialystok, Shenfield, & Codd, 2000; Lee & Karmiloff-Smith, 1996). It is also believed that different cognitive skills are needed for young children in order to be able to read and write (Adams, 1990; McBride-Chang & Kail, 2002; Goswami, 1990; Ho & Bryant, 1997). First, I will review what the literature reports about children's notions of print. Second, I will review the literatures pertaining to the cognitive skills that children need to read and write.

1.4.1 Children's Notions of Print

Young children have been exposed to print for several years even before they receive their formal reading instruction. They formed some interesting and important epistemologies about print after watching their parents read books to them, seeing signs in the neighborhood, and observing print or symbols on the television (Pelletier, 2002). There are various symbol systems such as drawing, print, and number for children to identify and distinguish one from each other (Lee & Karmiloff-Smith, 1996). All these require the children to understand the relation between an abstract symbol and an arbitrary notation. At quite a young age, children may have the notion that one object or event may stand for another (Marzolf & Deloache, 1994). For example, at age 3, most North American children recognize that golden arches "stand for" MacDonald's. However, this

does not mean that they can apply this ability to all contexts or domains (Snow & Criffin, 1998). That is, they may not understand that the print "cat" stands for any actual or imaginable cat in the world.

In order to read, children must understand the correspondence and build connections between the print and the sound (Bialystok, 1997; Pelletier, 2002). Children's previous experiences with representational systems are more direct. For example, a picture of a person looks like a person, its meaning is clear. In order to read, young children need to develop some ideas about how written words are used for reading, such as the order and direction of reading, and the abstract connections between the sound and the print (Snow & Griffin, 1998). However, a child at an early age may examine the image of the text to infer meaning (Pelletier, 2000). For example, Pelletier (2002) found in her study that a child may pick up "television" when he is asked to point out the word "train" among the three words, "train, tea, television". This is because "train is long, and this word is long". Another example could be that when the last word is covered in the phrase "three little pigs" and the child is asked "what does it say now," many young children respond "two little pigs." They do not understand that the words are just recordings of the sounds. If they did, they would not take objects, but not the words away when some words are covered in a phrase. Olson and Pelletier (2002) believe that children need to first distinguish print from picture. Children are unable to read until they know that print is a representation of form, not meaning *per se*. Generally children begin 'reading' with pictures. Later when children understand that print represents the linguistic form including the discrete sounds of what is said, they understand that one can read without pictures (Olson & Pelletier, 2002).

Pelletier (2002) found in her study that young English children had some common misconceptions of the print. For example, even four-year-olds in her study know that "cccc" cannot be a word because "they are all the same letter". However, although individual letters are meaningless in English and a string of letters (different letters) is needed to represent a morpheme, it is not the same case in other writing systems. In Chinese, some individual strokes are meaningful; and repetition of some individual strokes is meaningful too. For example, "一"is an individual stroke and it is a character itself, which means "one" in English. The repetition of "一" can be characters too. "二" is two, and "三" is three. One could speculate that Chinese-speaking children's theory of print may be different from English-speaking children's theory in that repetition of a letter cannot be a word in English but it can be in Chinese.

At age three and four, being able to identify 10 alphabet letters, especially those from their own names, English-speaking children also display some writing attempts (Snow & Criffin, 1998). Because they know that words need to be written with letters, many of them produce cursivelike scribbles that they believe could be read by others (Pelletier, 2002; Bialystok, 1997). Young children may also note the differences between numbers and letters; for example, they can understand that they can use both hash marks and numerals to represent numerical information (Snow & Criffin, 1998). However, many four-year-olds show the transition phase between writing symbols that represent objects and writing symbols that represent linguistic form. For example, Pelletier (2002) found in her study that when asked to write, "Daddy has three hockey sticks," many of four-year-old children write "D H 3 LLL"(L here stands for a picture of a hockey stick). This

common notation suggests that young children at age of four are still struggling in distinguishing objects and the words to represent them.

Furthermore, Bialystok (1997) demonstrated the findings in the early research (Jaffré, 1997; Coulmas, 1989) that the controversies inherent in describing writing systems and their potential impact on children's acquisition of literacy. Although all the languages require some general principle of symbolic representation, each language requires some specific correspondence rules because of its particular characteristics (Bialystok, Shenfiled, & Codd, 2000). Even at very early ages, young bilingual children may adopt some principles from one language to the other (Bialystok, 1997). Bialystok (1997) believed that children whose early literacy experiences include a character-based written language should understand the specific symbolic function of writing system differently from children whose experience has been with alphabetic writing. In her study in assessing to what extent that young children (ages of four and five) understood the specific way in which writing systems encode the spoken word, she found that bilingual speakers of Chinese (Mandarin) and English perform better than both the bilingual speakers of French and English group. She believed that a possible reason for this is because Chinese, as a character writing system is easier for learning sound-symbol correspondences.

1.4.2 Cognitive Skills that Influence Learning to Read and Write

Researchers believe that different cognitive skills may be demanded in reading different orthographies (e.g., alphabetic and nonalphabetic writing systems) (Foorman &Siegel, 1986; Hung & Tzeng, 1981). It is commonly believed that phonological skills

are important in leaning to read alphabetic systems like English while visual skills are important in leaning to read logographic scripts like Chinese (Lee, Stiger, & Stevenson, 1986). This is generally believed because that in order to learn to read an alphabetic language such as English, children need to gain the ability to map letters, the basic units of the writing system, onto the phonemes, the basic units of the spoken English. To learn to read and Chinese, children need to have the knowledge and ability to map the structure of characters onto the meaning of the charcters (Shu, 2003).

Phonological awareness, defined as awareness of and access to the sound structure of a language, is one of the strongest predictors of learning to read in English (Adams, 1990; Bradley & Bryant, 1983). Copland (1998) found that phonological awareness at the beginning of kindergarten significantly predicted grade one decoding ability in reading. MacDonald & Cornwall (1995) even found that phonological awareness at kindergarten was a significant predictor of word identification and spelling eleven years later.

McGee & Richgels (2000) found that phonological awareness also could contribute to invented spelling for young children. Invented spelling is a child's early attempts at word writing before he/she is able to read. Luria (1978) claimed that there were two stages in children's writing development. At the beginning stage of writing development, young children represent sentences by focusing on words' characteristics such as numbers, shape, color, and size. Later on, children learn to write phonetically and work on printing (Luria, 1978). Tolchinsky (1998) argued that there are four stages in children's early writing development. These include: 1) undifferentiated and unconstrained writing, 2) formally constrained writing, 3) syllabic writing, and 4)

alphabetic writing. In conclusion, all these research show that phonological awareness could contribute to young children's writing development in alphabetic languages.

Morphological awareness, defined as "children's conscious awareness of the morphemic structure of words and their ability to reflect on and manipulate that structure" (Carlisle, 1995 p. 194), is one of the strongest predictors of learning to read in Chinese (Packard, 2000; McBride- Chang et al, 2003). Baron & Strawson (1976) argued that in a logographic writing system like Chinese, Chinese characters are learned as logograms. This means that Chinese characters are like pictures that are composed with strokes. As the additional/subtraction of strokes and their position change, the meaning and sound of the character change (e.g., 大 big 太 too 犬 dog) (Ho & Bryant, 1999). For this reason, Ho and Bryant (1999) believe that visual skills rather than phonological skills are important in learning to read Chinese.

For beginning Chinese readers, matching the shape of the object to the print is the basic way to learn. For example, 田is field, 门is door, and 人is person. Many teachers teach these characters first because the characters look like the real objects. The most common way to teach young Chinese children these words is to draw a picture of the object first, then transfer to the character. Research has found that children do not memorize Chinese characters as a whole in learning to read: they decompose characters into sublexical units. The understanding of inter-structural knowledge of characters is important for children (Cheng, 1982, Shu & Anderson, 1999). Meanwhile, there is only a very small set of graphemes in English. Letter-strings are arranged sequentially from left to right and word length can vary from one letter to over 20 (Ho & Bryant, 1999). On the contrary, there are a lot of graphemes in Chinese. Strokes can be arranged from left to

right, from top to bottom, and even from inside to outside. Character reading in Chinese requires the identification of the stroke-patterns and the positions appearing in different characters (Ho & Bryant, 1999).

McBride-Chang and her colleagues (2003) found that morphological awareness is associated with children's later reading and writing development. The more reading experience Chinese children have, the more characters that they can use to link semantic radicals to the meanings of different characters, the more morphological awareness they have (McBride-Chang et al, 2003). McBride- Chang and her colleagues (2003) believe that despite the differences in languages and orthographies, the importance of morphological awareness for reading may also depend on a child's developmental level. Early language researchers recognize that children evidence sensitivity to morphological structure from about the age of two years (Clark, 1995).

Pelletier (2002)'s Early Reading Tasks and Early Writing Tasks detected young English children's notions of print, and were demonstrated as a good predictor for children's later reading and writing in Grade one. The current study used Pelletier's tasks with Chinese children of ages of four and five from two different schools: one is a traditional Chinese kindergarten; the other is a Montessori kindergarten school. A primary focus of the present work was to examine the young Chinese children's notions of print, and their early reading and writing development across different systems of schooling.

1.5 Research Hypothesis

Although there are differences between the two languages: English and Chinese, I believe that young children go through a similar process to build a theory of print because of the universal cognitive development. The purpose of my research is to discover: 1)

whether Chinese children develop early literacy in a similar way as their English-speaking counterparts, 2) whether different schooling in the same cultural context will affect children's literacy development differently, 3) and to what degree the cultural differences will influence their development of reading and writing skills. The research questions are as follows:

1. To what extent will the Chinese version of the Early Writing Task and the Early Reading Task reliably measure the development of reading and writing skills in young Chinese-speaking children of different age/grade levels?

Hypothesis: The Chinese version of the Developmental Spelling Task and the Developmental Reading Task will reliably measure the development of reading and writing skills in young Chinese-speaking children of different age levels.

2. To what extent will the Early Writing Task and the Early Reading task reflect the ways that different cultures affect young children's developing epistemologies about print?

Hypothesis: Young children will go through similar developmental processes in developing epistemologies about print regardless of their cultural background, but children from some cultures may reach the same development level earlier or later than children from other cultures.

3. To what extent will different schoolings affect children's developing epistemologies about print in the same cultural context? That is, will children

from different schoolings reach the same developmental level of reading and writing differently?

Hypothesis: Different schooling in the same cultural context will affect children's developing epistemologies about print at different stages.

Chapter 2: Research Method

2.1 Participants

Participants were 79 children from 2 schools, which were randomly chosen from the same community in Harbin, a Northeast city in Mainland China. The first group consisted of 39 children from a traditional Chinese school, including 20 who were 4 years old (mean age 50 months) and 19 who were five-year-old (M age 65 months). The second group consisted of 33 children from a Montessori school, including 19 who were four-year-old (M age 54 months), and 14 who were five-year-old (M age 64 months).

2.2 Procedures and Instruments

Children were tested individually in a quiet room at school during school hours. The Chinese version of The Early Reading Task (Part One and Part Two) and The Early Spelling Task (Part One and Part Two) (Pelletier, 2002) were administered to all children. The Early Reading Task required 5-10 minutes and the Early Writing Task required 10-15 minutes. Tasks were carefully administered by the order of The Early Reading Task Part 1, The Early Reading Task 2, The Early Writing Task Part 1, and The Early Writing Task Part 2.

Because of the linguistic and cultural differences between English and Chinese, some changes were made when The Early Reading Task and The Early Spelling Task were translated into Chinese. For example, the repetition use of letters "cccc" in English was used with the repetition use of strokes "  ". Another example is that "key" is a high frequency word in oral English and at the same time it is an easy phonetic sound out word. Young English-speaking children at age of five or six can spell this word correctly or can

spell a word alike it, such as "kee" or "ka". While although "钥匙" (key) is a high frequency word used in oral Chinese too, it is a very difficult word in written Chinese, which is usually first introduced to children at Grade Six. For this reason, "Mom has three keys" in English version was changed into "Mom has three apples" (妈妈有三个苹果). These kinds of adjustments were made in all the measures.

The Early Reading Task Part One. Participants were shown some cards with one Chinese character on each card and were asked whether it is/was a character in order to understand their notions of " Chinese characters". Characters were ranged from some very simple characters such as "大" (big), then some complex characters such as most "最" (most). Some nonsense Chinese characters such as "㔉 " (similar to English word "apud") were shown to them too. The comparison of the English version and the Chinese version is summarized in the Table1.

Table 1.
The comparison of The Early Reading Task Part One for English and Chinese Version

	English version	Chinese version
1.Word 1	cat	大 (big)
2.Word 2	BARNEY	最 (most)
3.Word 3	cccc	刁刁
4.Word 4	apud	㔉
5.Word 5	teacher	老师 (teacher)

The Early Reading Task Part Two. In order to understand Chinese children's understanding of numbers and prints, The Early Reading Task Part Two (Pelletier, 2002)

was administered to children. Children were shown some phrases and were asked to read it again when some words were covered. For example, children were shown the phrase " three little pigs" and were asked to read it again when the last word was covered. The detailed description of this measure follows in Table 2.

Table2.
The comparison of The Early Reading Task Part Two for English and Chinese Version

	English Version	Chinese Version
Phrase 1	Three little (pigs)	三头小(猪) Three little (pigs)
Phrase 2	Ten little monkeys (jumping on the bed)	九只小鸟(在树上唱歌) Nine little birds (singing in the tree)

Note. The words in the parentheses were the words that were covered when phrases were shown to children.

The Early Writing Task Part One. In order to see whether young children know that strokes make up characters and how they begin to write/describe something they could understand in their oral language, The Early Writing Tasks (Pelletier, 2002) were administrated to children. Pelletier (2002) extended/extracted Tangel & Blachmans' (1992) tasks to The Early Writing Task Part One. Children were asked to write some words or characters, and were encouraged to express these in different ways, such as using Pinyin or drawing even if they do not know how to write these characters. Since the English version task was arranged by the phonological difficulty (each successive word was harder than the previous one), the Chinese version task was arranged by its morphological difficulty (each successive character was more complex than the previous one in its morphological formation) because of its unique language characteristics. Some

slight changes were made because of the different complexities of the corresponding words. The detailed description of this measure follows in Table 3.

Table 3.
The comparison of The Early Writing Task Part One for English and Chinese Version

	English version	Chinese version	
1. Word 1	lap	大	big
2. Word 2	sick	天	sky
3. Word 3	pretty	鸟	bird
4. Word 4	elephant	象	elephant
5. Word 5	train	火车	train

The Early Writing Task Part Two. The Early Writing Task Part Two was developed by Pelletier (2000). Similar to The Early Reading Task Part Two, these measures aim to understand Chinese children's understanding of numbers and prints. The reliability of this measure was high (Lasenby, 2002). Children were asked to write some phrases or sentences which were composed of both numbers and words. The items were arranged with the increase of the number of objects described in the phrases. Again, because of the different complex difficulties for some words, slight changes were made when The Early Writing Task Part Two was translated into Chinese. For example "Mom has three keys" was changed into "Mom has three apples" in Chinese. "Dad has four hockey sticks" was changed into "Dad has four books" in Chinese because most Chinese children have no idea of what a hockey stick is. The detailed description of this measure follows in Table 4.

Table 4.
The comparison of The Early Writing Task Part Two for English and Chinese Version

	English version	Chinese version	
Phrase 1	One cat	一只狗	one dog
Phrase 2	Two horses	两匹马	two horses
Phrase 3	Mom has three keys	妈妈有三个苹果	Mom has three apples
Phrase 4	Dad has four hockey sticks	爸爸有四本书	Dad has four books
Phrase 5	_____is _____old	___(名字) __ (数字)岁	____is _____old

2.3 Coding Scheme

Since this is a largely unexplored area of research and no existing schemes could be found, especially with regard to Chinese-speaking children, I had to develop my own coding scheme. On the basis of Pelletier (2002)'s coding scheme on English-speaking children, I developed different coding schemes for The Early Reading Tasks and The Early Writing Tasks.

The Early Reading Tasks Part One. Four categories were used to distinguish children's different stages of reading development: beginning of reading stage, pre-stroke identification, beginnings of stroke identification, reading/moving into meaning based interpretations. In each category, different credits were given for different answers. For example, if children could give some general comments on the mark on the page such as " it has words in it" or "because it is written", they were categorized in pre-stroke identification stage. If children could give some specific comments on the strokes such as " it has a person here" or " it has ear here", they would be categorized in beginnings of

reading stage because they could recognize the strokes in the characters. This coding scheme was developed to understand children's notion of what constitutes a Chinese character. The detailed examples are as follows.

Category 1: Beginning of reading stage

0=incorrect identification

1=no response

2=unusual response

"Isn't it a subtract symbol?"

3=I just know

"It looks like a character, I know"

" I know it as soon as I see it"

" Mom told me"

Category 2: Pre-stroke identification

4=general comments on writing

"Because it is written"

" Because it is on the paper"

5=general comments on the character

"It is a character, and it is small"

"It has character in it, so it is a character"

Category 3: Beginnings of stroke identification

6=general comments on the stroke

"It has this, and this" (point to different strokes)

7=specific comments on the stroke

"It has a 耳" (name the strokes in the character)

Category 4: Reading/moving into meaning

8= correctly read the character

9= reference to category or meaning of the word

"It's not small" (response to the word "big").

The Early Reading Task Part Two. The main purpose of this task is to understand children's understanding of numbers and words. Similar to the English coding scheme developed by Pelletier (2000), this coding scheme does not proceed developmentally as an ordinal scale either, but is instead a nominal scale that just categorized the children's typical responses numerically.

0=refusal/no response

1=I don't know

2=unusual response/reference to something totally different

"All the birds fly away"

3=retain the same number of objects and characters

"Three little pigs"

4=reference to fewer characters

"Nine little birds are singing in the"

5=reference to fewer objects

"Two little pigs"

6=reference to fewer words and objects

"one little"

7=correct reading

"three little"

The Early Writing Task. On the basis of Pelletier's (2002) work on English-speaking children's early literacy, and Shu et al's (2003) work on Chinese children's learning to read, four categories were used to interpret children's different responses to numbers and objects. They are drawing, Pinyin usage, stroke usage, and correct writing. Similar to the reading tasks, different credits were given for different answers. For example, if children could write some parts of a Chinese character or if they could write some strokes, even though these strokes might not exist in that specific character, they would be categorized into the stroke-usage stage. The coding scheme of The Early Writing Task (both part one and part two) is summarized as follows.

Category 1: Drawing

0=no attempt

Refuses or is unable

1=scribbling

Obvious random marks

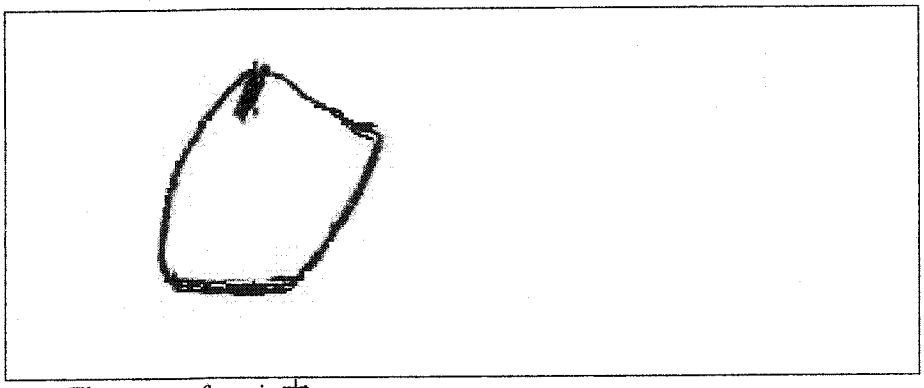
Round or straight marks

2=non-representative drawing

Nothing that looks like a word

Nothing that looks like the object the word represents

Figure 1: big

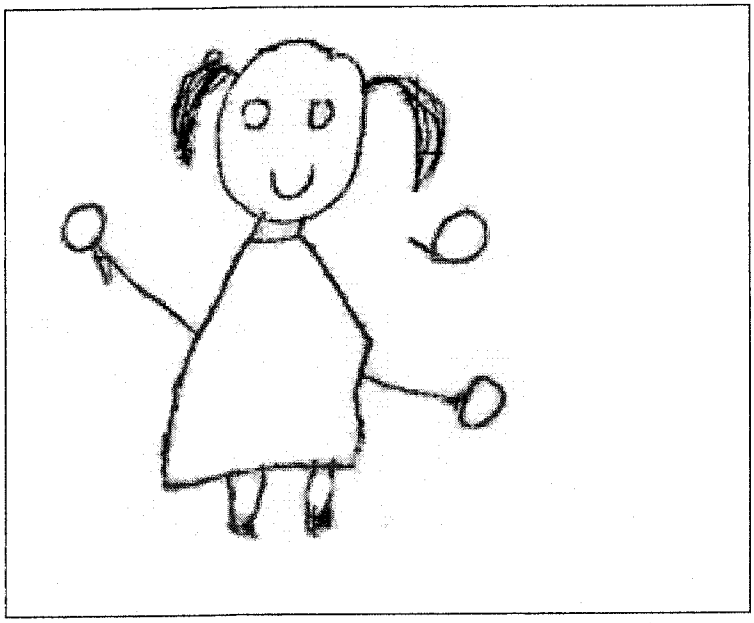


Note. The correct form is 大

3=representative drawing

That resemble the object the word presents.

Figure 2: Mom has three apples



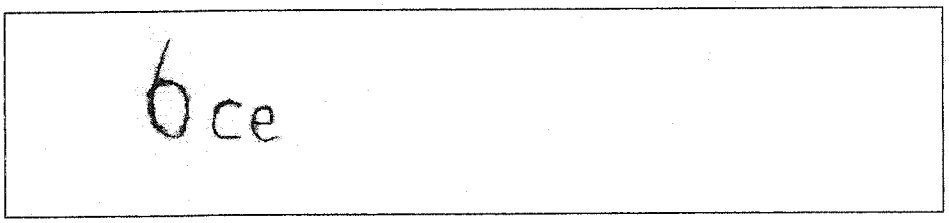
Note. The correct form is 妈妈有三个苹果

Category 2: Pinyin usage

4=pinyin attempt

Not the correct pinyin

Figure 3: train

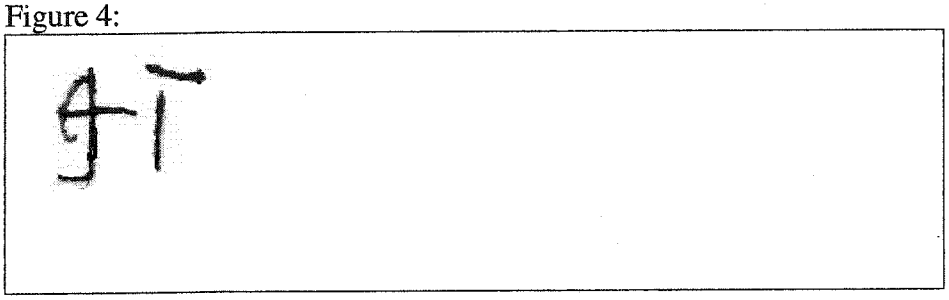


Note. The correct form in pinyin is huo che

5=part of pinyin proper usage

Not all the pinyin were correct

Figure 4:

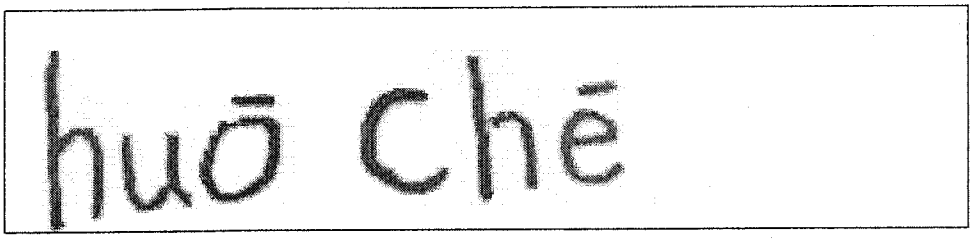


Note. The correct form is Pī (the ¯ on the letter i is the tone for the character)

6=proper pinyin usage

All the pinyin were correct

Figure 5: train (in pinyin)

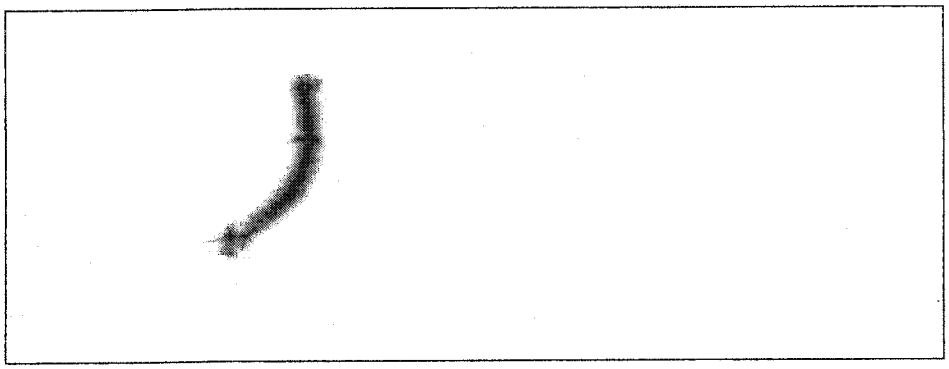


Category 3: Stroke usage

7=stroke attempt

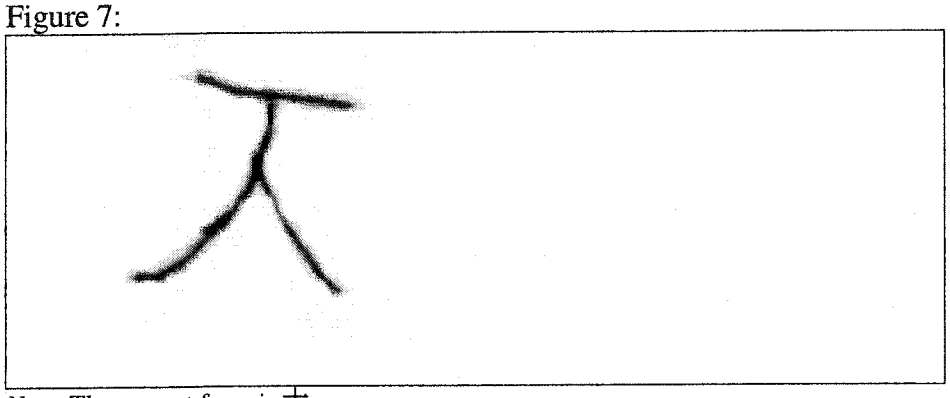
Starting to use stroke

Figure 6: elephant



8=part of stroke proper usage

Figure 7:



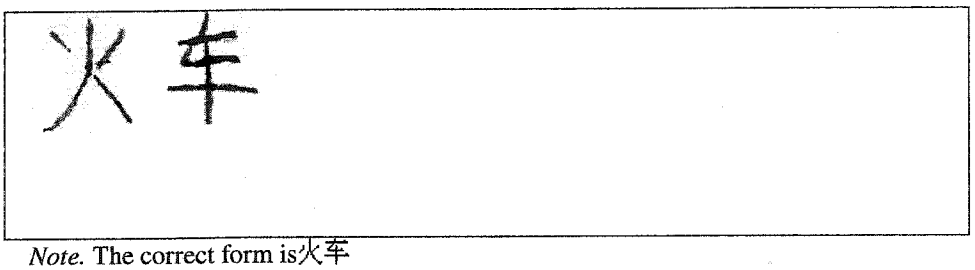
Note. The correct form is 大

9=proper stroke usage

Category 4: Correct Writing

10=correctly write the characters (for The Early Writing Task Part 1)

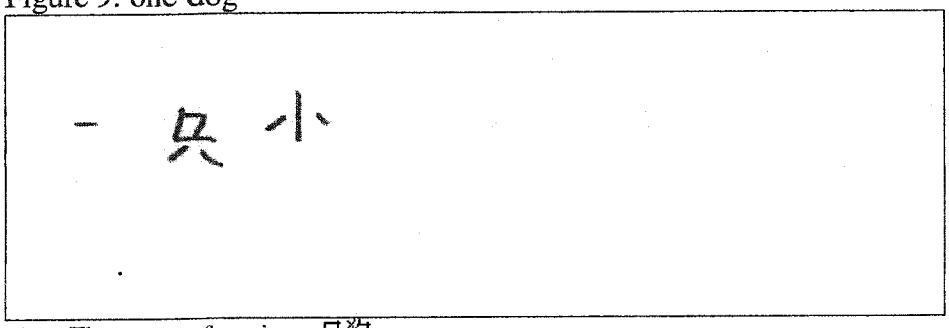
Figure 8: train



Note. The correct form is火车

11=some characters in the phrases and sentences were correctly written (for The Early Writing Task Part 2)

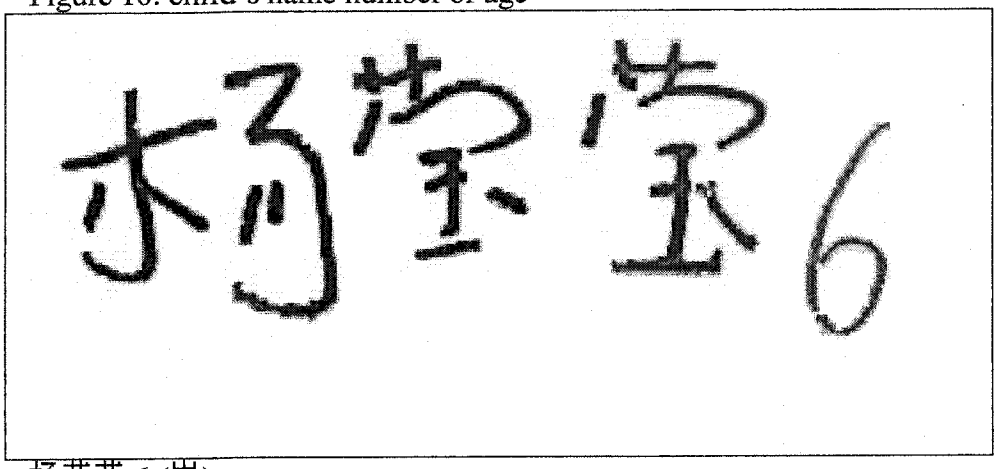
Figure 9: one dog



Note. The correct form is 一只狗

12=correctly written the phrase or sentence (only suitable for The Early Writing Task Part Two)

Figure 10. child's name number of age



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Chapter 3: Results

Quantitative analyses were carried out to answer the research questions outlined in Chapter One. The Alpha (Cronbach) coefficient internal consistency estimates of reliability were computed for both The Early Reading Tasks (Part One and Part Two), and The Early Writing Tasks (Part One and Part Two). Person correlations were used to determine the degree of associations between the items in every task and the associations between different tasks in this study. Independent *t*-tests were used to test the differences of children's performance on all the measures among different groups by children's age and the school they attended.

3.1 Reliability

All the measures in the current study had reliabilities of .80 or greater. The only exception to this was the Early Reading Task Part 1, which was.72. The Early Writing Tasks, with the coefficient (alpha) respectively .92 and .81 had higher reliability than the Early Reading Tasks with the coefficient (alpha) of .72 and .81. The results indicated satisfactory reliability especially for The Early Writing Tasks.

Pearson coefficients were conducted to determine the association degree of the different tasks (The Early Reading Task Part 1 and 2, The Early Writing Task Part 1 and 2). The results showed the significant correlations (r=.21, p<.05) between the two parts in The Early Reading Tasks, and the significant correlations (r=.83, p<.01) between the two parts in The Early Writing Tasks.

3.1.1 The Early Reading Task

Intercorrelations were computed among the seven items in The Early Reading Task (Chinese version). The results of the correlational analyses presented in Table 6 show that for the two groups (four-year-old and five-year-old), correlations of the items in Part One with Part Two were not statistically significant. However, the correlation of the two items in Part Two was statistically significant in both groups(r=.67 and r=.68 respectively for the four-year-old group and the five-year-old group). Most correlations of the items among the Part One were significant in five-year-old group, but not in the four-year-old group.

Table 5

Intercorrelations among different items in the Early Reading Task by children's age

	1	2	3	4	5	6	7
1. Word1	__	.11	.11	.30	.33**	-.19	-.20
2. Word2	.52**	__	.31	.35**	.14	.14	.17
3. Word3	.22	.38*	__	.47	.08	.07	.21
4. Word4	.35*	.67**	.70**	__	.28	.10	.17
5. Word5	.35*	.46**	.25	.54**	__	.16	.14
6. Phrase1	.06	.27	.14	.23	.28	__	.67**
7. Phrase2	.08	.19	.26	.25	.16	.68**	__

Note. Correlations above the diagonal represent associations among the four-year-old group (N=39); correlations below the diagonal represent associations among the five-year-old group (N=33).

* p< .05 ** p< .01

3.1.2 The Early Writing Task.

Correlation coefficients were computed among the ten items in The Early Reading Tasks (Chinese version). The results of the correlational analyses presented in Table 7 show that for the five-year-old group, the correlations of all the items in the Early Writing Tasks were statistically significant. For four-year-old group, most correlations were statistically significant except for the correlations of item 9 with other items.

Table 6

Intercorrelations Among Different Items in The Early Reading Tasks by Children's Age

	1	2	3	4	5	6	7	8	9	10
1.Word1	__	.69**	.67**	.73**	.63**	.42**	.62**	.44**	.20	.56**
2.Word2	.75**	__	.70**	.50**	.80**	.51**	.71**	.60**	.30	.49**
3.Word3	.73**	.79**	__	.73**	.70**	.40*	.77**	.54**	.19	.25
4.Word4	.61**	.74**	.77**	__	.65**	.29	.62**	.46**	.25	.44**
5.Word5	.64**	.79**	.79**	.88**	__	.42**	.60**	.51**	.44**	.46**
6.Phrase1	.55**	.47**	.43**	.56**	.49**	__	.49**	.39**	.06	.21
7.Phrase2	.68**	.80**	.82**	.75**	.73**	.55**	__	.66*	.11	.46**
8.Phrase3	.57**	.68**	.79**	.71**	.85**	.44**	.74**	__	.50**	.27
9.Phrase4	.57**	.68**	.69**	.70**	.75**	.44**	.81**	.81**	__	.21
10.Phrase5	.85**	.73**	.61**	.66**	.65**	.58**	.63**	.52**	.53**	__

Note. Correlations above the diagonal represent associations among four-year-old group (N=39); correlations below the diagonal represent associations among the five-year-old group (N=33).

* p< .05 ** p< .01

3.2 Cultural Factors

Because of the great differences between the two languages, it is difficult to compare the raw scores of the children's performances on the measures. However, the

descriptive analyses of the percentage of children's responses in each category were conducted in order to evaluate the hypothesis that children from different cultural backgrounds go through similar stages in their reading and writing development.

3.2.1 The Early Reading Task Part One

The four categories for the English version The Early Reading Task is: Pre-letter identification, beginnings of letter identification, beginnings of sounding out words, and reading/moving into meaning based interpretations. The Four categories to distinguish Chinese children's different stages of reading development are: beginnings of reading, pre-stroke identification, , beginnings of stroke identification, reading/moving into meaning based interpretations. At age of four, both English and Chinese children were most likely to be categorized into the first stage. However, at age of five, most Chinese children were likely to be categorized into the fourth stage while the most English children were likely to be categorized into the third stage (see Figure 11).

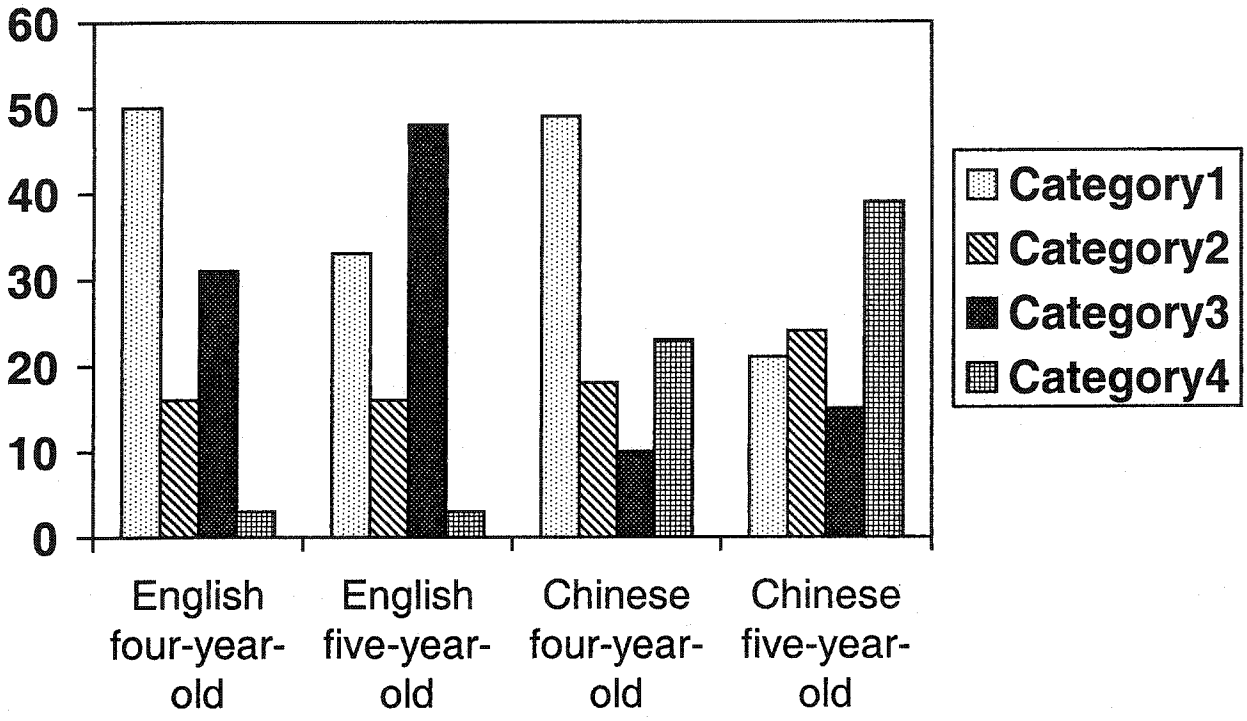

Figure 11. Comparison of percentages in each category of different age groups from English and Chinese backgrounds on The Early Reading Task Part One.

3.2.2 The Early Reading Task Part Two

Because the percentage of English children's performance on The Early Reading Task was not available, no comparison could be made for this measure.

3.2.3 The Early Writing Task Part One

The four categories for the English version The Early Writing Task are: drawing, pre-writing, phonological awareness, and correct writing. The Four categories to distinguish Chinese children's different stages of writing development are: drawing, pre-writing, stroke using, and correct writing. At ages four and five, most English children

were categorized into the third stage, while most Chinese children were categorized into the first and the second stages. (see Figure 12).

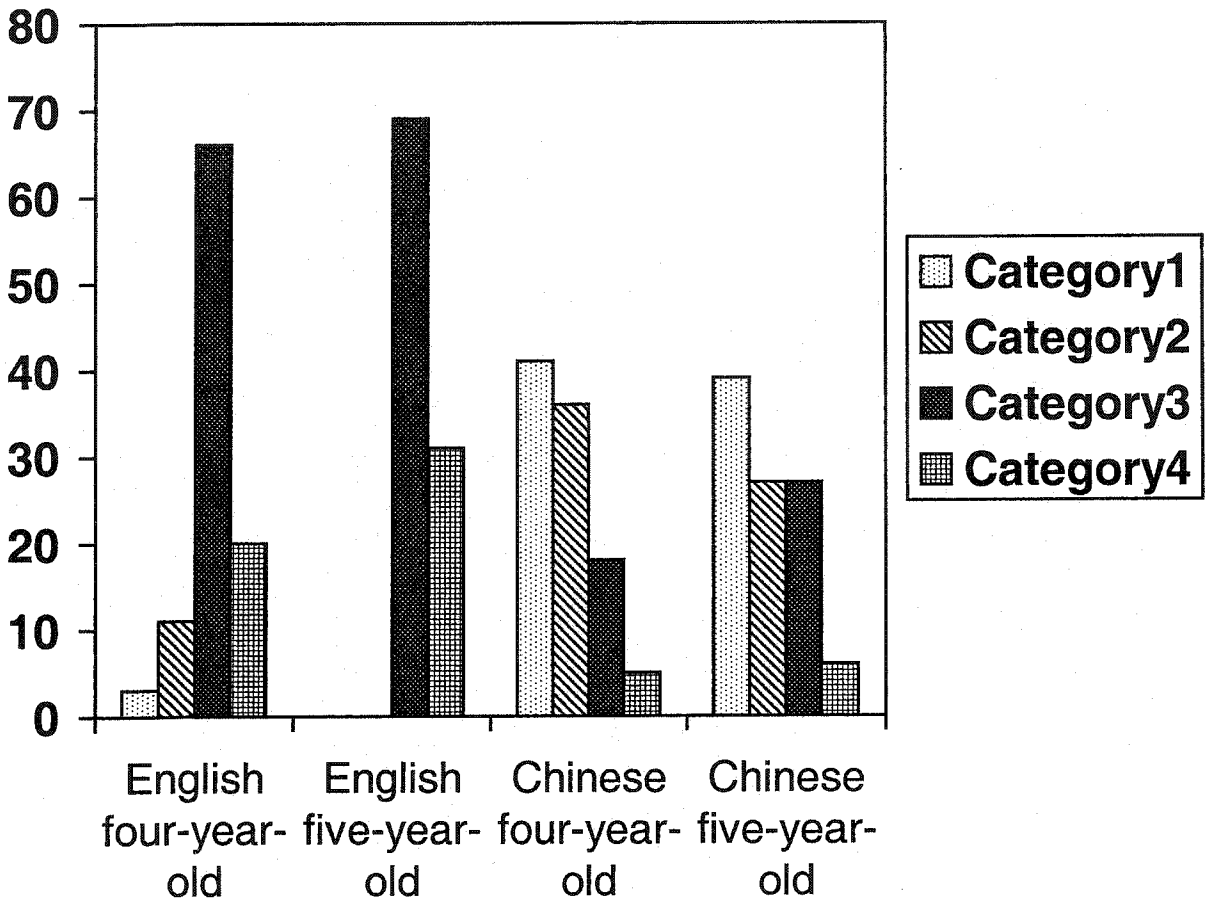

Figure 12. comparison of percentages in each category of different age groups from English and Chinese background on The Early Writing Task Part One

3.2.4 The Early Writing Task Part Two

The four categories for the English version of The Early Writing Task are: drawing, pre-writing, phonological awareness, and correct writing. The Four categories to distinguish Chinese children's different stages of writing development are: drawing, pre-

writing, stroke using, and correct writing. At age four, most English children were categorized into the third stage, while most Chinese children were categorized into the first stages. At age five, both English and Chinese children were mostly categorized into the fourth stage (see Figure 13).

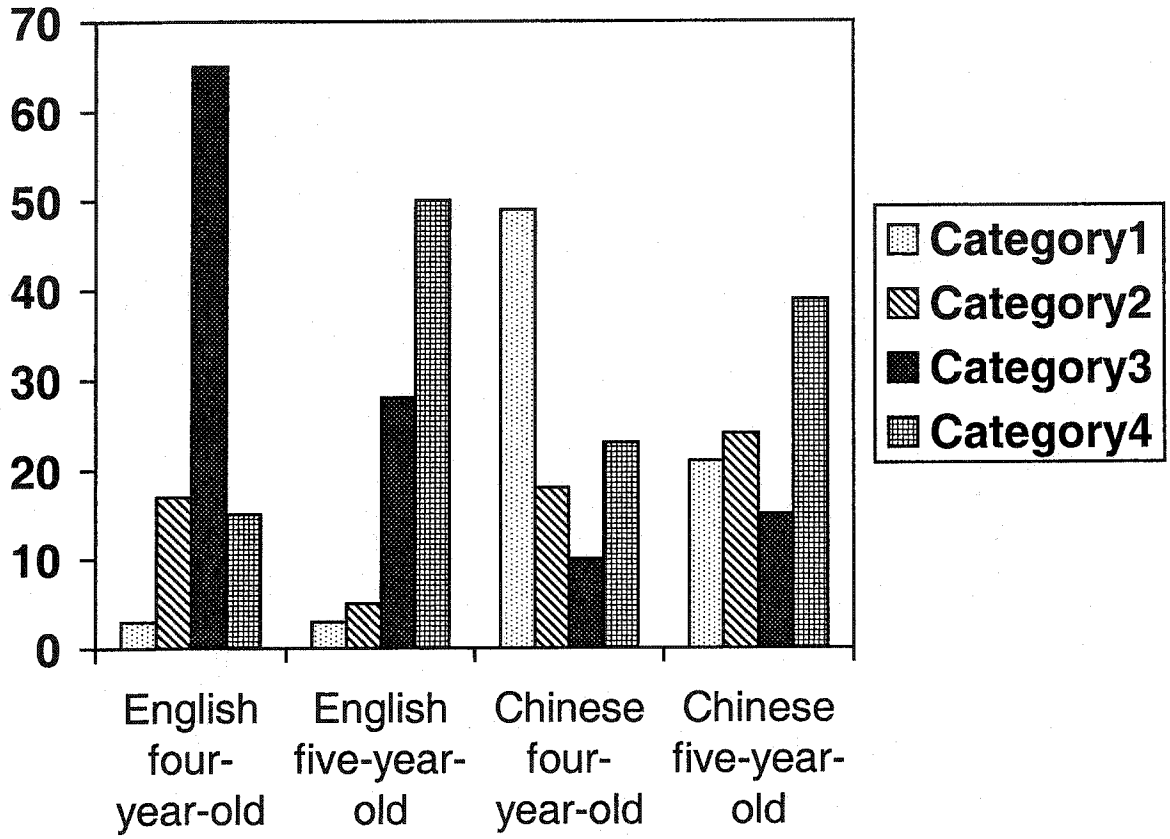

Figure 13. comparison of percentages in each category of different age groups from English and Chinese background on The Early Writing Task Two.

3.3 Schooling Factor

Means and standard deviations on all tasks are displayed separately for different schools and different age groups in Table 8. Generally, children's performance on all measures improved across age level in the same school setting. Older children performed

better than younger children. Children from the traditional Chinese school performed better than children from the Montessori school in the same age level on all measures, especially for The Early Writing Task. Five-year-old children from the traditional Chinese school performed best among all four groups. Four-year- old Montessori children performed poorest in both reading and writing tasks.

Table 7.
Mean Scores, Standard Deviations of Various Measures for Different Groups by School and Age

		The Early Reading Task				The Early Writing Task			
	Age	Reading1		Reading 2		Writing1		Writing 2	
	(years)	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Montessori	4	23.80	4.84	9.84	3.10	10.57	8.36	15.32	4.93
	5	25.23	3.87	10.93	3.06	14.42	5.46	17.07	4.65
Traditional	4	27.70	5.54	11.55	3.20	38.65	3.38	30.10	9.43
	5	31.16	7.18	13.11	8.76	41.84	8.28	40.11	8.94

3.3.1 The Early Reading Task

Means and standard deviations on all tasks are displayed separately for different schools and different age groups in Table 9. Independent-sample *t* tests were conducted to evaluate the impact of school and age factors respectively on children's performance in The Early Reading Task. The tests were not significantly different (all t s>1.34, all p s>.29), which means the children of the two age groups and the children of the two schools did not differ significantly in their performance in The Early Reading Task. This could be due to the small sample size and will be discussed in Chapter 4.

Table 8
Mean Scores, Standard Deviations of The Early Reading Task for Different Groups by School and Age

	Montessori School				Traditional School			
	Age Four		Age Five		Age Four		Age Five	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
1. Word1	5.58	1.03	7.29	1.82	5.75	2.53	6.58	2.04
2. Word2	6.32	2.31	6.57	2.50	7.80	2.10	7.74	2.26
3. Word3	4.84	1.34	5.86	1.66	5.85	1.93	6.26	1.33
4. Word4	4.84	1.39	5.07	1.86	5.35	1.53	5.42	1.84
5. Word5	4.00	1.73	4.57	1.70	4.60	2.30	5.16	2.24
6 .Phrase1	5.11	1.85	6.00	1.52	5.65	1.84	6.00	1.60
7. Phrase2	4.74	1.63	5.43	1.83	5.90	1.59	5.89	1.56

3.3.2 The Early Writing Task

Means and standard deviations on all items in The Early Writing Task were displayed separately for different schools and different age groups in Table10. Independent-sample *t* tests were conducted to evaluate the hypothesis that different schooling in the same cultural context does not affect children's children performance in different degree. The *t* tests were significant in both parts with t (70)=11.34, p=.05 in The Early Writing Part One, and t (70)=9.30, p<.01. However, children of the two age groups did not differ significantly in their performance in The Early Writing Task.

Table 9
Mean Scores, Standard Deviations of The Early Writing Task for Different Groups by School and Age

	Montessori School				Traditional School			
	Age Four		Age Five		Age Four		Age Five	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
1. Word1	3.53	2.19	3.86	2.19	8.00	2.47	9.53	1.02
2. Word2	2.42	1.84	2.50	1.84	6.70	2.89	6.68	2.14
3. Word3	2.26	1.63	2.50	1.63	5.35	3.22	6.53	2.53
4. Word4	2.21	1.84	2.79	1.84	6.20	2.46	6.21	2.74
5. Word5	2.00	1.29	2.71	1.29	6.35	2.48	5.89	2.13
6. Phrase1	4.21	2.20	5.36	2.71	6.60	3.73	8.63	2.22
7. Phrase2	2.74	.81	3.00	.01	6.30	3.15	7.79	2.90
8. Phrase3	2.47	.61	2.71	1.14	4.75	2.90	6.42	3.12
9. Phrase4	2.79	.54	2.79	1.12	4.50	3.07	6.74	2.96
10.Phrase5	2.16	2.93	5.71	2.70	7.95	4.16	10.53	0.70

Chapter 4: Discussion

The present study has revealed remarkable reliability of The Early Writing Tasks, and satisfactory reliability for The Early Reading Tasks in the Chinese version. Moreover, this study also demonstrated similarities in the early phases of reading and writing development of two very different languages, Chinese and English. Children from both backgrounds showed similar levels of development in their early reading. The general formal understanding of what print is in the two languages was also similar for most of the items. However, children's responses to The Early Writing Tasks differed. Finally; children from different schooling systems in the same cultural context showed different developmental performance in these tasks, indicating that different schooling approaches may have differential impact on children's development of reading and writing.

4.1 Reliability

A major finding of the present study is the high degree of reliability of The Early Writing Task in the Chinese context. Although Pelletier (2002) developed the tasks in English, their reliability in the Chinese version implies the possibility of applying these tasks in studies of children's concept of print in other languages. Although different writing systems may require different skills to learn to read and write, children's concepts of print apparently develop in similar ways. Pelletier (2002)'s Early Writing Task provides a model for later research on understanding young children's writing development. The high reliability in Chinese, a writing system which is very different from any alphabetic language, may be a good indicator of the possibilities to expand these measures in other different languages.

The present study also found that the degree of reliability in the Chinese version of The Early Reading Tasks was not as high as that of The Early Writing Tasks, replicating the finding for English-speaking children (Lasenby, 2002). The low alpha coefficients for The Early Reading Tasks showed that these measures were not highly reliable composite measures. However, responses across different age groups did follow a developmental trend; four-year-old children were more likely to be categorized into category one or two, and five-year-old children were more likely to be categorized into the last couple of categories. Since Pelletier (2002)'s intention for these tasks was to provide teachers and researchers with a general understanding of children's responses to the individual item, the Chinese version of The Early Reading Tasks demonstrated very well these intentions.

4.2 Cultural factors

Bialystok (1997) argued that since there is no exact analogue in Chinese for the letter-sound relationship that is the basis of alphabetic languages, the direct comparisons of the reading and writing tasks across the languages with different writing systems should be made with caution. There is no doubt that the tasks are not the same as they are for an alphabetic one when translated into a character language, but it is these differences that can reflect the cultural approaches in these tasks. The detailed comparisons of The Early Reading Tasks and The Early Writing Tasks follow, respectively.

4.2.1 The Early Reading Task

As the result shown (see Figure 11), both Chinese children and English children followed the developmental trend from category one to category four. Ninety percent of 4-year-olds and ninety-five percent of 5-year-olds believe that a string of same letters in

English, such as "cccc" cannot be a word, and the most common reason they give is "because it has all the same letter" (Pelletier, 2002). However, the majority Chinese children do believe that " 卯 ", (the nonsense character corresponding to the "cccc" in English) is a character by giving reasons like identifying the stroke. This may because in Chinese, the repetition of some strokes does make up a new character. Because the first several characters young Chinese children learn are " 一 "one, " 二 ", two, and " 三 " three, it is reasonable for their little minds to build the concept that "same strokes still can constitute a new character". For the English word "apud" and the Chinese nonsense character " 힢 ", children at the ages of four and five from both groups believe that because this looks like a word/character, it must be a word/character.

Pelletier (2002) found that English-speaking children of younger ages believe that "things", like monkeys or pigs are literally taken away when some words in a sentence are covered. Interestingly, young Chinese children have the same beliefs. Younger aged children are more likely to give response such as "two little pigs" when the last character in the phrase "three little pigs" were covered, while older children are more likely to understand that it is the "character" not the "object" which were taken away.

A great percentage of Chinese children were categorized into the fourth (highest) category. This was greater than the percentage of English children who were categorized into the fourth category at both ages of four and five. However, this may because children from the traditional Chinese school performed much better than the children from the Montessori school, which increasing the total performance of the Chinese children. This will be discussed in the later section 4.3.

4.2.2 The Early Writing Task

Although both English and Chinese children follow similar trends in their early writing development, there are some differences in each cultural group. One reason for the discrepancy between English children and Chinese children's performance in The Early Writing Task may be the differences between the two coding schemes. The coding scheme of the Chinese version was developed on the basis of previous research (Fu, 1985), that is that Pinyin does not help young Chinese children learn to write. According to the coding scheme in the present study, children who could write in Pinyin scored lower than those children who could use or attempt to use strokes. This means that in evaluating Chinese children's early writing development in this study, Chinese children who had morphological awareness were deemed more advanced in their writing development than those who had phonological awareness.

Chinese children are more likely to match the character with the visual picture, but not with the sound. Although the visual complexity of the Chinese characters taught to Chinese young children usually increases from the early ages to the later ages (Shu et al, 2003), young Chinese children could match the character with the visual picture at very early ages. During the interview, in the process of writing "本", a four-year-old boy wrote "木". He paused for a while after he finished most part of the character "木", and he kept on talking to himself "there is another one." He finally decided put the last stroke on some place that he was satisfied with. Obviously, this young boy remembered there was a stroke " — " in this character, but he could not remember the correct position of this stroke, then decided to put it somewhere. This example clearly showed that young Chinese children were matching the character with the visual picture, but not the sound. This example also

could be a good support that morphological awareness, not phonological awareness was important in young Chinese children's learning to write.

4.3 Differences Across the Two Schooling Systems

The present study revealed significant differences between the two schooling systems. Children from traditional Chinese school performed significantly better than children from Montessori kindergarten especially in The Early Writing Tasks. Even four-year-olds in traditional Chinese kindergartens scored significantly higher than five-year-olds from the Montessori school. In fact, the present study found that there is a difference between young children from traditional Chinese kindergarten, most of whom can read and write Chinese characters at age of four, and Montessori children, most of whom cannot write Chinese characters at age five. Montessori children's writing responses to the tasks were more likely to be categorized into the drawing category, while children from traditional Chinese kindergarten were more likely to begin their stroke attempts, which is believed in higher developmental stage than the drawing category.

One explanation of the significant differences between these two schools may be the different goals of the two schooling systems. Montessori, as a system rooted from Western culture, aims to cultivate children with more creativity. Meanwhile, traditional Chinese kindergartens prefer obedient children who can sit quietly and listen to teachers' instructions. Teachers from Montessori kindergartens believed that their children were not ready to write at ages of four or five. Although their environment was closely related to reading and writing, children in Montessori kindergartens did not get formal explanations and instruction on how to write Chinese characters. On the contrary, children from

traditional Chinese kindergartens receive their formal instruction on how to write characters at age of four.

It is worthwhile to notice that although Early Childhood Education has been open to different approaches in contemporary China, formal education from primary school to middle school is still restricted to the national traditional schools. After having their Early Childhood Education at Montessori kindergartens, these children have to go back to formal Chinese schooling. Montessori children are found to be problem-solvers and great communicators compared to their peers who have been educated at traditional Chinese kindergartens. However, some Montessori children exhibit difficulties in adapting to formal primary schools because they are too active to obey the regular Chinese classroom rules and they are usually behind in academic performance. This has caught the attention of researchers and educators. Chinese educators are working hard to find out what kind of Early Childhood Education program will best suit for Chinese children to meet both the children's natural needs and the society's needs at the same time.

4.4 Implications

The results of the present study are unique because they provide the early childhood educators a good understanding of Chinese children's unique notions of print and the unique process of their early writing development. They will also help teachers understand the levels at which children are functioning in relation to print. For example, a teacher cannot expect a child who still believes that the print on paper is only a pictorial representation of the objects to understand the basic rules of writing Chinese characters. The present study also gives researchers and educators information about the similarities

and differences in young Chinese children from two schooling systems: Montessori kindergarten and traditional Chinese kindergarten.

4.5 Limitations and Future Directions

The present study is, of course, limited in the questions it can answer about Chinese children's reading and writing development because of the small sample size. My sample included only four-year-old and five-year-old children. Thus, the data cannot address the significant differences between two age groups because there is not significant development difference between these two age groups in many aspects. Future studies should include three-year-old groups and six-year-old groups. A longitudinal study would better detect young children's developmental understanding of print and their reading and writing skill. Pelletier and Lasenby (2002) found that the English version of these measures in kindergartens predict Grade one reading and phonological skills. Some other tests, including Woodcock (1998)'s Woodcock Reading Mastery, Rosner (1975)'s Test of Auditory Analysis Skills, Dunn & Dunn (1996)'s Peabody Picture Vocabulary Test, were used to examine the correlations of The Early Reading and Writing Tasks. However, no other tests or measures were conducted with the Chinese children. Further study should include these tasks with other standard tests as well.

A second limitation of this study centers on the generalization of the findings regarding the Montessori school pupils, because the diversity among Montessori schools is tremendous. Some Montessori schools pride themselves on remaining faithful to what they see as Montessori's original vision, while others may relish their flexibility and pragmatic adaptation. More information about the school's mission and the classroom teacher's beliefs and practice may weigh a lot in how the program is delivered. Also, as

mentioned in chapter one, some Montessori teachers only get as little as one week training on top of their traditional Chinese education model training. Whether these Montessori teachers can fully execute the original Montessori mission is doubtful. Future research should also collect some information on this.

Finally, children's family background may be another important factor that affect their reading and writing development. During the interviews, some children gave response such as "Mom taught me at home" or "My grandma told me" when they were asked to explain why they thought a printed stimulus was a character or not. Even some children from the Montessori school had their early reading and writing input at home, which indicates that although parents send their children to the Montessori school because they want to give their children a more creative environment, they still provide the informal instruction in reading and writing which is greatly valued by the Chinese culture. Future research should take family background into consideration of the factors that affect young children's notions of print, and their reading and writing development.

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