

EARLY LITERACY OF YOUNG CHILDREN IN NEW IMMIGRANT  
AND NATIVE FAMILIES IN TAIWAN: EDUCATIONAL  
AND SOCIO-POLITICAL IMPLICATIONS

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Because of shifting demographics, the Taiwanese government opened the country to immigrants from Southeast Asia. Foreign-born brides of Taiwanese men have contributed significantly to this trend of new immigration, inspiring fears that their children, inadequately prepared for the literacy requirements of early education, might negatively impact the educational system and society. To better understand the socio-political implications of this cultural shift, data from one hundred-twenty immigrant and native families with first graders in six major cities in Taiwan were gathered.

Purposes of this research are to: (a) investigate to what extent, if any parenting style is impacted by differences in immigration status between native Taiwanese and Southeast Asian immigrant mothers, (b) examine to what extent, if any maternal parenting styles relate to children's early literacy, and (c) determine to what extent, if any maternal parenting styles along with the children's and familial characteristics associate with children's early literacy.

The study found that (a) immigrant mothers are statistically lower on authoritative and higher on permissive parenting style than native mothers; (b) immigrant mothers' participation in integration programs does not relate to maternal parenting styles or children's literacy performances; (c) children from immigrant families are significantly lower than their peers from native families on receptive vocabulary and phonological awareness; (d) children from higher income families perform better on receptive vocabulary than their lower income peers; (e) children whose mothers are senior high school graduates achieve significantly better on literacy skills than others. Furthermore, children of mothers with higher education perform better on receptive vocabulary than those whose mothers have lower education levels; (f) there was little relationship between children's literacy development and the three

maternal parenting styles; (g) age and gender are the most significant predictors of children's literacy development.

The limited influence of parenting styles on childhood literacy may be attributed to cultural differences. Parenting styles theory and instrumentation emerged from Western research and parenting expectations. Translations, both linguistic and cultural, may be imperfect once grafted onto Taiwanese society. Further complications potentially arise when foreign-born women carry their own varied cultural expectations and start families in an unfamiliar society. This research would suggest that government-sponsored programs could address the demographic inequalities which characterize this segment of Taiwanese society.

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## TABLE OF CONTENTS

ACKNOWLEDGEMENTS .....	iii
LIST OF TABLES .....	vi
LIST OF FIGURES .....	vii
Chapter	
I INTRODUCTION.....	1
Rationale of the Study.....	6
Statement of the Problem.....	10
Theoretical Framework.....	12
Research Questions.....	13
Definition of Terms.....	14
Summary.....	16
II REVIEW OF THE LITERATURE.....	18
Parenting Styles Theory.....	18
Emergent Literacy.....	20
Research on Parenting Style and Child’s Outcomes.....	23
Research on Family Indicators and Child’s Outcomes.....	27
Cultural Variations.....	32
III METHODOLOGY .....	37
Participants and Populations.....	37
Variables and the Measurement Instruments.....	37
Data Collection Procedures.....	45
Research Design.....	47
Data Analysis Strategies .....	50
IV RESULTS.....	57
The Demographic Characteristics of the Participants.....	57

The Assessments of Psychometric Properties of the Instruments .....	65
The Group Differences on Parenting Styles .....	71
The Relationship between Maternal Parenting Styles and Children’s Literacy .....	81
The Prediction on Children’s Literacy.....	84
V DISCUSSION.....	90
Summaries and Discussions.....	90
Contributions.....	97
Limitations .....	98
Implications.....	99
Appendix	
A THE UNT IRB APPROVAL LETTER .....	104
B INFORMED CONSENT FORM .....	106
C DEMOGRAPHIC INFORMATION SHEET .....	117
D INFORMATIONAL TABLES .....	120
E THE STUDENTIZED RESIDUAL PLOTS .....	128
F THE PSDQ .....	132
G THE ELSP.....	135
H THE CPAT.....	138
REFERENCES .....	142

## LIST OF TABLES

Table 1	<i>The Research Instrumentation</i> .....	45
Table 2	<i>The Research Variables for the Descriptive Statistics</i> .....	53
Table 3	<i>The Research Variables for the Group Differences on Parenting Styles Literacy</i> ...	54
Table 4	<i>The Research Variables in the Regression Analysis</i> .....	56
Table 5	<i>The Descriptive Statistics of the Demographic Variables for the Mothers</i> .....	58
Table 6	<i>The Descriptive Statistics of the Demographic Familial Variables</i> .....	59
Table 7	<i>The Descriptive Statistics for the Re-Grouped Demographic Variables</i> .....	61
Table 8	<i>The Descriptive Statistics of the Demographic Variables in Child</i> .....	62
Table 9	<i>The Descriptive Statistics of the Demographic Variables by Mother Type</i> .....	64
Table 10	<i>The Internal Consistency Reliability in Cronbach Alpha on the PSDQ</i> .....	67
Table 11	<i>The Inter-Factor Correlations on the PSDQ in the Entire Sample</i> .....	68
Table 12	<i>The Inter-Factor Correlations on the PSDQ in the Two Subsamples</i> .....	68
Table 13	<i>The Inter-Item Correlations on the ELSP in the Two Subsamples</i> .....	69
Table 14	<i>The Inter-Item Correlations on the Phonology in the Two Subsamples</i> .....	70
Table 15	<i>The Inter-Scale Correlations among ELSP, PPVT-R, and CPAT</i> .....	71
Table 16	<i>The Group Difference on Parenting Styles</i> .....	74
Table 17	<i>The Group Difference on Children's Literacy</i> .....	78
Table 18	<i>The Means and S.D. on Children's Literacy by Mother Education</i> .....	80
Table 19	<i>The Group Difference on Children's Literacy by Mother Education</i> .....	81
Table 20	<i>Correlations between Maternal Parenting Styles and Children's Literacy</i> .....	83
Table 21	<i>Prediction on Children's Literacy</i> .....	889



## LIST OF FIGURES

Figure 1 A framework for the relationship between parenting styles and child outcomes .....	12
Figure 2 Four steps of literacy development.....	22
Figure 3 The research design and analysis schematic diagram .....	49
Figure E.1 The studentized residual plot for the teacher-rated ELSP score .....	129
Figure E.2 The normal probability plot for the teacher-rated ELSP score .....	129
Figure E.3 The studentized residual plot for the PPVT-R score .....	130
Figure E.4 The normal probability plot for the teacher-rated ELSP score .....	130
Figure E.5 The studentized residual plot for the phonology score .....	131
Figure E.6 The normal probability plot for the teacher-rated ELSP score .....	131

## CHAPTER I

### INTRODUCTION

Taiwan's population is going through a dramatic demographic shift that challenges traditional attitudes and policies regarding education and early childhood literacy. This change is driven primarily by the new immigrant movement from Southeast Asia, consisting mainly of women from Vietnam, Indonesia, and Thailand (Government Information Office [GIO], 2010), and made even more significant by the rapid aging of the Taiwanese population (GIO, 2009a). Since the new immigrant movement began, these foreign-born brides have been accused of having a detrimental impact on the quality of Taiwanese society (Hsin, 2010). Children of new immigrants are one of Taiwan's fastest growing demographics (Nguyen Thi, 2005), and their growing presence in the country's early education system has the potential to bring with it unique hardships. These potential changes would require new educational approaches, particularly with regard to linguistic obstacles to early childhood literacy.

As Taiwan's population rapidly ages, its economic future depends on the younger generations' ability to meet the challenges of a 21<sup>st</sup> century economy. Birth rates have been steadily decreasing for decades, while death rates have slowed (Hu, Chen, & Chen, 2000).

This trend was projected to continue, falling from 15.5 births per thousand population in 1995 to an anticipated 14.5 in 2010, and 11.7 in 2035 (Hu, Chen, & Chen, 2000). In fact, birth rates have fallen much further and faster than expected, with a 2010 birth rate of only 8.99, among the lowest in the world (Central Intelligence Agency [CIA], 2010). People aged 65 and older now make up between 10 and 11% of the Taiwanese population (GIO, 2009a; CIA, 2010).

This shift was fueled, in part, by a modernization of gender roles. Taiwanese women, like in other Westernized countries, were discarding traditional expectations for a more feminist life (Lan, 2003). Women found the freedom to pursue education and a higher

socio-economic position (Chang, 2003). The combination of a growing elderly population with a liberated female population created problems for many in Taiwanese society.

Double-income families began to require housekeeping and child care, while men and women with elderly parents needed nursing and caretaking assistance (Lan, 2003). At the same time, men who were considered in any way undesirable or inferior began to have difficulty finding a bride (Hsin, 2010). These men included older men, widowed, divorced, uneducated, or disabled men, as well as men with a low socio-economic status, or men who wanted a wife who would be willing to fill a more traditional gender role (Hsin, 2010; Lan, 2003).

The strain brought on by an aging population pressured the Taiwanese government to open the country's doors for immigrant laborers in the early 1990s (Lan, 2003). Until the mid-1980s, immigration was generally prohibited, infrequent, and went unnoticed (Hsieh & Wang, 2005), but in 1991, the government began lifting restrictions for certain groups and allowed foreigners to take jobs as domestic workers, nurses, and home-maids (Cheng, 2004). These workers were considered resident aliens, unable to obtain citizenship because they did not share Taiwanese blood (Hsia, 2007). Foreigners were only eligible for citizenship by marrying a Taiwanese man, and thereby helping him to extend his bloodline (Hsia, 2007).

Since the implementation of these policies, the majority of new immigrants have been women (GIO, 2010), typically from rural regions of Southeast Asia where their options for marriage, education, and livelihood are limited (Nguyen Thi, 2005). Some women move to Taiwan as domestic workers, and eventually marry their employers, either for love or citizenship (Lan, 2003). Many women, though, are brides on the day they arrive in Taiwan (Lan, 2008). International brokers arrange marriages between Taiwanese men and Vietnamese, Thai, Indonesian, or Filipina women for as much as US\$10,000 (Nguyen Thi, 2005; Lan, 2003).

Since the legislative changes of the 1990s, a wave of foreign-born residents generally, and new immigrant brides in particular, have come to Taiwan, becoming a small but significant demographic. In the less than twenty years since the new legislation, the immigrant demographic has grown to become 2% of the population (Lan, 2008). The proportional increase in new immigrant marriages is dramatic: One in five Taiwanese marriages now includes a foreign-born spouse, and nearly 12% of the Taiwanese men who married in 2004 married women from Southeast Asia (Kuo, 2007).

These women struggle to gain acceptance and social integration in Taiwan. They, along with their husbands, are often stigmatized by people in the media as social burdens (Hsin, 2010). New immigrant brides are usually less educated than Taiwanese women (Chang, 2003), and less educated than their husbands, who are themselves less educated than most Taiwanese men (Nguyen Thi, 2005). Once in the country, they face a difficult language barrier (Hsin, 2010). Although the government has invested nearly US\$100 million in counseling services and language courses for new immigrants (GIO, 2010), many women are unable to attend. For some, the available courses are too expensive (Nguyen Thi, 2005), but even when tuition-free government courses are provided (GIO, 2010), some husbands prevent their wives from learning the official national language, Mandarin Chinese. These husbands prefer that their wives learn a difficult regional language or local Tai-gi dialect, instead (Nguyen Thi, 2005).

The children in new immigrant families are just as controversial as their foreign-born mothers. Children of new immigrants constitute one of the fastest growing segments of the Taiwanese population. In a country where most women have been having fewer children, dropping to a fertility rate of only one child per woman (GIO, 2009a), new immigrant families have been having many more children (Hsieh & Wang, 2005). Even though immigrants only make up 2% of the population (Lan, 2008), 13.4% of babies born in 2003

were born into new immigrant families, a trend expected to continue and accelerate as the new immigrant population grows (Nguyen Thi, 2005).

Academic and media reports argue that these children are under-prepared for school and are a burden on Taiwan's educational system (Hsin, 2010). Researchers and politicians claim that functionally illiterate mothers are responsible for their children's learning delays and underperformance, and that these slower children hurt the educational standards for the entire class, or even the region (Chang, 2003; Hsin, 2010). Tensions also surface between new immigrant families and educators. Ting's research shows that, even though cultural awareness and acceptance are high among Taiwanese preschool teachers, they report difficulties with new immigrant children and their foreign-born parents (2009). A third of the teachers openly acknowledge a preference for working with children and parents with similar cultural characteristics, and half reported frustrating or uncomfortable experiences with parents from different cultural backgrounds (Ting, 2009). This friction becomes yet another obstacle to full integration and academic success in early education.

Throughout the first decade of the 21<sup>st</sup> century, Taiwan has placed a strong emphasis on literacy, implementing government programs focused on encouraging the public to read (Chen, 2008). Functionally illiterate adults struggle to succeed in their daily activities and civic responsibilities. They are unable to fill out a job application, understand traffic signs or bus schedules, decipher an election ballot, read a newspaper, or understand a product label (Tharoor, 2002). The ability to read and write is fundamental for full participation in society. Literacy is important for communication (Godley, 2003), which help people establish their voice in the community (Moore, 2004). Furthermore, literacy can improve a person's self-image, helping her to respect herself and to be respected by others (Godley, 2003). The rapid pace of technological innovation, its integration into people's daily lives, and the internationalization of a high-tech economic marketplace have raised the demand for a

literate citizenry to the highest levels in history (Bhargava, 2008). In an increasingly technological and globalized economy, an uneducated or illiterate workforce can slow or prevent a country's development (CIA, 2010). High levels of illiteracy have been linked to low productivity, high unemployment, low earnings, and high rates of welfare dependency and teenage parenting, all of which are common measures of the socioeconomic well-being of a society. (Roman, 2004; Lindauer & Weerapana, 2002; Elliott, 2001; Matsuura, 2000).

Taiwan's government defines literacy as the ability to read and write at the age of 15 and above (CIA, 2010). The illiteracy rate has been steadily dropping for the last thirty years, dropping from 7.11% in 1989, to 2.52% in 2006, the most recent information released by the Population Administration (Ministry of Education [MOE], 2007). Literacy rates among younger students, however, show that there is still room for significant improvement in order to compete with other developed nations. Taiwan participated in the Progress in Reading Literacy Study 2006 [PIRLS 2006], their first time joining the international study of literacy among elementary students, which is performed every five years. Out of 45 developed countries and provinces studied, Taiwan's fourth graders ranked 22<sup>nd</sup> (International Association for the Evaluation of Educational Achievement [IEA], 2007). While the elementary students participating in the PIRLS 2006 understood reading's general function, they struggled with comprehension (China Post, 2007).

Language and literacy abilities in young children are the foundation for their future academic competencies. The International Reading Association (IRA) and the National Association for the Education of Young Children (NAEYC) released a joint statement declaring that while literacy should be developed throughout life, the early childhood years, from birth through 8 years old are the most critical for literacy development (Snow, Burns, & Griffin, 1998; International Reading Association & national Association for the Education of Young Children, 1998). Children's levels of listening, speaking, reading, and writing skills

are a strong predictor of success later in school (Snow, Burns, & Griffin, 1998). A study by the National Institute of Child Health and Human Development (NICHD) Early Child Care Research Network showed that academic achievement is very stable after third grade (NICHD Early Child Care Research Network, 2005). This third grade plateau lends even greater significance to the relatively average performance of Taiwanese fourth graders in the PIRLS 2006.

Because of the country's dramatic demographic shifts, the academic performance of Taiwanese schools is increasingly determined by the success and abilities of new immigrant children. This trend has the potential to accelerate as government policies continue to evolve. Through the past decade, the Taiwanese government has taken steps to relax residency restrictions even further, making it easier for foreign-born brides to live and work in the country (GIO, 2009b; GIO 2010), thereby setting the stage for another wave of marriage migration, and another generation of children from new immigrant families. As more and more children from new immigrant families enter the educational system, their mothers' ability to adequately prepare them for school becomes a matter of public importance. Given the tremendous significance of early education in predicting later academic success, these children's literacy levels, their impact on the quality of their classmates' education, and their important role in the national demographic shift must be addressed.

#### Rationale of the Study

Literacy is a critical priority for Taiwan. It serves as a fundamental indication of the population's educational preparedness for the challenges of a rapidly changing global economy (Bhargava, 2008). Between the rapid pace of innovation (CIA, 2010) and the steadily aging Taiwanese population (GIO, 2009b), the country needs to have confidence in its younger generation. Children of new immigrant families, a rapidly expanding demographic (Hsieh & Wang, 2005) in a country with an extremely low fertility rate (CIA,

2010), will constitute a substantial portion of that generation. Given their mothers' linguistic and cultural isolation (Nguyen Thi, 2005), these children face unique obstacles to achievement in early education and literacy (Hsin, 2010).

Generally speaking, parents are the primary caregivers of children from birth through eight years old (Barnet & Barnet, 1998; Faires, Nichols & Rickelman, 2000), giving them the most control and impact on children's early literacy development. Research proves that parental behavior has both immediate and long-term consequences on a child (McCrae & Costa, 1994). Children who are frequently read to or by their parents consistently perform better and with higher levels of school readiness than those who are not (Brooks-Gunn & Markman, 2005; Luster, Bates, Fitzgerald, Vanderbelt & Key, 2000). Children are particularly successful if their parents involve them in reading by asking questions and having conversations based on their responses (Brooks-Gun & Markman, 2005). Studies of Taiwanese children have found similar results: If a child's parents frequently read, the child is more likely to become an avid, engaged reader (Chen, 2008).

In this respect, parents are a child's earliest educators and have a considerable impact on the child's development of emergent literacy skills. Emergent literacy is a particularly important measurement of children's academic preparedness, as the first eight years of a child's education predict how successful that child will be later in his or her academic career (Snow, Burns, & Griffin, 1998). Because of this, a parent's ability to teach these skills determines how well a child will be prepared relative to first-grade literacy levels. Significant emergent literacy skills, or precursor skills, traditionally used as a predictive, standardized benchmark for educational achievement, include: alphabet knowledge, or the ability to associate names and sounds with written letters; phonological awareness, or the ability to recognize and manipulate syllables, or phonemes; rapid automatic naming of random letters, digits, objects, or colors when prompted; writing, either of letters or of the child's name; and



phonological memory (Lonigan & Shanahan, 2008). There is a particularly strong correlation between emergent literacy levels and oral language development (Hsuan, 2000). A child's early phonological awareness is especially predictive of literacy levels later in the student's academic career; those who are able to recognize distinct sounds early in their development are more likely to see greater literacy achievements (Lonigan & Shanahan, 2008). For this reason, the Peabody Picture Vocabulary Test – Revised (PPVT-R), which focuses on receptive, auditory vocabulary recognition (Bornstein & Bradley, 2003), and Chinese Phonological Awareness Test (CPAT), which addresses on the phonological awareness along with Chinese characters, provide useful measurement tools.

Baumrind's (1966) research concerning parenting styles is widely accepted in the social sciences (Ding & Littleton, 2005). She proposed that, in order to achieve optimal outcomes, adult leaders should be both a resource and a source of authority. Her typology of four parenting styles, which reflects different naturally occurring patterns of parental values, practices, and behaviors (Baumrind, 1991a), identified parents as authoritative, authoritarian, permissive, and uninvolved (Baumrind, 1991a; Maccoby & Martin, 1983). Because this last style of parenting is, by definition, unresponsive and detached from their children's lives (Smetana, 2010), they do not volunteer for studies. As a result, the negative effects of uninvolved parenting have been studied in relation to older children and adolescents (Simons & Conger, 2007; Ginsburg, Durbin, Garcia-Espana, Kalicka, & Winston, 2009), but cannot be effectively studied when considering very young children. Thus, it is neither addressed nor included in the current study.

Parenting styles have an impact on children's early educational success. Numerous studies demonstrate that parenting styles may directly or indirectly influence children's academic achievement and behaviors (Baumrind, 1966, 1971, 1975, 1978, 1991a; Dornbusch, Ritter, Leiderman, Roberts, & Fraleigh, 1987; Rytkonen, Aunola, & Nurmi, 2005), children's

temperament and both externalizing and internalizing behavior (Brar, 2003), children's development (Nanthamongkolchai, Ngaosusit, & Munsawaengsub, 2007) or cognitive development (Tiller, Garrison, Block, Cramer, & Tiller, 2003), preschool children's sociometric status (Evans, 2002), and individuals' spiritual maturity in adulthood (Bryant, 2001). Studies in the United States have shown a positive correlation between authoritative parenting and emergent literacy skills, while authoritarian parenting had a negative effect on children (Taylor, Clayton, & Rowley, 2004). These relationships were true for children with American-born parents (Taylor et al., 2004), as well as for children with parents who immigrated from the Caribbean (Roopnarine, Krishnakumar, Metindogan, & Evans, 2006). Research of Asian students, however, has contradicted these findings, suggesting that the educational success of children in Malaysia, particularly in early development years, has a limited relationship to parenting styles (Elias & Yee, 2009). These variances are likely the result of cultural differences and perceptions of parenting styles, which must be considered as unique to each location studied (Elias & Yee, 2009). Given the cultural differences a new immigrant mother brings to her new Taiwanese family, her influence on the children's educational development becomes even more significant in this respect.

One of the largest potential challenges for the children of new immigrants is the language barrier. After a long history of diverse aboriginal languages and dialects, Taiwan's government institutionalized the instruction of Mandarin Chinese in 1945 (Sandel, 2003). While later educational programs have moved to embrace bilingual learning, including Mandarin and local Tai-gi languages, students are expected to speak Mandarin by the time they begin school (Sandel, 2003). Children of new immigrants have become the targets of criticism because their mothers are unable to teach them Mandarin, hardly knowing the language themselves, while their under-educated fathers are often more likely to speak a local language than the official Mandarin Chinese (Hsin, 2010). This lack of linguistic

understanding is believed to disadvantage the new immigrant children, along with all of their classmates, whose progress is held back by students who are still learning the language (Chang, 2003). Because of the importance of these early years of educational development, it is even more critical that children from new immigrant families are prepared with the necessary emergent literacy skills.

In addition to the government programs hoping to raise literacy rates for new immigrants and their children, there is a possibility that television could fill the gap left by functionally illiterate parents. Even some Taiwanese parents, who feel more comfortable speaking Tai-gi at home, will not teach their children Mandarin before sending them to preschool (Sandel, 2003). Taiwanese children now enjoy access to 24-hour cartoon channels which air in Mandarin Chinese, and their parents believe that this will be enough to prepare them for early education (Sandel, 2003). While supplemental learning materials like books, television, and computers could assist children who would be otherwise unprepared for academic success, it is not clear that access to these materials carries the same relationship to emergent literacy as parental involvement (Sirin, 2005).

#### Statement of the Problem

New immigrant children, if inadequately prepared for early education and literacy skills by their foreign-born mothers, create a strain on the Taiwanese educational system and society. Because of the size and influence of the Taiwanese economy, this becomes not only a cultural, societal, and educational problem, but a multinational disruption. As the government continues to open the country's doors to new immigrant brides from Southeast Asia, school administrators must take steps to address the gaps in new immigrant children's early education. This study is necessary in order to identify where these children are falling behind, how they are affecting their classmates, and what steps the most effective new immigrant mothers are taking, or which parenting style characteristics they exhibit, to improve their

children's chances for early academic success.

The socioeconomic strength of a country relies on an educated population with the skills necessary to adapt in a global economy (CIA, 2010; Carnevale, 1991), and literacy is the foundation and cornerstone for those required skills (Roman, 2004; Lindauer & Weerapana, 2002; Elliot, 2001; Matsuura, 2000). Early education and emergent literacy are particularly important, as the first eight years of a child's life predict his or her academic achievements later in life (Snow et al., 1998). Because parents are the primary caregivers during this time period (Barnet & Barnet, 1998; Faires, Nichols, & Rickelman, 2000), they can set the course of their children's development (Prior & Gerard, 2007). The parenting styles they employ, in most circumstances, have a direct impact on a child's development of emergent literacy skills, his phonological awareness in particular, and later academic success (Taylor et al., 2004). As the population of new immigrants and their children continues to grow, Taiwan is faced with a unique challenge, trying to maintain high-quality early education in the face of these shifting demographic circumstances.

New immigrant mothers, generally from poor, rural areas of Vietnam and other Southeast Asian countries, bring with them their own educational limitations and cultural obstacles (Nguyen Thi, 2005), which may test their ability to provide their children with the skills needed for early education preparedness. If these barriers and differences do prevent them from preparing their children, those students will strain the educational system in the manner the media has been suggesting (Hsin, 2010). When new immigrant families are unable to prepare their children for academic success, Taiwan's educational system must adapt to meet the needs of this growing demographic. This may take the form of existing immigrant education programs (GIO, 2010), or more innovative sources such as Mandarin Chinese-language television programs (Sandel, 2003). It is critically important that Taiwanese educators and government officials understand how to overcome the early

educational obstacles present in new immigrant families, not only for the children themselves, but for the economic strength of the entire country.

### Theoretical Framework

The relationships between parenting styles and demographics, and children’s outcomes will serve as the conceptual framework for this study. This study adapted the Head Start Child Outcomes Framework released in 2000 as a part of conceptual framework. The Head Start Child Outcomes Framework is intended to guide Head Start programs in their curriculum planning and ongoing assessment of the progress and accomplishments of children. The framework is comprised of 9 general domains including language development, literacy, mathematics, science, creative arts, social & emotional development, approaches to learning, cognitive development, and physical health & development (ECLKC, 2003). The main purpose of this study was to investigate the association of early literacy and parenting styles. Thus, this study presents a review of literature related to parenting styles theory and early literacy development and studies regarding parenting styles and child outcomes. The framework for this study is presented as follows (Figure 1):

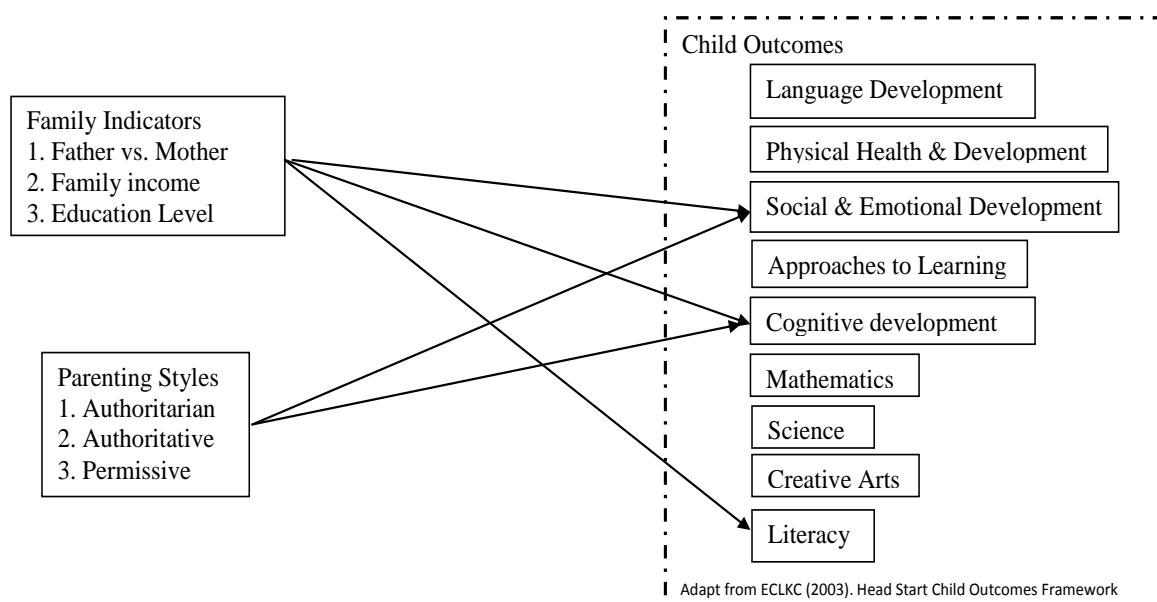


Figure 1. A framework for the relationship between parenting styles and child outcomes.

## Research Questions

The specific research questions that guided this study are:

Question 1. To what extent, if any, does a mother's immigration status relate to her parenting styles?

Question 2. To what extent, if any, does a new immigrant mother's participation in a government-sponsored integration program relate to her parenting styles?

Question 3. To what extent, if any, does a mother's immigration status relate to her child's early literacy?

Question 4. To what extent, if any, does a new immigrant mother's participation in a government-sponsored integration program relate to her child's early literacy?

Question 5. To what extent, if any, does family income relate to child's early literacy?

Question 6. To what extent, if any, does a mother's educational level relate to her child's early literacy levels?

Question 7. To what extent, if any, does maternal authoritative parenting style relate to first graders' early literacy?

Question 8. To what extent, if any, does maternal authoritarian parenting style relate to first graders' early literacy?

Question 9. To what extent, if any, does maternal permissive parenting style relate to first graders' early literacy?

Question 10. Could the demographic characteristics in the child, mother, and family, along with maternal parenting styles, concurrently predict children's early literacy? If yes, to what extent, and which variables are relatively more salient?

For Research Questions 1 – 6 on the group differences, as no strong theories or substantial work support a directional hypothesis, the generally null hypothesis is adopted in the present study, although the immigrant families are typically considered as inferior to the

native counterparts. Similarly, for Research Questions 7 – 9 on the relationships between maternal parenting styles and children’s literacy, the no-association hypothesis is established. Finally, for the last research question on prediction of children’s literacy, it is assumed that children’s literacy cannot be predicted by the demographic variables and maternal parenting styles.

In conclusion, this study identified factors influencing early literacy rates among children of new immigrant families. In as much as a mother’s immigration status does affect her child’s educational achievement, this study identified mitigating factors that, with some active implementation, helped close the gap between children of new immigrant families, and their peers with Taiwanese parents. As a result, this study provides a better understanding of how adequately new immigrant mothers are able to prepare their children for early education.

#### Definition of Terms

The following terms are defined operationally as used in the study:

- Alphabet knowledge - Knowledge of the names and sounds associated with printed letters (National Institute for Literacy [NIL], 2009).
- Authoritarian parenting style - Characterized by demanding conformity and preferring to use punishment or show rejecting behavior when children are unable to obey (Baumrind, 1966; Maccoby & Martin, 1983).
- Authoritative parenting style - Characterized by warm and adequate controlling patterns with appropriate rules and reasonable expectations (Baumrind, 1966; Maccoby & Martin, 1983).
- Children of new immigrants - A rapidly growing Taiwanese demographic of children born to one Taiwanese-born parent, and one foreign-born parent (Nguyen Thi, 2005).
- Concepts about print - Knowledge of print conventions (e.g., left-right, front-back) and concept (book cover, author, text) (NIL, 2009).

- Early literacy - Children's knowledge of letters, words, sentences, and the visual structure of text in the primary grades from K-3 (Roskos, Christie, & Richgels, 2003).
- Functional illiteracy/illiteracy - Characterized by the inability to read or write simple messages at or below a fifth-grade level in everyday life (Kwiatkowski, 2009).
- Functional literacy/literacy - Characterized by having the skills to read or write simple messages at or above a fifth-grade level in everyday life (Kwiatkowski, 2009).
- Government-sponsored immigration programs - Services provided for immigrant spouses, which may include orientation, counseling, translation, language education, educational assistance, and legal guidance (GIO, 2010).
- New immigrants - Southeast Asians who have moved to Taiwan in the immigration boom from 1991 until today. Largely composed of women who married Taiwanese men (GIO, 2010).
- Oral language - The ability to produce or comprehend spoken language, including vocabulary and grammar (NIL, 2009).
- Parenting styles - Primary caregiving behaviors used by parent(s) for rearing children (Bigner, 2002; Darling, 1999).
- Permissive parenting style - Characterized by low controlling patterns without making any demands or emphasizing obedience (Baumrind, 1966; Maccoby & Martin, 1983).
- Phonological awareness - The ability to detect, manipulate, or analyze the auditory aspects of spoken language (including the ability to distinguish or segment words, syllables, or phonemes), independent of meaning (NIL, 2009).
- Phonological memory - The ability to remember spoken information for a short period of time (NIL, 2009).
- Print knowledge - A combination of elements of alphabet knowledge, concepts about print, and early decoding (NIL, 2009).



- Rapid automatic naming of letters or digits - The ability to rapidly name a sequence of random letters or digits (NIL, 2009).
- Rapid automatic naming of objects or colors - The ability to rapidly name a sequence of repeating random sets of pictures of objects (e.g., “car,” “tree,” “house,” “man”) or color (NIL, 2009)
- Reading readiness - Usually a combination of alphabet knowledge, concepts of print, vocabulary, memory, and phonological memory (NIL, 2009).
- Visual processing - The ability to match or discriminate visually presented symbols (NIL, 2009).
- Writing or writing name - The ability to write letters in isolation on request or to write one’s own name (NIL, 2009).

### Summary

Parents have a tremendous impact on early childhood development (Faires et al., 2000). Many factors, from the parenting styles they employ (Rytkenon et al., 2005), the amount they read to their children, and the quality of that conversation (Brooks-Gunn & Markman, 2005), to their own levels of educational achievement and functional literacy (Luster et al., 2000) affect the emergent literacy skills of their children. These emergent literacy skills in turn determine what literacy levels children will be able to develop by the first grade (Taylor et al., 2004), at which point new immigrant children begin to impact the quality of their classmates’ education. As more new immigrant brides enter Taiwan and maintain their current, high fertility rates (Hsieh & Wang, 2005); the growing population of children from these families will have a significant impact on Taiwan’s early education structure. The cultural, educational, linguistic, and socioeconomic differences these brides bring with them call into question whether the children of these new immigrant women will be prepared for educational achievement, or whether they will put a strain on Taiwanese education (Hsin, 2010; Chang,

2003). This study used established parenting and literacy studies to examine the relationships between parents' immigration statuses, parenting styles and abilities, and the early educational success of their children.

## CHAPTER II

### REVIEW OF THE LITERATURE

#### Parenting Styles Theory

Parenting is a complex activity (Darling, 1999) that includes many behaviors that work individually as well as those that work together to influence child outcomes. The dominant model on parenting styles is associated with the early work of Diana Baumrind in the 1960s, which has been elaborated on by several subsequent teams of investigators (Maccoby & Martin, 1983; Steinberg et al., 1994; Hetherington & Stanley-Hagan, 1999). Baumrind (1991a) defined parenting style as a characteristic of the parent rather than of the parent-child interaction. The construct of parenting style is used to capture normal variations in parents' attempts to control and socialize their children (Baumrind, 1991a). Thus, Baumrind (1991a) conceptualized parenting style in terms of levels of responsiveness and demandingness.

Parental responsiveness (also referred to as parental warmth or supportiveness) refers to "the extent to which parents intentionally foster individuality, self-regulation, and self-assertion by being attuned, supportive, and acquiescent to children's special needs and demands" (Baumrind, 1991a, p. 62), whereas parental demandingness (also referred to as parental behavior control) refers to "the claims parents make on children to become integrated into the family whole, by their maturity demands, supervision, disciplinary efforts and willingness to confront the child who disobeys" (Baumrind, 1991a, pp. 61-62).

The two independent dimensions of demandingness and responsiveness yield a typology of four parenting styles: authoritative (responsive and demanding), authoritarian (highly demanding but not responsive), permissive (more responsive than demanding), and uninvolved (neither responsive nor demanding). Authoritative parents are both demanding and responsive. "They monitor and impart clear standards for their children's conduct. They are assertive, but not intrusive and restrictive. Their disciplinary methods are supportive,

rather than punitive. They want their children to be assertive as well as socially responsible, and self-regulated as well as cooperative” (Baumrind, 1991a, p. 62). In other words, this type of parenting contains the following characteristics: “an expectation of mature behavior from the child and clear setting of standards by the parents; firm enforcement of rules and standards, using commands and sanctions when necessary; encouragement of the child’s independence and individuality; open communication between parents and children, with encouragement of verbal give-and-take; and recognition of the rights of both parents and children” (Dornbusch et al., 1987, p. 1245).

Regarding authoritarian parents, “they are obedience- and status-oriented, and expect their orders to be obeyed without explanation” (Baumrind, 1991a, p. 62). The authoritarian style of parenting attempts to shape, control, and evaluate the behavior and attitudes of their children in accordance with an absolute set of standards. They also emphasize obedience, respect for authority, work, tradition, and the preservation of order. It is not encouraged to have verbal give-and-take between parent and child (Dornbusch et al., 1987). Rules are not discussed in advance. There is no bargaining process between parents and children. Parents usually attach strong value to the maintenance of their authority and suppress any challenge efforts from their children. Punishment is employed if children deviate from parents’ requirements and expectations.

Permissive parents are “more responsive than they are demanding. They are nontraditional and lenient, do not require mature behavior, allow considerable self-regulation, and avoid confrontation” (Baumrind, 1991a, p. 62). Permissive parents are tolerant and accepting toward the child’s impulses, use as little punishment as possible, make few demands for mature behavior, have few rules governing the child’s time schedule (e.g., TV watching), and allow children to regulate their own behavior (Dornbusch et al., 1987).

Because parenting style is a typology rather than a linear combination of responsiveness

and demandingness, each parenting style is different from the sum of its parts (Baumrind, 1991a). One key difference between authoritarian and authoritative parents is in the dimension of psychological control which “refers to control attempts that intrude into the psychological and emotional development of the child” (Barber, 1996, p. 3296) through use of parenting practices such as guilt induction, withdrawal of love, or shaming. Authoritative parents are more sensitive to the child’s need for both direction and support than are parents with other parenting styles (Baumrind, 1967). The authoritative parents may instill instrumental competence by helping their children balance other-oriented rule-following tendencies with individualistic, autonomous active thinking (Baumrind, 1991a).

### Emergent Literacy

Becoming literate is a process that begins at birth and continues throughout life. Children differ in their rates of literacy achievement and traits, but the dividing lines among traits and among children are not always distinct. Students might be asked to handle more complex tasks at early stages in their schooling. Comprehension in early literacy is critical to successful performance on those higher order tasks. In order to be competent both in work and in daily life, the skills in literacy become increasingly necessary.

Although some of the skills associated with reading readiness are important to literacy learning, new concepts, emergent literacy used by Marie Clay (1966), have broadened the construct that the child acquire some knowledge about language, reading, and writing before going to school. Furthermore, research concerning what children learn about books, print, and writing before going to school has changed the way educators view literacy development. The elements of literacy, reading, writing, listening, and speaking were thought of as separate skills, taught independently of one another in the past. The definition of current literacy involves all of the communication skills. There is a dynamic relationship among the communication skills including reading, writing, oral language, and listening because each

influences the other in the course of development (Morrow, 2001).

### *Domain of Early Literacy Skills*

These skills, including decoding, oral reading fluency, reading comprehension, writing, and spelling are within all literacy practices. More precisely, alphabet knowledge, phonological awareness, rapid automatic naming of letters or digits, rapid automatic naming of objects or colors, writing or writing name, and phonological memory representing early literacy or precursor literacy skills had medium to large predictive relationships with later literacy development (NIL, 2009). An additional five early literacy skills such as concepts about print, print knowledge, reading readiness, oral language, and visual processing were also moderately correlated with at least one measure of later literacy achievement (NIL, 2009).

These 11 factors consistently predicted later literacy achievement for both preschoolers and kindergarteners. Oral language was found to play a bigger role in later literacy achievement with the complex measures, including grammar, the ability to define words, and listening comprehension, than one with simple vocabulary knowledge measurements (NIL, 2009). Children's early phonological awareness was an important predictor of later literacy achievement as well (NIL, 2009).

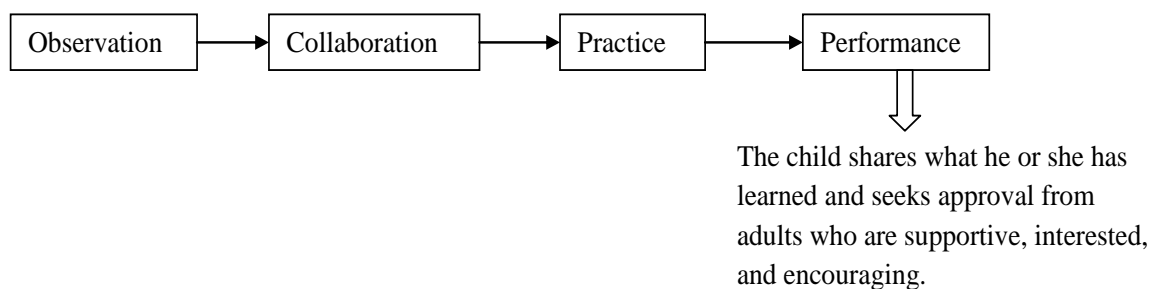
### *Holdaway's Theory of Literacy Development*

Literacy development begins early in life and is ongoing. Children at every age possess certain literacy skills. A summary concerning how reading and writing are acquired presented by Don Holdaway's (1979) theory of literacy development is as follows:

The way in which supportive adults are induced by affection and common sense to intervene in the development of their children proves upon close examination to embody the most sound principles of teaching. Rather than provide verbal

instructions about how a skill should be carried out, the parent set up an emulative model of the skill in operation and induces activity in the child which approximates towards use of the skill. The first attempts of the child are to do something that is like the skill he wishes to emulate (p. 39).

Four processes that enable children to acquire reading and writing ability are observation, collaboration, practice, and performance (Calkins, 1983; Holdaway, 1986; Smith, 1983). The observation of literacy behaviors is the child who is being read to or who sees adults reading and writing themselves. The second is collaboration is an individual who interacts with the child, providing encouragement, motivation, and help when necessary. The third process is practice that the learner tries out alone what has been learned, such as reading and writing activities and experiments without direction or adult observation. This is the process of giving children opportunities to evaluate their performances, make corrections, and increase skills. In the last stage, performance, the child shares what he or she has learned and seeks approval from adults who are supportive, interested, and encouraging. Supportive parenting styles can help children's literacy development.



*Figure 2.* Four steps of literacy development (adapted from Calkins, 1983).

## Research on Parenting Style and Child's Outcomes

Baumrind (1966, 1971, 1978) provided vast research and discussion on the ways parenting style impacts child development. Parenting style has been found to predict child well-being in the domains of social competence, academic performance, cognitive development, psychosocial development and behavior (Cooney, 1998; Tiller et al., 2003; Darling, 1999; Darling & Steinberg, 1993; Dornbusch, Ritter, Leiderman, Roberts, & Fraleigh, 1987). Such research indicated that children with authoritarian or permissive parents usually experience diminished academic achievement and exhibit negative behaviors at school. On the other hand, children who receive an authoritative parenting style demonstrate positive outcomes in both academic performance and social competence in the classroom (Baumrind, 1966, 1991a; Dornbush et al., 1987; Lamborn, Mounts, Steinberg, & Dornbusch, 1991; Spera, 2005). Children raised with a mixed parenting style had a 1.9 times higher chance of having delayed development compared with those with a democratic parenting style (Nanthamongkolchai et al., 2007). The following sections will discuss empirical evidence on the links between parenting styles, social-emotional development, cognitive development/academic achievement, and literacy development.

### *Social-Emotional Development*

Parents play the important roles to socialize with children and help them establish emotional and social functioning in order to adjust in society. As parents guide their young children from dependent infants into the autonomic adolescent, their styles of parenting can have both immediate and lasting effects on children's social functioning from psychosocial functioning to social-emotional development to moral development to peer play (Bornstein & Bornstein, 2007). A considerable body of research has examined parental influence on children's emotional and behavioral development.

Parental responsiveness is associated with social competence and psychosocial



functioning, while parental demandingness is related to instrumental competence and behavior control. Research has showed that children and adolescents from authoritative families are more socially and instrumentally competent than those whose parents are nonauthoritative (Baumrind, 1991a; Miller et al., 1993; Weiss & Schwarz, 1996). Children and adolescents whose parents are authoritarian, high in demandingness and low in responsiveness, tend to perform moderately well in school and be uninvolved in problem behavior, but have poorer social skills, lower self-esteem, and higher levels of depression (Darling, 1999).

A study conducted by Driscoll, Russell, and Crockett (2008) examined the relationships between parenting styles and adolescent psychological well-being such as depression and self-esteem and youth behavior (delinquency and alcohol problems) across immigrant generations. The results demonstrated among youth with permissive mothers, those with U.S.-born parents had higher self-esteem as well as higher delinquency and alcohol-related problems than did those with immigrant parents. However, the psychological well-being and youth behavior did not worsen with generation for adolescents with authoritative parents.

Brar (2003) investigated the relationships between child temperament, parenting styles and externalizing and internalizing behaviors of young children of Indian immigrants. Externalizing behavior refers to aggressive and delinquent behaviors whereas internalizing behavior is characterized by emotional symptoms of anxiety, misery, depression, social withdrawal, hypersensitivity and low self-esteem. Findings suggested that authoritarian and permissive parenting styles were associated positively, whereas, authoritative parenting style was associated negatively with both externalizing and internalizing behavior. Furthermore, Fletcher, Walls, Cook, Madison, & Bridges (2008) also echoed that there was a negative effect of yielding to coercion in terms of internalizing, externalizing, and social problems in the authoritarian families.

For the sociometric status (the level of popularity), the studies indicated that authoritative parenting was associated with a popular sociometric status whereas authoritarian parenting was associated with an unpopular sociometric status (Dekovic & Janssens, 1992; Franz & Gross, 2001). However, Evans (2002) in her thesis proclaimed that there was no significant relationship between parenting styles and the sociometric status of preschool children.

Scholars (Kaufmann et al., 2000) examined the relationship between authoritative and authoritarian parenting styles and socio-emotional adjustment in elementary school children as reported from the parents' perspective. Teachers also provided ratings of children's adjustment. Results from this study indicated that there was a negative relationship between authoritative parenting and parent- and teacher-rated maladaptive behavior and there was a positive association with authoritative parenting and healthy adjustment. No significant correlations between authoritarian parenting and adjustment were found.

### *Cognitive Development & Academic Achievement*

Parents can play a major and direct role in fostering their children's cognitive development and academic achievement by being involved in their children's educational activities. Rogoff and Lave (1984), cognitive theorists, have proposed that the parent-child relationship is an essential environmental context in which structuring or scaffolding of the child's emerging cognitive abilities takes place. Studies that examined how parenting styles influenced the cognitive development are through young elementary-aged children (Tiller et al., 2003) to adolescents (Boveja, 1998; Dornbusch et al., 1987; Radziszewska, et al., 1996; Leung, Lau, & Lam, 1998). Many researchers have reported that authoritative parenting is associated with higher school achievement than the other parenting styles (Glasgow et al., 1997; Stevenson & Lee, 1990). Pratt et al.'s study (1988) suggested that authoritative parents were generally higher in appropriate scaffolding to tutor their children to promote children's

cognitive skills. They may provide more direct teaching or learning support activities and that such differences in parental behavior directly influence children's learning and skill acquisition across childhood.

For adolescents, authoritarian and permissive parenting styles were negatively associated with higher grades, whereas the authoritative parenting style was positively associated with higher grades (Dornbusch et al., 1987; Radziszewska et al., 1996). Leung, Lau, and Lam (1998) also found that the academic achievement was negatively related to authoritarianism.

However, Tiller et al. (2003) found that parenting styles are not better predictors of children's cognitive ability than family socioeconomic-demographic characteristics. The researcher investigated the influence of parenting styles on children's cognitive development by using a sample size of 267 mother-child pairs and 127 father-child pairs. For mother, none of the parenting styles were significant predictors of children's cognitive development. For father, authoritative parenting practices were positively associated to children's cognitive ability. However, socioeconomic status is a best determinant of predicting children's cognitive development.

### *Literacy Development*

The Early Head Start Research and Evaluation Project (Administration for Children and Family [ACF], 2006) was conducted in 17 sites representing diverse program models, racial/ethnic makeup, and region. The findings demonstrated that three features of early home literacy environments influence early language and cognitive development: language-learning practice (e.g., shared book reading or storytelling), sensitive and responsive parenting, and availability of books and other learning materials (ACF, 2006). Sensitive and responsive parenting is one of authoritative parenting characteristics. However, few studies pertaining to the relationship between parenting styles and literacy acquisition/development have been

done.

There is a strong relationship between parenting styles and children's outcomes based on the literature review. However, previous studies frequently focused on child outcomes of socio-emotional development and cognitive development/academic achievement. It's imperative to investigate the relationship between other dimensions of child outcomes and parenting styles. The more understanding regarding influences of parenting styles on child outcomes we gather, the more intervention to enhance child's outcomes can be done.

### Research on Family Indicators and Child's Outcomes

McLanahan & Sandefur (1994) have argued that differences in life outcomes are largely determined by the characteristics of the family such as its composition and social and economic resources. Family characteristics in this study consist of three dimensions: parental gender, family income, and parental education. The following section will discuss the relationships and associations between child's outcomes and family characteristics.

#### *Parental Gender*

The existing literature on parenting style and student academic achievement is lacking a study which investigates the relationship on students' outcomes and parenting styles with separate analyses for mother and father (Milevsky, Schlechter, Netter, & Keehn, 2006). Although the findings of previous research suggested that children tend to benefit from being brought up by authoritative parents, much of this research has focused on mothers (Cheah, Leung, Tahseen, & Schultz, 2009; Marsiglio, Amato, Day, & Lamb, 2000). Some studies have investigated the parenting styles of both mothers and fathers but then have excluded families from analysis if there is difference between mothers and fathers (Baumrind, 1973). Other research utilized averaged parenting scores of mothers and fathers (Steinberg et al., 1991). However, researchers often examined the parenting style of mothers and assumed that

fathers' parenting style is the same as mothers' parenting style (Simons & Conger, 2007).

There is little empirical evidence to prove whether this assumption is true or not.

Elias and Yee (2009) conducted a study which examined the relationship between perceived paternal and maternal parenting styles and students' academic achievement by using 247 fourth-graders in Malaysia. The subjects evaluated their parents' style of parenting. The findings revealed that perceived paternal and maternal parenting styles in three typologies, authoritarian, authoritative, and permissive, were not significantly correlated with students' academic achievement.

On the other hand, Milevsky, Schlechter, Netter, and Keehn (2006) studied families in a metropolitan area of the Northeastern U.S. and found there was difference on children's psychological attributes between maternal and paternal parenting styles. Authoritative mothering was found to relate to higher self-esteem and life-satisfaction and to lower depression. Paternal parenting style was also related to psychological adjustment; however, the advantage was less defined and only evident for depression. These differences highlight the importance of examining the consequences of parenting practices separately for mothers and fathers.

### *Socioeconomic Status*

Another important family indicator which was hypothesized to influence parenting style as well as child outcomes is socio-economic status (SES). Several researchers identified that the nature of SES incorporates parental income, parental education, and parental occupation defined by Duncan, Featherman, and Duncan (1972) as the three main indicators of SES (Gottfried, 1985; Hauser, 1994; Mueller & Parcel, 1981). Yet there were moderate correlations among these three components, research also showed that the components of SES are unique and that each one measures a substantially different aspect of SES that should be considered to be separated from the others (Bollen, Glanville, & Stecklov, 2001; Hauser &

Huang, 1997).

Numerous literature discussed SES differences in language development (Brooks-Gunn, 2000; Korat, 2005; Parcel & Dufur, 2001). For the emergent literacy development dimension of child's outcomes, the study conducted by Korat (2005) revealed that low SES children had poorer emergent literacy development when compared with children who are raised in middle SES families. In a study of 2201 children in grades 1-8, Parcel and Dufur (2001) found that children of parents whose income was lower demonstrated lower achievement. In a speech to the U.S. Congress, Brooks-Gunn (2000) concluded that SES affects cognitive development, achievements, and behavior as early as kindergarten; and in addition, these influences do not disappear, but may even intensify in school.

White (1982) administered the first meta-analytic study that reviewed the literature published before 1980 focusing on examining the relationship between SES and academic achievement. The results showed that the relationship varies significantly with the types of SES and academic achievement measures. Sirin (2005) conducted a replica of White's (1982) meta-analysis to see whether the SES-achievement correlation had changed. The articles on socioeconomic status and academic achievement in journal articles published between 1990 and 2000 were reviewed. There were 101,157 students, 6,871 schools, and 128 school districts gathered from 74 independent samples. The results still revealed a medium to strong SES-achievement relation, but a slight decrease in the average correlation was found compared to White's study.

### *Family/Parental Income*

Parental income as an indicator of SES reflects the potential for social and economic resources that are available to the children. Research has shown that there was a positive correlation between income and child outcomes. Children from lower income families have worse behavioral, emotional, and cognitive outcomes than those from higher income families

(Phipps, 1999). Numerous studies that controlled for maternal IQ and maternal education have reported significant effects of poverty on children's cognitive and verbal skills (Korenman, Miller, & Sjaastad, 1995; Smith, Brooks-Gunn, & Klebanov, 1997). Duncan, Brooks-Gunn and Kelbanov (1994) investigated the longitudinal data from the Infant Health and Development Program (IHDP) and found that family income and poverty status were significant predictors of IQ scores for 5-year-old children, after controlling maternal education, family structure, and ethnicity. Family income and poverty status were more influential predictors of IQ scores than was maternal education. Meta-analyses suggest that family income has the highest correlation with academic achievement, followed by parental occupation and parental education (White, 1982).

However, Dooley and Stewart (2007) used data from the National Longitudinal Survey of Children and Youth to estimate the existence and size of the effect of income on behavioral-emotional outcomes. The results indicated that there was little evidence of an effect of income on behavioral-emotional scores. Parenting styles was found to have a consistent impact on child outcomes.

### *Parental Education*

The last variable needed to discuss is parental educational level. Parental educational level is an index of social context and has both physical and psychological aspects; thus, it may exert influences on child outcomes. Moreover, parental education is considered one of the most stable aspects of SES (Sirin, 2005). Studies on achievement consistently have shown that the educational level of parents is important in predicting children's educational and behavioral outcomes (Davis-Kean, 2005; Klebanov, Brooks-Gunn, & Duncan, 1994; Smith, Brooks-Gunn, & Klebanov, 1997). Research indicated that the education level of mothers influenced a greater number of child outcomes directly than did that of fathers (Hortacsu, 1995). Mothers' educational level had direct effects on child perceptions of external control

and GPA whereas fathers' educational level had a significant direct effect on child perceptions of efficacy. Halle, Kurtz-Costes, and Mahoney (1997), using a sample of low-income minority families, also found that mothers with higher education had higher expectations for their children's academic achievement and that these expectations were related to their children's subsequent achievement in math and reading.

Research on parenting also has demonstrated that parent education is related to a warm, social climate at home, which leads to higher children's academic achievement. Klebanov et al. (1994) found mothers' education and family income were important factors of the physical environment and learning experiences at home and mothers' education was predictive of parental warmth. The association of family income and parents' education with children's academic achievement was mediated by the home environment, and the mediation effect was stronger for maternal education than for family income (Smith et al., 1997).

Davis-Kean (2005) examined the process of how parents' education and family income indirectly relates to children's academic achievement through parents' beliefs and behaviors. Data from the 1997 Child Development Supplement of the Panel Study of Income Dynamics (PSID-CDS), which is a national and cross-sectional study, were used for the study. The subjects were 8-to-12-year-old children from European American and African American families. The results found that parents' education influences child achievement indirectly through its impact on the parents' achievement beliefs and stimulating home behaviors. The parents' years of schooling and family income positively influence the types of literacy-related material and behavior at home as well as the affective relationship between parents and children for African American families. However, the overall total effect of parent educational attainment on child achievement was much stronger than the total effect of family income for European American families.

Furthermore, Huesmann, Dubow, Eron, & Boxer (2006) examined the long-term effects



on children's educational and occupational success of their parents' educational level during their middle childhood, controlling for other indicators of socioeconomic status and children's IQ. Data comes from the Columbia County Longitudinal Study, which began in 1960 when 856 third graders in New York State were interviewed along with their parents. Participants were re-interviewed at ages 19, 30, and 48. The findings revealed the unique predictive role of parental education on adult outcomes. Parents' educational level when the child was 8 years old significantly predicted educational and occupational success for the child 40 years later. Parental education is the important mediator of late adolescent achievement and achievement-related aspirations.

SES impacts parents' theories about child development, the characteristics parents wish to develop in their children and their beliefs about parenting (Hoff, Laursen, & Tardiff, 2002). Duncan and Magusson (2002) identified that SES influences parenting beliefs and practices due to the association with families' access to materials resources. Other researchers also claimed that the social capital and knowledge that parents bring to parenting (Hoff-Ginsberg & Tardiff, 1995) and parents' occupational conditions on their beliefs about important values to instill in their children (Hoffman, 2002) influence parenting practices. Parents of families with lower SES more often use physical discipline and hierarchical as well as authoritarian relationship styles which focus on obedience, conformity and maintaining order (Hoff-Ginsberg & Tardiff, 1995; Pinderhughes, Dodge, Bates, Pettit, & Zelli, 2000). On the contrary, high levels of SES families' parents more often adopt psychological punishments, guilt induction, egalitarian relationships between parents and child and focus on developing independence and questioning authority (Hoff-Ginsberg & Tardiff, 1995; LaReau, 2003).

### Cultural Variations

The concept of parenting styles was initially from the Western culture. Research conducted in North America has consistently shown that both authoritarian and permissive

parenting were associated with poorer psychosocial development and academic performance in children (Dornbusch et al., 1987; Steinberg et al., 1992; Steinberg et al., 1994). In contrast, the children of authoritative parents had a higher score on psychosocial measures and academics than those of authoritarian or permissive parents (Glasgow et al., 1997; Jones, Forehand, & Beach, 2000; Steinberg et al., 1994). Most studies have been based on samples of white, European American families, and Western measures of parenting style.

However, studies including ethnic minority children/adolescents have found significant variations in the association between parenting style and academic achievement.

Investigations of the effects of parenting styles and ethnicity on children's development have not always yielded consistent results. Specifically, inconsistent relationships between Baumrind's parenting styles and academic performance have been demonstrated in Asian American students (Dornbusch et al., 1987).

Dornbusch et al. (1987) investigated the relationship between parenting style and academic achievement in a diverse group of adolescents in the San Francisco Bay Area. They found that the pattern of findings for the white population reflects the original formulation that authoritarian and permissive parenting are associated with low grades, and authoritative parenting is associated with high grades. However, within the Asian group, authoritarian parenting was the strongest predictor of grades, but authoritative and permissive parenting styles were not significantly related to grades.

In 1998, McBride-Chang and Chang (1998) conducted a study with 906 adolescents and 1,091 parents in Hong Kong to examine the relationships between academic achievement and parenting style. None of the three parenting styles were significantly associated with school achievement, as has been found in Asian American students (Dornbusch et al., 1987).

McBride-Chang and Chang (1998) proclaimed that categorizing parenting styles as authoritative, authoritarian, or permissive may not be a culturally relevant dimension of

socialization in Hong Kong adolescents. The assumption of cultural universals in stylistic influence has been challenged. Chao (1994; 2001) has suggested that ethnic differences in the effects of parenting style may be due to the way that parenting style has been conceived. Parenting style as based on Baumrind's typology may not have the same meaning when examined from an ethnic perspective, because cultural traditions apply different values to the same parental behaviors. For instance, while strictness may indicate aggression or dominance when exhibited by western parents, Chinese parents see strictness as an indication of concern or parental involvement (Chao, 1994). Similarly, Chinese schools place an emphasis on the value of strictness as a tool for organizational control and discipline, drawing on traditions rooted in the long history of Confucianism (Chao, 1994). Her research found that Chinese-immigrant mothers in Los Angeles scored much higher in measures of parental control and authoritarianism than did their European-American counterparts, while not scoring significantly higher in measures of authoritativeness (Chao, 1994). There is the possibility that varied culture-specific patterns of practice are not captured by the standard typology.

A more recent study, which compared mothers in Beijing and mothers in the United States, found that while these two cultures have distinct traditions in parental values, the same patterns were in evidence in both countries (Wu et al., 2002). Even though Chinese parents were more likely to value the characteristics of authoritarianism for the successful upbringing of a child, while American parents statistically favored the values of authoritativeness, all of these characteristics were demonstrated by parents in both cultures (Wu et al., 2002).

Besides, there was a cultural difference in Hong Kong students relative to U.S. adolescents. Parental supervision of homework and other school-related performance has been posited to come at an earlier age for Chinese than for Western students (Chao & Sue, 1996). Although authoritativeness was found to be more common among White parents and

Asian-American parents were more authoritarian (Steinberg et al., 1991; Dornbusch et al., 1987), little is known about the adapted meanings of authoritarian and authoritative parenting styles in Chinese culture.

However, the study by Chen, Dong, and Zhou (1997) examined the relationship between authoritative and authoritarian parenting styles and social and school adjustment in Chinese children and found results consistent with Western studies. Their findings showed that both authoritarian and authoritative parenting styles were relevant to children's academic success and social adjustment in China.

Research conducted by Chao (2001) examined the effects of parent-adolescent relationships on school performance to provide empirical evidence of why authoritative parenting does not have as beneficial effects for Asian Americans as it does for European Americans. Three hundred twenty four adolescents of first- and second-generation Chinese and 208 third generation or more European-descent families from seven different high schools participated in this study. The results of this inquiry demonstrated that positive effects of authoritative parenting on school performance were found for European Americans but not first-generation Chinese. European American adolescents of authoritative parents did perform better in school than those of authoritarian parents. For the first generation, the children of authoritative parents were not better in school than those Chinese youth from authoritarian families. The second-generation Chinese students were in between.

Despite the inconsistent relationship between parenting styles and academic performance found in the literature, the effects of authoritative and authoritarian parenting style on social competence/social-emotional development in Asian families were similar to the findings in the West. Findings from the study conducted by Zhou, Eisenberg, Wang, and Reiser (2004) showed that the child's ability to control emotions such as anger was positively associated with authoritative parenting and negatively associated with authoritarian parenting.

Results from Cheah, Leung, Tahseen, and Schultz's study (2009) also revealed that authoritative parenting predicted increased children's behavioral/attention regulation ability (lower hyperactivity/inattention), and decreased children's difficulties, as rated by teachers in Asian American groups.

## CHAPTER III

### METHODOLOGY

#### Participants and Populations

This research project focused on first grade students and their parents from eleven elementary schools in Taiwan. These schools are located in six major Taiwanese cities comprising a broad regional representation of the country, including Taipei, Hsinchu, Taichung, Chiayi, Tainan, and Kaohsiung. From these schools, the researcher successfully collected data from 125 students and their mothers. Forty-six of the subjects are from new immigrant families, and the remaining 79 represent the native Taiwanese families. In recruiting the participants, every effort was made to match the demographic characteristics of the children and the mothers in the two groups to minimize the impacts of interfering variables. However, as this study uses a convenience sample with the entire class in a school as the minimum unit, the paired match for the two groups is limited.

As the families with immigrant mothers often have a low-to-medium socioeconomic status in Taiwan, the participating children and mothers are generally from schools in the developing districts in the above mentioned cities. Thus, the targeted populations for the present study are the low-to-medium SES immigrant and native families in the major cities in Taiwan.

#### Variables and the Measurement Instruments

The main purposes of the present research are to: (a) investigate to what extent, if any parenting style is impacted by differences in immigration status, specifically between native Taiwanese and Southeast Asian immigrant mothers of first graders, (b) examine to what extent, if any maternal parenting styles relate to children's early literacy, and (c) determine to what extent, if any maternal parenting styles along with the children's and familial characteristics associate with children's early literacy. To accomplish the goals set up for the

study, the following variables are used:

- Children's demographic characteristics (gender, age, and grade)
- Familial demographic characteristics (mother type: immigrant vs. native, mother age, mother education, father education, income, biological mother or not, major caregiver to the child, mother's birthplace, participation in the government-sponsored training, and Republic of China-Taiwan citizenship)
- Parenting styles (authoritative, authoritarian, and permissive)
- Children's early literacy (reading, concept of print, writing, receptive vocabulary, and phonology awareness)

At the operational level, the above variables are defined and measured with different questionnaire and measurement instruments. For the children and familial demographic variables, the self-designed demographic information survey sheet was used to collect the data. For parenting styles, the Parenting Styles and Dimensions Questionnaire (PSDQ) by Robinson and his associates (Robinson et al., 1995) was utilized. The PSDQ yields three parenting styles: authoritative, authoritarian, and permissive. For children's early literacy, three different measurement tools are employed to target on different domains of children's literacy. The classroom teacher is requested to rate children's literacy on reading, concept of print, and writing on the Emergent Literacy Scale for Preschoolers (ELSP) (Hsuan, 2000). The Peabody Picture Vocabulary Test – Revised (PPVT-R) (Dunn & Dunn, 1981; Lu & Liu, 1998) is used to measure children's level of receptive vocabulary. Finally, the Chinese Phonological Awareness Test (CPAT) (Chiang, 1999) is utilized to evaluate children's level of literacy on phonological awareness. These variables and the associated questionnaires and measurement instruments are further explained:

### *Demographic Information Survey*

Mothers were required to complete a brief demographic data sheet (see Appendix C). This questionnaire was designed to provide the fundamental demographic information for the child, the mother, and the family. For the child, only the chronological age, gender, and grade are collected. Although the majority of the children in both the immigrant and the native groups are at Grade 1, some students from kindergarten and Grade 2 with immigrant families in the participating schools were chosen as well. For the mother, seven variables are of interest: mother type in terms of immigration status (i.e., immigrant vs. native), mother's age, mother's education, biological mother or not, the time period of mother's participation in the government-sponsored integration programs, mother's birthplace, and mother's citizenship. For the familial factors, three variables are collected: father's education, family income, and the major caregiver to the child. These variables are designed not only to describe the important demographic profiles in the families, but also to serve as the grouping variables and the predictors in the statistical analysis.

### *Parenting Styles and Dimensions Questionnaire (PSDQ)*

Parents were given asked to complete the Parenting Styles and Dimensions Questionnaire (PSDQ) developed by Robinson, Mandlco, Olsen, and Hart, which contains 62-item Likert-type questions to measure three global parenting style variables consistent with Baumrind's typologies and the dimensions and internal structures within the three parenting style typologies (Robinson et al., 1995). The response choices of the PSDQ ranged from 1=*never*, 2=*once in a while*, 3=*about half of the time*, 4=*very often*, and 5=*always* on a 5-point Likert-type scale with three reverse scoring items (Robinson et al., 1995). Some sample items of the PSDQ are: "I encourage our child to talk about the child's troubles," or "I guide our child by punishment more than by reason."

Since the parenting styles are conceptualized as contextual, a summed score was used to



direct each participating parent into one of the three parenting styles. In other words, the higher the score, the more the parent exhibits that particular parenting style. There are 27 items measuring authoritative parenting style, 20 items measuring authoritarian parenting style, and 15 items measuring permissive parenting style. Specific to the subscales of the authoritative typology, there are three stylistic dimensions: (a) warmth and involvement (11 items; e.g.: “I give praise when our child is good”); (b) reasoning/induction (7 items; e.g.: “I tell child our expectations regarding behavior before the child engages in an activity”); (c) democratic participation (5 items; e.g.: “I allow our child to give input into family rules”); and (d) good-natured/easygoing (4 items; e.g.: “I joke and play with our child”). The authoritarian typology includes subscales of (a) verbal hostility (4 items; e.g.: “I yell or shout when our child misbehaves”); (b) corporal punishment (6 items; e.g.: “I spank when our child is disobedient”); (c) nonreasoning and punitive strategies (6 items; e.g.: “I punish by taking privileges away from our child with little if any explanations”) and (d) directiveness (4 items; e.g.: “I scold and criticize to make our child improve”). Permissive parenting subscales and their factors and items are: (a) lack of follow-through (6 items; e.g.: “I spoil our child”); (b) ignoring misbehavior (4 items; e.g.: “I withhold scolding and/or criticism even when our child acts contrary to our wishes”); and (c) self-confidence (5 items; e.g.: “I find it difficult to discipline our child”). It should be noted that three items on the permissive parenting style are negatively worded. They needed to be re-coded in the positive direction as other items of the PSDQ.

However, for the present study, only the three global parenting styles are used. The subscales or dimensions of the parenting styles are ignored due to the relatively small sample size. The scores for the three maternal parenting styles are considered as interval variables in the study. They serve as the dependent variables for the examinations of group differences. However, they are treated as the independent variables along with other demographic

variables on predicting children's early literacy.

Based on Robinson et al. (1995), the authoritative items have a Cronbach alpha of .91, the authoritarian items have a Cronbach alpha of .86, and the permissive items have a Cronbach alpha of .75, which prove its high reliability and good validity as a research measurement. A review of parenting method analysis instrumentation recognized the PSDQ as standing out from the others for the validity of its scales (Locke & Prinze, 2002).

Since most of the participants were limited-English-proficient, the original English version of the Parenting Styles and Dimensions Questionnaire (PSDQ) could not be used. Thus, this study started with the Chinese version of the PSDQ for mainland China parents. However, as there are some linguistic differences between the mainland Chinese culture and the ROC (the Republic of China) culture in Taiwan, a double-translation procedure was used to translate the Chinese version of the measurement for mainland China to the ROC Chinese version for Taiwan. Furthermore, a double-translation was also performed between the original English version and the ROC version of the PSDQ. The two independent interpreters, fluent in both English and Chinese and familiar with both the American culture and the Chinese cultures in mainland China and Taiwan, completed the translation process. All of the minor linguistic and cultural differences have been resolved. A pilot test of the translated ROC version of the PSDQ in five immigrant families demonstrated that the mothers understood the PSDQ including each of the statements well. Hence, the translated ROC version of the PSDQ (See Appendix F) is considered to be structurally and linguistically satisfactory. It should be noted that these five families are excluded from the formal study.

#### *Peabody Picture Vocabulary Test-Revised (PPVT-R)*

This test measures an individual's receptive (hearing) vocabulary. In addition, it provides a quick estimate of verbal ability or scholastic aptitude. Receptive vocabulary is vocabulary understood, as opposed to vocabulary used. The PPVT-R was originally developed in 1959

by Lloyd M. Dunn; he updated the test in 1965. Dr. Dunn and his wife, Leota Dunn, published a revised version, the PPVT-R scale, in 1981. The two authors published the second revision, the PPVT-III scale, in 1997. Douglas M. Dunn, PhD, the son of Lloyd and Leota Dunn, is the coauthor of the PPVT-4 scale, and participated in the development of each of the three earlier PPVT editions. The PPVT-R in Chinese (Lu & Liu, 1998) has two parallel forms, Forms IIIA and IIIB, each with 4 training items (for administering the test) and 125 test items grouped into sets of items arranged in order of increasing difficulty. The items broadly sample words that represent 20 content areas (e.g., actions, vegetables, tools) and parts of speech (nouns, verbs, or attributes) across all levels of difficulty.

The PPVT-R was standardized in 1979 on a sample of 4,100 children and youth in the age range from 2 ½ to 19 years with 100 children of each sex at each age level. It was also standardized on a sample of 828 adults with approximately 200 adults for each of the age ranges from 19 to 24, 25 to 29, 30 to 34, and 35 through 40 years. The sample of children was selected to approximate the 1970 U.S. Census data for sex and age, geographic, occupational background, racial-ethnic, and urban-rural population distributions.

The test manual reports internal consistencies from .61 to .88, and alternate form reliability values from .71 to .91 from the standardization sample. Split-half correlation coefficients were generated to assess internal consistency. For children and youth, coefficients ranged from .67 to .88 on Form L (median = .80) (Dunn & Dunn, 1981). Alternate form reliabilities for a sample of 642 children, given both forms in counterbalanced order, ranged from .74 to .89 (median = .81). The split-half correlation reliability was .90 to .97 on Form L (median = .95) and from .90 to .97 on Form M (median = .96) in the Taiwan population (Lu & Liu, 1998).

The PPVT-R was validated by using PPVT IQS, WISC-R IQS, and Stanford-Binet IQS. The PPVT-R correlates highly with other vocabulary tests, with an overall median value

of .71 across various measures (Dunn & Dunn, 1981). It correlates moderately well with scholastic aptitude and verbal intelligence tests: median correlation, .62 with the Stanford-Binet (Dunn & Dunn, 1981); and median correlation, .68 with the WISC-R (Alpeter & Handel, 1986; Breen & Siewart, 1983; Davis & Kramer, 1985; Haddad, 1986) and .60 with the WISC-R in the Taiwan population (Lu & Liu, 1998). Nevertheless, the data on the predictive validity or the long-term temporal stability have not been found yet.

#### *Chinese Phonological Awareness Test (CPAT)*

The Chinese Phonological Awareness Test was developed in 1998 (Chiang, 1999). The main purpose of this test is to assess the alphabet phonological awareness along with Chinese characters. This test consists of 7 subcategories such as phoneme deletion tasks, consonant classification tasks, vowel awareness tasks, phoneme substitution tasks, intonation awareness tasks, character segmentation tasks, and combination of consonant and vowel tasks. The test has demonstrated satisfactory reliability. For instance, the internal reliability on Cronbach alpha range from .72 to .94 (Chiang, 1999). The construct validity is also acceptable as reflected in the moderate inter-factor correlations among the three factors: simple phonological awareness, foundational phonological awareness, and compound phonological awareness (Chiang, 1999).

Because the students taking part in this research were very young, they could only recognize but were unable to write the subtle differences between certain similar sounds, such as “p” and “b,” or “k” and “g.” For this reason, only three of the seven test categories listed above were used for this study. Those categories were: consonant classification tasks, vowel awareness tasks, and intonation tasks.

The implementation of this research instrument was the use of a tape recorder to prevent failings in inter-rater reliability. This test was always administered using the same pre-recorded delivery in order to avoid any possible inconsistencies that might arise because

multiple examiners were delivering the test. The data collected with this instrument can therefore be considered reliable, without various accents or pronunciations compromising the results.

### *The Emergent Literacy Scale for Preschoolers (ELSP)*

The scale, developed by Hsuan (2000), consists of three parts: the ability of reading development; the development of bibliography and word knowledge; and the ability of writing development. The internal consistency of this scale is .8789 in Cronbach alpha. The factor analysis study reveals the underlying factors of the ELSP are valid as well (Hsuan 2000).

ELSP consists of 3 subcategories of reading, concept of print, and writing with total 29 questions, which were all used in this research study. Although the ELSP was primarily designed for 4-6 year-old preschoolers in Taiwan, it may still have an appropriate role in the current study focusing on first graders. The main reason is that this study focuses on the effects of a mother's immigration status on her child's school readiness in literacy. Hence, it appears to be a valid exercise to assess children's literacy development at the first grade. The classroom teacher is instructed to rate each child's current level of reading, concept of print, and writing. The sum of the scores on the three domains indicates the level of the emergent literacy skills.

In short, on children's early literacy, three measurement tools were used in the present study. The Peabody Picture Vocabulary Test-Revised (Lu & Liu, 1998) was administered to children for assessing their receptive vocabulary. Phonological awareness was evaluated by the Chinese Phonological Awareness Test (Chiang, 1999). Finally, the Emergent Literacy Scale for Preschoolers (Hsuan, 2000) was used to determine children's early literacy level through the lens of their teachers' perceptions. Table 1 summarizes the questionnaires and instruments used in this research study, categorized by the type of the respondents.

Table 1

The Research Instrumentation

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Parents	Students	Teachers
<ul style="list-style-type: none"><li>• Parenting Styles and Dimensions Questionnaire (PSDQ)</li><li>• Demographic Survey</li></ul>	<ul style="list-style-type: none"><li>• Peabody Picture Vocabulary Test – Revised (PPVT-R)</li><li>• Chinese Phonological Awareness Test (CPAT)</li></ul>	<ul style="list-style-type: none"><li>• The Emergent Literacy Scale for Preschoolers (ELSP)</li></ul>

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Data Collection Procedures

*Data Collection*

Prior to the commencement of the study, letters were sent to the principals of the eleven participating schools requesting their consent and participation. Soon after, the researcher contacted the research assistants from Nanhua University in Dalin Township, Taiwan. Upon receiving approval from the cooperating schools, the researcher arranged a schedule for data collection in each of the participation sites. Notifications were sent through the schools to parents, inviting them to participate.

Meanwhile, the researcher trained the research assistants on the administration of the study instrumentation on PSDQ, PPVT-R, CPAT, and ELSP. This training addressed obstacles to the inter-rater reliability. The assistants participated in practice tests until all the research assistants had become consistent on the ratings. The researcher also pre-recorded the CPAT to prevent failings in inter-rater reliability.

Informed written consent, which fully explained the purposes and the procedures of the study, was obtained from the mothers in the first section of the introductory meeting. The participants were assured that participation was voluntary, the results would be confidential, and no foreseeable risks were involved in this study. After the mothers signed the informed

consent, the participating mothers spent approximately thirty minutes completing the Parenting Styles and Dimensions Questionnaire (PSDQ) and the Demographic Information Sheet in the second section of the introductory meeting. The children of participating mothers signed the informed consent on a voluntary basis as well. No children of mothers who signed refused to participate.

The informed consent form, the demographic information survey, and the PSDQ were provided in Chinese. Assistants were available throughout the introductory meeting to assist any parents who were unable to read or understand the documents. Since many of the participants in the immigrant group could speak Chinese, but could not read or write the language, the assistants verbally administered the PSDQ to each mother individually, providing additional examples for each survey question. Each assistant was trained to use the same examples with each participant. Furthermore, they were trained by the researcher to not bring their own personal interpretations to the texts.

After their parents completed the PSDQ and the demographic data sheet, the participating children were asked to complete the Peabody Picture Vocabulary Test-Revised (PPVT-R) and the Chinese Phonological Awareness Test (CPAT) during school time for a period of 15-20 minutes on each of the tests with their teachers' presence. The researcher and an assistant administered the two tests to every participating child individually: one interacted with the subject, while the other observed and recorded data. The two tests were conducted in a randomized sequence. Their teachers were asked to complete the Emergent Literacy Scale for Preschoolers (ELSP) which took approximately 5-10 minutes per student. The ELSP assesses three broad categories of early literacy: reading, concept of print, and writing. The total score on the ELSP, an interval variable, is one of the dependent variables in this study.

For the PPVT-R, children were shown a series of four black and white drawings and asked to point to the one named by the researcher or an assistant. For example, "Show

me \_\_\_\_?” or “Where is \_\_\_\_?” Following the test administration procedures in the test manual, the test continued until the child made 6 errors in a set of 8 items. The standard summed score on the PPVT-R, an interval variable, is one of the dependent variables in this study.

For the Chinese Phonological Awareness Test (CPAT), children were asked questions in three categories by the research team. The possible score for each category of phonological awareness ranges from zero to 20. The total score on the sixty question of the CPAT across the three categories of consonant classification tasks, vowel awareness tasks, and intonation tasks is also an interval variable, and serves as another dependent variable.

After the data on the demographic information survey, the PSDQ, the PPVT-R, the CPAT, and the ELSP were gathered, they were checked for completeness. Fortunately, there were no missing data for the present study. The collected data were matched for each participating child in the two groups for the statistical analyses.

### *Research Timetables*

The research study took place in five stages distributed through six months. The preparatory stage, which involved establishing and coordinating the necessary administrative contacts with the Taiwanese school officials, began with the successful completion of the proposal defense on April 27<sup>th</sup>, 2011. This stage continued until June, 2011. The data collection stage began in early June and finished by the end of July. During this time period, the surveys, tests, and questionnaires were administered to the participants. Through August, the researcher conducted the data analysis and completed the first four chapters of the dissertation, followed by Chapter Five on the conclusions and discussions through September and October. The final defense took place in November, 2011.

### Research Design

The fundamental interest of this study was to explore whether children’s early literacy is



affected by parenting styles and other significant demographic variables in the immigrant and native families. To do so, the research study employed a non-experimental research design with a convenient sampling. More specifically, this study used the self-developed demographic survey and four standardized questionnaires and measurement instruments to examine the relationships among the demographic characteristics in the family, maternal parenting styles, and children's early literacy. The survey method is considered one of the most common forms of educational research (Fraenkel & Wallen, 2000).

More precisely, the research design for the present study had four major components to address the 10 research questions. First of all, the descriptive statistics which involve describing characteristics of a particular sample of individuals are fundamental to the quantitative research methods (Gall, Gall, & Borg, 2007). They are used to describe the basic features of the data in a study and provide simple summaries about the sample and the measures. In this study, various descriptive analyses were conducted to identify the frequencies and percentages in the categories of the discrete variables, and present the factor mean scores and standard deviation for the continuous variables in the sample. In other words, the categorical demographic variables are depicted in frequency distributions. The interval variables on the child age, parenting styles, and child's literacy are described in means and standard deviations.

The second part addresses the group differences on maternal parenting styles and on children's literacy between the immigrant and the native groups or between other important categorical variables in the mother or the family in a series of *t*-tests and one-way ANOVAs. This part of the design focuses on Research Questions 1 – 6.

The next component focuses on the correlations between parenting styles and child's early literacy. Correlation is one of the most common and most useful statistics. A correlation is to describe the degree of relationship between two variables. The quantitative index of an

association could be the Pearson product-moment correlation coefficient (Pearson  $r$ ) between the continuous variables, Kendall's  $\tau$  or Spearman's  $\rho$  between the ordinal variables, Bi-serial  $r_b$  between an interval data and an ordinal data, or Cramer's  $v$  between the nominal variables (Siegel & Castellan, 1988). The present study mainly uses the Pearson  $r$  to investigate the relationship between parenting styles and early literacy of the first grade students for Research Questions 7 to 9. The other types of correlation coefficients are not examined as they are not the foci in the present study.

The last part concentrates on predictions of children's literacy with parenting styles and other critical demographic variables in linear multiple regression for Research Question 10. These research designs are summarized in Figure 3, which shows how the purpose and type of research question correspond to the general type of statistics used in the current study:

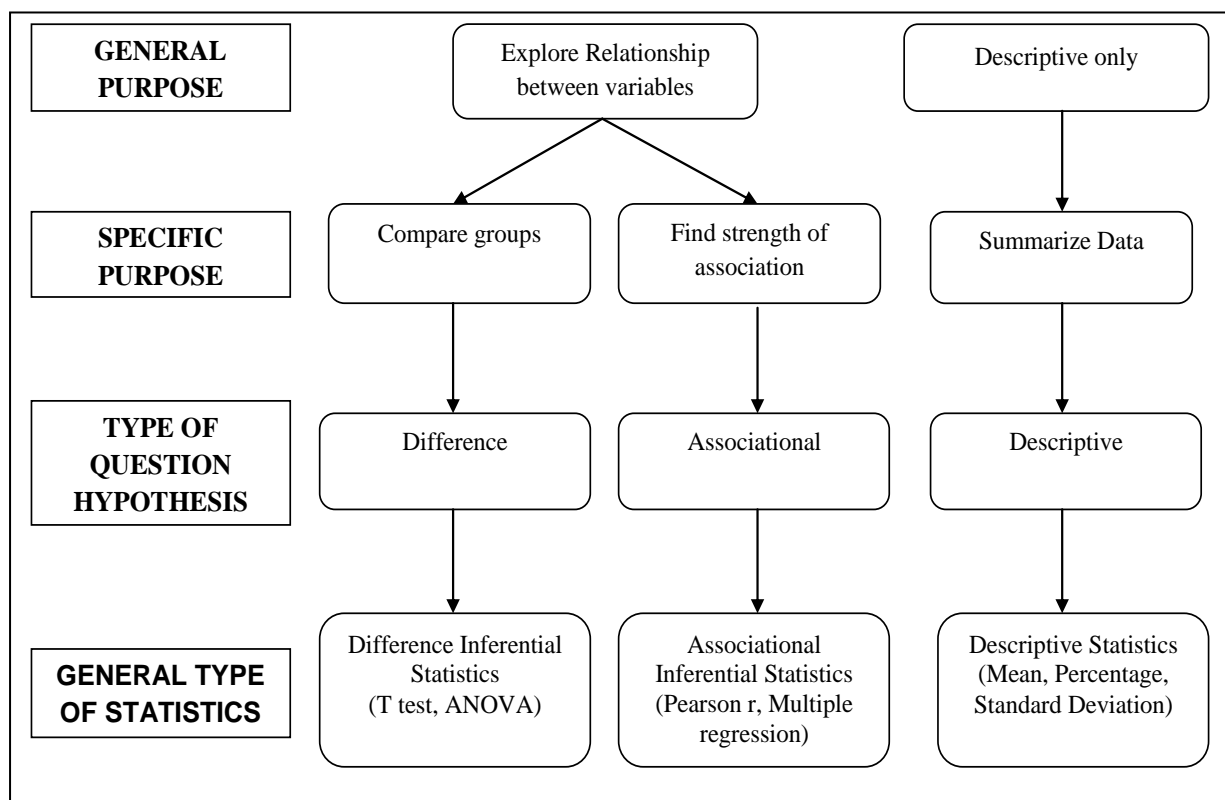


Figure 3. The research design and analysis schematic diagram (adapted from Leech, Barrett, & Morgan, 2008).

## Data Analysis Strategies

### *Data Screening*

The collected data were first examined for completeness. No missing data were found from all of the participants. Then, the responses on the ELSP from the teachers, on the PPVT-R and the CPAT from the children, and on the Demographic Information Survey and the PSDQ from the mothers were checked for data quality. They appeared to be serious answers. Hence, all of the participants were included in the sample at this point. Finally, as this quantitative study is primarily based on inferential statistics, the critical assumption of data normal distribution for the interval dependent variables had to be made (Maxwell & Delaney, 2004).

To meet the data normal distribution requirement, the outliers for the three scores on child literacy first needed to be identified and excluded from the study. The criterion of  $\pm 2.58$  at the .01 level (Hair, Black, Babib, Anderson, & Tatham, 2009) for each of the three standardized scores on child literacy was used in this study. Based on this rule, five outliers in the immigrant group were removed from the sample. Then, the interval dependent variables on parenting styles and child's literacy were assessed for normality based on the rule of thumb by Hair et al. (2009). Hair et al. (2009) stated that normality of an interval variable can be evaluated based on the standardized  $z$  scores for the skewness and kurtosis for the variable,

as expressed in the following formulae:  $Z_{skewness} = \frac{Skewness}{\sqrt{\frac{6}{N}}}$  and  $Z_{kurtosis} = \frac{Kurtosis}{\sqrt{\frac{24}{N}}}$ , where

$N$  is the sample size. If the calculated  $Z_{skewness}$  and  $Z_{kurtosis}$  are in the range of  $\pm 1.96$ , the data are normally distributed at the .05 level, or at the .01 level if in the ranges of  $\pm 2.58$ . As the sample size in the present study was relative small, especially for the immigrant group, the liberal  $\pm 2.58$  criterion was used. The results show that most of the six scores on parenting

styles and on children's literacy are normally distributed at the .01 level after the five outliers were excluded (see Tables D.1 and D.2 in Appendix D). Hence, the final sample size for the statistical analyses was 120.

### *Statistical Analysis Strategies*

After the dependent variables were deemed as normally distributed in general, the first step for the statistical analysis was to present descriptive statistics for all of the variables in the study. For the interval variables on parenting styles and children's literacy, means and standard deviations were displayed as usual. The statistics of skewness and kurtosis were also obtained for calculating their standardized z scores to assess normality and presented in Appendix D. Child's chronological age was initially in the form of a combination of years and months. It was converted to a number by dividing the months by 12. For instance, seven years and two months was treated as 7.17. Thus, child's age was treated as an interval variable as well.

However, many other variable such as mother's age or family income, which could be collected as continuous variables, were designed as categorical variables as these variable were intended to be the grouping variable for the examinations of the group differences. Moreover, as the sample size was limited, some categories on some of the nominal variable may not have had a sufficient frequency to stand out as an independent category as originally designed. Thus, some of the categorical variables were re-grouped to accommodate the limited sample size for the later statistical analysis, as explained at length in Chapter IV. Table 2 summarizes the variables for the descriptive statistics in the present study in the original design and the actual design. It should be pointed out that the distinction between the nominal and the ordinal variables in Table 2 was trivial in this study. Both clusters of the variables were treated as nominal variables in the later statistical analyses. These categorical variables were primarily explored by the frequency distribution for the descriptive and

re-grouping purposes. On the other hand, the interval variables were primarily described by means and standard deviations.

At this point, it should be pointed out that the three parenting styles were treated as separate variables in the present study. In fact, no theories or empirical work support a global parenting style. Similarly, the three scores on children's early literacy from the three different sources should also be treated separately unless the correlations among the three literacy scores are high. If that's the case, the three scores on literacy can be aggregated as a global score based on the sum of the three standardized scores to simplify the statistical analysis.

Then, a series of independent *t*-tests and one-way ANOVAs were conducted to examine the group differences on maternal parenting styles and children's literacy between the immigrant and the native groups or between other important categorical variables in the mother or the family. For these analyses, maternal parenting styles or children's literacy are the dependent variables, and the maternal or familial categorical variables are the grouping variables. It should be noted that a better statistical design for Research Questions 1 – 6 is two-way or three-way ANOVAs as the ANOVAs could reveal the interaction effects, in addition to the main effects (Maxwell and Delaney, 2004). Nevertheless, as the sample size was limited, the recommended minimum cell size of 15 could not be met (Hinkle, Wiersma, & Jurs, 2003). Thus, a series of independent *t*-tests and one-way ANOVAs are performed to address Research Questions 1 – 6 as shown in Table 3.

Table 2

The Research Variables for the Descriptive Statistics

	Initial design	Actual design	Descriptive statistics
Nominal variables	<ul style="list-style-type: none"> <li>• Child gender (2 categories)</li> <li>• Child grade (3 categories)</li> <li>• Mother’s immigration status (2 categories)</li> <li>• Biological mother status (2 categories)</li> <li>• Child caregivers (4 categories)</li> <li>• Mother’s birthplace (7 categories)</li> <li>• ROC citizenship (2 categories)</li> </ul>	<ul style="list-style-type: none"> <li>• Child gender (2 categories)</li> <li>• Child grade (1 category)</li> <li>• Mother’s immigration status (2 categories)</li> <li>• Biological mother status (1 category)</li> <li>• Child caregivers (1 category)</li> <li>• Mother’s birthplace (2 categories)</li> <li>• ROC citizenship (1 category)</li> </ul>	Percentage
	Ordinal variables	<ul style="list-style-type: none"> <li>• Mother’s age (7 categories)</li> <li>• Mother’s education (7 categories)</li> <li>• Mother’s integration program participation (4 categories)</li> <li>• Father’s education (7 categories)</li> <li>• Family income (12 categories)</li> </ul>	<ul style="list-style-type: none"> <li>• Mother’s age (2 categories)</li> <li>• Mother’s education (3 categories)</li> <li>• Mother’s integration program participation (4 categories)</li> <li>• Father’s education (3 categories)</li> <li>• Family income (2 categories)</li> </ul>
Interval variables	<ul style="list-style-type: none"> <li>• Child age</li> <li>• Maternal authoritative score</li> <li>• Maternal authoritarian score</li> <li>• Maternal permissive score</li> <li>• PPVT-R Score</li> <li>• CPAT Score</li> <li>• ELSP Score</li> </ul>	<ul style="list-style-type: none"> <li>• Child age</li> <li>• Maternal authoritative score</li> <li>• Maternal authoritarian score</li> <li>• Maternal permissive score</li> <li>• PPVT-R Score</li> <li>• CPAT Score</li> <li>• ELSP Score</li> </ul>	Mean Standard deviation

Note. ELSP = Emergent Literacy Scale for Preschoolers, PPVT-R = Peabody Picture Vocabulary Test – Revised, CPAT = Chinese Phonological Awareness Test.

Table 3

The Research Variables for the Group Differences on Parenting Styles Literacy

Parenting styles		Child literacy	
Independent variables	Dependent variables	Independent variables	Dependent variables
<ul style="list-style-type: none"> <li>• Mother’s immigration status (Question 1- <i>t</i>-test)</li> <li>• Mother’s integration program participation (Question 2 - <i>t</i>-test)</li> </ul>	Maternal parenting styles: <ul style="list-style-type: none"> <li>• Authoritative</li> <li>• Authoritarian</li> <li>• Permissive</li> </ul>	<ul style="list-style-type: none"> <li>• Mother’s immigration status (Question 3 – <i>t</i>-test)</li> <li>• Mother’s integration program participation (Question 4 – <i>t</i>-test)</li> <li>• Family income (Question 5 – <i>t</i>-test)</li> <li>• Mother’s education (Question 6 – one-way ANOVA)</li> </ul>	Children’s literacy <ul style="list-style-type: none"> <li>• PPVT-R Score</li> <li>• CPAT Score</li> <li>• ELSP Score</li> </ul>

*Note.* ELSP = *Emergent Literacy Scale for Preschoolers*, PPVT-R = *Peabody Picture Vocabulary Test – Revised*, CPAT = *Chinese Phonological Awareness Test*.

Thirdly, the study used the bi-variate correlation to explore the relationships between the three maternal parenting styles and children's skills of literacy for Research Questions 7, 8, and 9. As all of the involved variables were interval, the Pearson  $r$  coefficient was used to assess the strength of the correlations. In addition to examining the statistical significance of an association between two variables, the practical significance of the correlation was also obtained by squaring the correlation coefficient. In determining the magnitude of the practical significance for an association, the rule of thumb from Cohen (1988) is followed. In other words, .1, .3, and .5 are considered as the minimum coefficient threshold for a small, medium, and large practical significance, respectively. These correlation coefficients correspond to 1%, 9%, and 25% for the three thresholds, respectively, in terms of the percentage of the shared variances between the two variables.

Finally, the statistical technique of linear multiple regression was used to investigate how maternal parenting styles, along with other demographic variables in the child, the mother, and the family concurrently predict the child's early literacy. For the regression analysis, the dependent or the criterion variable s were children's levels of literacy. Maternal parenting styles and other demographic variables served as the predictor variables as displayed in Table 4. It should be noted that only seven demographic variables, along with the three parenting styles, in Table 2 were used as the predictors. The other six demographic variables were excluded from the regression analysis due to the low frequencies in some of the subcategories in these variables as explained in the next chapter. All of the above statistical analyses are performed using SPSS 19.0.



Table 4

The Research Variables in the Regression Analysis

Predictor variables		Criterion variables
Continuous	Categorical	
Child age	Child gender	ELSP Score
Maternal authoritative parenting	Mother's immigration status	PPVT-R Score
Maternal authoritarian parenting	Mother's age	CPAT Score
Maternal permissive parenting	Mother's education	
	Father's education	
	Family income	

*Note.* ELSP = *Emergent Literacy Scale for Preschoolers* for teacher-rated literacy skills  
 PPVT-R = *Peabody Picture Vocabulary Test – Revised* for receptive vocabulary skills  
 CPAT = *Chinese Phonological Awareness Test* for phonological awareness

## CHAPTER IV

### RESULTS

#### The Demographic Characteristics of the Participants

In the forefront, this study examines and presents the descriptive statistics for the fundamental demographic variables in the participants. These descriptive statistics not only provide quick summaries of the data in the sample, they serve as the foundation for re-grouping and the criterion coding for the regression analysis as well.

The data for seven demographic variables for the mother participants were collected in the study. All of them were treated as categorical variables. The categories and the associated frequencies for these 7 variables in the initial design are displayed in Table 5. The table shows that only about one third of the 120 mothers in the final sample were immigrant mothers although every effort had been made to balance the sizes for the two groups.

On mother's age, most of the mothers in the sample ranged from 26-year-old to 40-year-old. The other three age groups had a percentage of 10% or less. On education, the high school group had the largest percentage at about one third, followed by the 2-year college and the senior high school groups. The other three groups had relatively low percentages. On the status of biological mothers, all of the mothers reported that they are the biological mothers of their children. Similarly, all of them are citizens of the Republic of China (ROC) Taiwan, including the 41 immigrant mothers. On mother's birthplace, the 79 mothers in the native group were from Taiwan. For the 41 mothers in the immigrant group, most were from Vietnam, followed by Indonesia. There was only one mother each from mainland China and Cambodia. Finally, 20 mothers in the immigrant group indicated that they have somewhat participated in the government-sponsored integration programs. Ten of them have joined the training for at least one year. The other 21 immigrant mothers did not participate in the integration programs at all.

Table 5

The Descriptive Statistics of the Demographic Variables for the Mothers

Maternal demographic variables	<i>n</i>	Percentage
Mother type		
Immigrant	41	34.2%
Native	79	65.8%
Mother age		
21 – 25	1	.8%
26 – 30	22	18.3%
31 – 35	41	34.2%
36 – 40	40	33.3%
41 – 45	12	10.0%
46 – 50	4	3.3%
Mother education		
Elementary	18	15.0%
Junior high school	21	17.5%
Senior high school	41	34.2%
2-year college	25	20.8%
University	11	9.2%
Master	4	3.3%
Biological mother		
Yes	120	100%
No	0	0%
Mother birthplace		
Taiwan	79	65.8%
Vietnam	28	23.3%
Indonesia	11	9.2%
China	1	0.8%
Cambodia	1	0.8%
Attended governmental classes		
No	100	83.3%
<= 6 months	5	4.2%
6 mo – 1 yr	5	4.2%
>= 1 year	10	8.3%
Republic of China citizenship		
Yes	120	100%
No	0	0%

For the familial demographic variables, three were selected: major child caregiver, father education, and family income. On child major caregiver, mothers predominantly were the major caregivers in this sample. Only three families had the grandfather or the fathers as the major caregivers. On family income, the group between \$2,501 and \$10,000 had the largest ratio at almost 36%. The other two groups between \$10,001 and \$30,000 were also over 20%. The other four groups had frequencies less than 14 or percentages less than 11%. Finally, on father education, the frequency distribution was fairly similar to that on mother education. In other words, the senior high school group had the largest ratio, followed by the junior high school and the 2-year college groups. The other three groups had percentages less than 11%.

*Table 6*

The Descriptive Statistics of the Demographic Familial Variables

Familial demographic variables	<i>n</i>	Percentage
<b>Major caregivers</b>		
Mother	117	97.5%
Grandfather	0	0%
Grandmother	1	0.8%
Father	2	1.7%
<b>Income (US Dollar)</b>		
<= 2,500	13	10.8%
2,501– 10,000	43	35.8%
10,001– 20,000	24	20.0%
20,001– 30,000	26	21.7%
30,001– 40,000	8	6.7%
40,001– 50,000	4	3.3%
50,001– 60,000	2	1.7%
<b>Father education</b>		
Elementary	13	10.8%
Junior high school	27	22.5%
Senior high school	41	34.2%
2-year college	25	20.8%
University	10	8.3%
Master	4	3.3%

Obviously, many categories of the demographic variables in the above tables did not have sufficient frequencies to be independent in this study due to the small sample size. They had to be integrated with other categories. In other words, the demographic variables needed to be re-grouped for the later statistical analyses. In re-classifying categories, the basic guideline is to split the sample into equal groups (Pedhazur & Schmelkin, 1991). Surely, this data-driven strategy should not sacrifice the integrity and the sense of meaning of the data in reality. Based on these rules, five demographic variables for the mothers and families were re-classified as shown in Table 7. The mother age was now in two groups: 21 to 35 years old for the young group and 36 to 50 years old for the old one. The participation in the government-sponsored integration programs still had two groups. However, the native mothers were excluded from consideration this time as the programs have been designed for the immigrant mothers only. Family income now had two categories. The cut-off point between the low income and the high income groups was \$10,000. For the education levels in the mothers and the fathers, three groups appeared to be the most reasonable classification as the high school group itself consisted of approximately one third of the mothers or fathers. These re-grouped categories were not only for the descriptive purpose, but were used for the statistical analyses on the group differences on parenting styles and children's literacy and on the prediction of children's literacy as well.

On the other hand, the mother type in terms of the immigration status remained intact as it is already a dichotomous variable. The other four maternal and familial demographic variables: the status of biological mother, mother's birthplace, the ROC citizenship, and major child caregiver, were not re-classified as they are either unanimous or highly skewed to certain values. These four variables were not considered anymore in the subsequent statistical analysis.

Table 7

The Descriptive Statistics for the Re-Grouped Demographic Variables

Maternal and familial demographic variables	<i>n</i>	Percentage
Mother age		
21 – 35	64	53.3%
36 – 50	56	46.7%
Attended governmental classes		
No	21	51.2%
Yes	20	41.8%
Income (US Dollar)		
≤ 10,000	56	46.7%
> 10,000	64	53.3%
Mother education		
Junior high school and below	39	32.5%
Senior high school	41	34.2%
2-year college and above	40	33.3%
Father education		
Junior high school and below	40	33.4%
Senior high school	41	34.2%
2-year college and above	39	32.5%

Similarly, Table 8 displays the descriptive statistics for the three demographic variables on children: gender, age, and grade. Among the three variables, gender and grade are categorical, whereas age is treated as an interval data. The table indicates that the sample had somewhat more boys than girls. But the gender imbalance was not serious. On grade, 90% of the children were in the first grade. Of the remaining 12 children in kindergarten or the second grade, eight were in the immigrant group. Because participants from immigrant families are difficult to recruit and the size for the immigration group was relatively small, these 12 children including the four students in the kindergarten in the native group were included in the final sample. Additionally, as the categories of ‘Kindergarten’ and ‘Grade 2’

did not have sufficiently large sizes to be independent, all of the children were considered as a unified group. Thus, the variances on grade were not taken into account in the present study.

It is expected that the influences of grade on the prediction of children’s literacy may be supplemented by the next demographic variable on child: the chronological age for two reasons. First of all, the interval age is more precise than the categorical grade. Secondly, age and grade are highly correlated in young children. Table 8 shows that the mean child age in the entire sample was 7 years and 5 months with a standard deviation about 6 months. The immigrant group appeared to be slightly higher than the native group. However, further examination indicated no differences on age between the two groups:  $t(118) = .74, p > .05$ .

*Table 8*

The Descriptive Statistics of the Demographic Variables in Child

Child variables	<i>n</i>	Percentage	<i>M(SD)</i>
Gender			
Boy	67	56%	
Girl	53	44%	
Grade			
Kindergarten	8	6.7%	
Grade one	108	90.0%	
Grade two	4	3.3%	
Age			
Total	120		7.29(.54)
Immigrant	41		7.34(.60)
Native	79		7.27(.51)

In summary, for the three demographic variables in children, only gender and age were retained for the later regression analysis. For the three familial variables, father’s education and family income were re-grouped and used in the subsequent analyses. For the seven demographic variables in mothers, three were presented for descriptive purposes only: the

status of biological mother, ROC citizenship, and the mother's birthplace. For the other four variables, mother type remained the same as the originally designed as a dichotomous variable. Mother's age and mother's education were re-classified and used in the statistical analyses on the group differences and the predictions. For the variable of participation in integration programs, as it was only applicable to the immigrant group, it served as a grouping variable on investigation of the differences on maternal parenting styles between the participating and non-participating groups in the training program. However, it was not included in the regression analysis on children's literacy.

The above descriptive statistics are primarily for the entire sample. As the sample consisted of two distinct groups, it was necessary to examine the similarities or differences between the immigrant and native groups. Table 9 further displays the frequency and percentage for each of the categories on each demographic variable by mother type. The chi-square test clearly shows that the two groups were similar to each other on gender composition of the children involved in the study:  $\chi^2(1)=.002, p > .05$ . However, on the other four demographic variables, the two groups were significantly different from each other at the .001 level. The mothers in the immigrant group were younger than their counterparts in the native group:  $\chi^2(1)=25.68, p < .001$ . Both the mothers and fathers in the immigrant group appeared to have lower levels of education than the native parents:  $\chi^2(2)=72.66, p < .001$  on mother education, and  $\chi^2(2)=47.10, p < .001$  on father education, respectively. Finally, the immigrant families in the sample were poorer than the native families:  $\chi^2(1)=20.96, p < .001$ .

In conclusion, the descriptive statistics of the demographic variables for the children, the mothers, and the families in the sample reveal that the children in the immigrant and native groups were similar to each other on age and gender. However, the parents or families in the



two groups were quite different from each other. The immigrant group appeared to have younger mothers, less-educated parents, and poorer families than the native counterpart.

*Table 9*

The Descriptive Statistics of the Demographic Variables by Mother Type

	<i>n</i>	Percentage
Mother type by child gender ( $\chi^2(1)=.002, p>.05$ )		
Immigrant		
Boy	23	56.1%
Girl	18	43.9%
Native		
Boy	44	55.7%
Girl	35	44.3%
Mother type by mother age ( $\chi^2(1)=25.68, p < .001$ )		
Immigrant		
21 – 35	35	85.4%
36 – 50	6	14.6%
Native		
21 – 35	29	36.7%
36 – 50	50	63.3%
Mother type by mother education ( $\chi^2(2)=72.66, p < .001$ )		
Immigrant		
Junior high school and below	34	82.9%
Senior high school	5	12.2%
2-year college and above	2	4.9%
Native		
Junior high school and below	5	6.3%
Senior high school	36	45.6%
2-year college and above	38	48.1%
Mother type by father education ( $\chi^2(2)=47.10, p < .001$ )		
Immigrant		
Junior high school and below	30	73.2%
Senior high school	8	19.5%
2-year college and above	3	7.3%
Native		
Junior high school and below	10	12.7%
Senior high school	33	41.8%
2-year college and above	36	45.6%

(table continues)

Table 10 (continued)

	n	Percentage
Mother type by family income ( $\chi^2(1)=20.96, p < .001$ )		
Immigrant		
$\leq 10,000$	31	75.6%
$> 10,000$	10	24.4%
Native		
$\leq 10,000$	25	31.6%
$> 10,000$	34	68.4%

### The Assessments of Psychometric Properties of the Instruments

Prior to the formal data analyses, the psychometric properties of the questionnaire and measurement instruments used in the present study needed to be assessed. More specifically, the internal consistency reliability coefficients in Cronbach alpha were first examined. In determining the quality of data collected from the current sample on the four standardized measurement tools, this study, like many other educational research studies, used Nunnally's (1978) rules of thumb for the internal consistency reliability: .70 as the minimum threshold criterion for acceptable, .80 for satisfactory, and .90 and above for adequate.

Then, this study also explored the inter-factor correlations on the same scale such as the three parenting styles on the PSDQ or the inter-scale correlations on the same construct such as the correlations among the PPVT-R, CPAT, and ELSP. The correlation coefficients could reveal some evidences of convergent and discriminant validity. Ideally, the correlation coefficients for the factors or scales on the same concept are in the range of .30 to .70 as these moderate-to- high coefficients demonstrate both convergent and discriminate validity.

Due to the structure of the literacy tests and the children's abilities, some data was not available in a complete form. For the CPAT, for instance, due to the young students' limited phonological skills in writing, the entire scales were not administered to the participants; only

the selected items were used in the study. Hence, the internal consistency reliability could not be assessed for these three measurement instruments on children's literacy. Nevertheless, the inter-scale correlation is performed to evaluate if these three instruments can be combined to derive a higher order construct of children's literacy.

On the PSDQ administered to the mothers, item-level data were available for each participant. Thus, the internal consistency reliability in Cronbach alpha could be evaluated. After re-coding the three negatively worded items on the PSDQ for the permissive parenting subscale, the reliability coefficients for the three subscales were found to be .93, .66, and .62, respectively, as shown in Table 10. Obviously, the alpha coefficients for the authoritarian parenting and permissive parenting subscales were below the acceptable threshold.

However, it was found that the reliability coefficient could be improved if certain items were excluded. These items may not have been culturally sensitive to the Chinese participants in Taiwan. Hence, they were removed from the reliability analysis, one at a time. Every time, the least contributing item was excluded. The process ended when the reliability coefficient would be negatively impacted if any further items were removed. Following these guidelines, six items on the authoritative parenting subscale were excluded, in the sequence of items 60, 16, 3, 18, 46, and 35. The reliability increased slightly from .928 to .934. Similarly, eight items on the authoritarian parenting subscale were removed in the order of items 40, 17, 26, 44, 47, 50, 19, and 13. The alpha coefficient on the 12-item subscale now was .78, almost close to the threshold for 'Satisfactory'. In the same way, the permissive subscale was reduced to 10 items after items 8, 52, 34, 38, and 20 were sequentially excluded. The reliability coefficient in alpha on the permissive parenting subscale was now .72, above the minimum threshold .70 for 'Acceptable'. The reduced version of the PSDQ is used in the subsequent statistical analyses.

Table 11

The Internal Consistency Reliability in Cronbach Alpha on the PSDQ

Subscales	Number of items	Cronbach alpha
PSDQ – Original (n=120)		
Authoritative	27	.928
Authoritarian	20	.66
Permissive	15	.62
PSDQ – Reduced (n=120)		
Authoritative	21	.934
Authoritarian	12	.78
Permissive	10	.72

The next two tables display the inter-factor correlations among the three subscales on the PSDQ, first in the entire sample, then in the two separate groups. Table 11 indicates that, in the current sample, authoritative parenting significantly correlates with both authoritarian and permissive parenting in a negative way at least at the .01 level. On the other hand, authoritarian parenting positively correlates with permissive parenting at the .001 level. All of these coefficients are in the desired directions. The magnitudes of the associations range from low medium at -.24 to high medium at .49. However, although these coefficients are statistically significant at the .01 level and above, the shared variance at the maximum of 24% is much smaller than the least separate variances at 76%. Thus, the discriminant validity is more evidenced than the convergent validity on the PSDQ in this sample. In other words, the three subscales on the PSDQ should be better treated separately.

Table 12

The Inter-Factor Correlations on the PSDQ in the Entire Sample

	Authoritative	Authoritarian	Permissive
Authoritative	—		
Authoritarian	-.24**	—	
Permissive	-.37***	.49***	—

Note. \*\*  $p < .01$ , \*\*\*  $p < .001$

Table 12 shows that the correlations among the three subscales on the PSDQ in the immigrant group are much greater than the corresponding ones in the native group. The construct validity as reflected in factorial correlations appears to be more supported in the immigrant group. The three subscales may be possibly aggregated to derive a global score for parenting styles for the immigrant group. However, the native group does not support such an attempt at all as authoritative parenting does not relate to authoritarian and permissive parenting styles. Thus, the three parenting styles are treated as separate constructs in the present study, although they show some evidences of convergence in the entire sample.

Table 13

The Inter-Factor Correlations on the PSDQ in the Two Subsamples

	Authoritative	Authoritarian	Permissive
Authoritative	—	-.55*** <sup>a</sup>	-.49*** <sup>a</sup>
Authoritarian	-.01 <sup>b</sup>	—	.57* <sup>a</sup>
Permissive	-.22 <sup>b</sup>	.43*** <sup>b</sup>	—

Note. \*\*\*  $p < .001$ ; *a* = the immigrant sample,  $n = 41$ ; *b* = the native sample,  $n = 79$ .

For the three measurement instruments on children’s literacy, the reliability could not be assessed due to the unavailability of the item-level data. However, the inter-item correlations for the selected items on the ELSP and CPAT are displayed in Tables 13 and 14. For the PPVT-R, as only the total standard score was recorded, even the inter-item correlations could not be calculated. Table 13 clearly demonstrates that children’s literacy levels on reading, concept of print, and writing from the teacher’s perspective are highly correlated in both samples. Hence, it is reasonable to sum teacher’s rating on the three domains of literacy into a grand teacher-rated ELSP total.

*Table 14*

The Inter-Item Correlations on the ELSP in the Two Subsamples

	Reading	Concept of print	Writing
Reading	–	.64*** <sup>a</sup>	.83*** <sup>a</sup>
Concept of print	.68*** <sup>b</sup>	–	.62*** <sup>a</sup>
Writing	.78*** <sup>b</sup>	.62*** <sup>b</sup>	–

Note: \*\*\*  $p < .001$ ; *a* = the immigrant sample,  $n = 41$ ; *b* = the native sample,  $n = 79$ .

Three items on the CPAT are selected in the present study. The item correlations in the two subsamples are mostly in the medium range, ranging from .29 to .74. Five out of the six coefficients are significant at least at the .01 level. The sixth coefficient of .29 for the correlation between item 2 and item 7 in the immigrant group is also close to the threshold value at the .05 level. Thus, it appears the three items on the CPAT can be summed as they are significantly correlated to each other with a moderate or high coefficient.

Table 15

The Inter-Item Correlations on the Phonology in the Two Subsamples

	Phonology 2	Phonology 3	Phonology 7
Phonology 2	–	.52*** <sup>a</sup>	.29 <sup>a</sup>
Phonology 3	.44*** <sup>b</sup>	–	.66*** <sup>a</sup>
Phonology 7	.32** <sup>b</sup>	.74*** <sup>b</sup>	–

Note. \*\*  $p < .01$ , \*\*\*  $p < .001$ , *a* = the immigrant sample,  $n = 41$ ; *b* = the native sample,  $n = 79$ .

Finally, the correlations among the three measurement instruments on children's literacy were examined and displayed in Table 15 below. Surprisingly, the scores from the three scales were generally not significantly correlated to one another in the two samples. The only significant correlation was that between the teacher-rated ELSP total and the phonology total in the immigrant group at the .01 level. On one hand, these results indicate that these scales or tests on children's literacy do not strongly support one another on construct validity. On the other hand, the weak or insignificant correlations suggest that the three scores on children's literacy should not be combined or aggregated. Instead, they should be separated from one another as they have very small shared variances. Hence, in the subsequent analyses, the three scores from three assessment tools on children's literacy were treated separately as different dependent variables.

Table 16

The Inter-Scale Correlations among ELSP, PPVT-R, and CPAT

	ELSP	PPVT-R	CPAT
ELSP	–	-.05 <sup>a</sup>	.43** <sup>a</sup>
PPVT-R	.13 <sup>b</sup>	–	.09 <sup>a</sup>
CPAT	.13 <sup>b</sup>	.08 <sup>b</sup>	–

Note. \*\*  $p < .01$ ; *a* = the immigrant sample,  $n = 41$ ; *b* = the native sample,  $n = 79$ .

ELSP = *Emergent Literacy Scale for Preschoolers* for teacher-rated literacy skills

PPVT-R = *Peabody Picture Vocabulary Test – Revised* for receptive vocabulary skills

CPAT = *Chinese Phonological Awareness Test* for phonological awareness

### The Group Differences on Parenting Styles

The first two research questions in the present study were designed to examine the group differences on parenting styles between the immigrant mothers and the native counterparts, and between the immigrant mothers who participated in the government-sponsored intervention programs and those who did not participate in training at all. As the three parenting styles from the PSDQ could not be aggregated and they had to be treated separately as explained earlier, these two research questions were refined as follows:

*Research Question 1:* To what extent, does a mother's immigration status relate to her parenting styles?

- a. Q1a: To what extent, does a mother's immigration status relate to her authoritative parenting styles?
- b. Q1b: To what extent, does a mother's immigration status relate to her authoritarian parenting styles?
- c. Q1c: To what extent, does a mother's immigration status relate to her permissive



parenting styles?

*Research Question 2:* To what extent, does a new immigrant mother's participation in the governmental integration program relate to her parenting styles?

- a. Q2a: To what extent, does a new immigrant mother's participation in the governmental integration program relate to her authoritative parenting styles?
- b. Q2b: To what extent, does a new immigrant mother's participation in the governmental integration program relate to her authoritarian parenting styles?
- c. Q2c: To what extent, does a new immigrant mother's participation in the governmental integration program relate to her permissive parenting styles?

The above six finely-tuned questions were explored by independent *t*-tests. The three parenting styles were the dependent variables. Mother type was the grouping variable for Research Question 1, and participation in the intervention programs was the grouping variable for Research Question 2. In presenting the results on the group differences for Research Questions 1 – 6, both statistical and practical significances were reported. For statistical significance, the conventional .05 level is used. For practical significance on the mean-type group difference, Cohen's *d* is calculated. Furthermore, Cohen's rules of thumb were followed to determine the magnitude of a practical significance: .20 as the minimum threshold for a small effect size, .50 for medium, and .80 for a large practical significance (Cohen, 1988).

However, before conducting the *t*-test, the three statistical assumptions for a *t*-test needed to be first evaluated: (a) independent and random sampling from the defined populations, (b) normal distribution of the dependent variable, and (c) homogeneity of variance (Hinkle, Wiersma, & Jurs, 2003). As this study used a convenient sample, the first assumption was not met. Nevertheless, Glass, Peckham, and Sanders (1972) stated that the effect of the violation to this assumption on the Type I error rate is minimal. For the second

assumption on normal distribution, Table D.1 in Appendix D shows that it is mildly violated on authoritarian and permissive parenting styles. However, a *t*-test or an ANOVA is robust to the violation of this assumption, especially with a large sample size (Maxwell & Delaney, 2004). For the last assumption, the Levene's test was used to judge the homogeneity of variances. If the assumption on the homogeneity of variances is violated, the adjusted degree of freedom is used. In short, the *t*-tests were performed anyway even though the first two assumptions were violated. However, the adjusted degree of freedom is reported if third assumption is violated.

The means and standard deviations on the three parenting styles in the immigrant and native groups and the statistical examinations of the group differences between the two groups are displayed in Table 16. The table shows that the immigrant group was significantly lower on authoritative parenting style and higher on permissive parenting styles at the .01 level:  $t(118) = -2.66, p < .01$  for authoritative parenting; and  $t(118) = 2.87, p < .01$  for permissive parenting. However, the two groups were not different from each other on authoritarian parenting style:  $t(118) = .80, p > .05$ . The practical significances on the three comparisons were -.05, .01, and .05 for authoritative, authoritarian, and permissive parenting styles, respectively. All are less than the minimum threshold for a small effect size, .20. In summary, the immigrant mothers appeared to be more permissive and less authoritative toward their children than the native mothers at the .01 level statistically. However, the practical significances of these differences were trivial. Thus, the null hypothesis between the immigrant and native mothers on the three parenting styles were partially supported statistically and fully supported practically.

Table 16 also presents the means and standard deviations and the results of the *t*-tests on the three parenting styles between the mothers who participated in the government-sponsored intervention programs and those who did not attend such training at all in the immigrant

group. The results show that the participants were not different from the nonparticipants on the three parenting styles:  $t(39) = -.99, p >.05$  on authoritative parenting;  $t(39) = -.05, p >.05$  on authoritarian; and  $t(39) = .50, p >.05$  on permissive. The practical significances of these differences were trivial as well. In short, the null hypotheses on the three parenting styles between the participants and nonparticipants were fully supported.

Table 17

The Group Difference on Parenting Styles

Demographic variables	Authoritative <i>M(SD)</i>	Authoritarian <i>M(SD)</i>	Permissive <i>M(SD)</i>
Family Type ( <i>N</i> = 120)			
Immigrant ( <i>n</i> = 41)	3.45(.72)	2.02(.55)	2.49(.65)
Native ( <i>n</i> = 79)	3.81(.68)	1.94(.44)	2.19(.48)
	$t(118) = -2.66,$ $p <.01, d = -.05$	$t(118) = .80,$ $p >.05, d = .01$	$t(118) = 2.87,$ $p <.01, d = .05$
Government training ( <i>N</i> = 41)			
Yes ( <i>n</i> = 21)	3.34(.81)	2.01(.62)	2.54(.74)
No ( <i>n</i> = 20)	3.56(.62)	2.02(.48)	2.44(.56)
	$t(39) = -.99,$ $p >.05, d = -.05$	$t(39) = -.05,$ $p >.05, d = -.003$	$t(39) = .50,$ $p >.05, d = .03$

The Group Differences on Children’s Literacy

The next four research questions in the present study focus on the group differences on children’s early literacy on four important maternal and familial variables: mother type for Research Question 3, training participation for Research Question 4, family income for Research Question 5, and mother education for Research Question 6. These four variables are the grouping variables, and the scores of children’s literacy on the ELSP, PPVT-R, and CPAT are the dependent variables. Again, as the three scores on children’s literacy have to be

treated separately due to their weak or insignificant correlations, Research Questions 3 – 6 are further refined:

*Research Question 3:* To what extent, does a mother’s immigration status relate to her child’s early literacy?

- a. Q3a: To what extent, does a mother’s immigration status relate to her child’s early literacy on reading, concept of printing, and writing as reflected on the teacher-rated ELSP?
- b. Q3b: To what extent, does a mother’s immigration status relate to her child’s early literacy on receptive vocabulary as reflected on the PPVT-R?
- c. Q3c: To what extent, does a mother’s immigration status relate to her child’s early literacy on phonological awareness as reflected on the CPAT?

*Research Question 4:* To what extent, does a new immigrant mother’s participation in a government-sponsored integration program relate to her child’s early literacy?

- a. Q4a: To what extent, does a new immigrant mother’s participation in a government-sponsored integration program relate to her child’s early literacy on reading, concept of printing, and writing as reflected on the teacher-rated ELSP?
- b. Q4b: To what extent, does a new immigrant mother’s participation in a government-sponsored integration program relate to her child’s early literacy on receptive vocabulary as reflected on the PPVT-R?
- c. Q4c: To what extent, does a new immigrant mother’s participation in a government-sponsored integration program relate to her child’s early literacy on phonological awareness as reflected on the CPAT?

*Research Question 5:* To what extent, does family income relate to child’s early literacy?

- a. Q5a: To what extent, does family income relate to child’s early literacy on reading, concept of printing, and writing as reflected on the teacher-rated ELSP?

- b. Q5b: To what extent, does family income relate to child's early literacy on receptive vocabulary as reflected on the PPVT-R?
- c. Q5c: To what extent, does family income relate to child's early literacy on phonological awareness as reflected on the CPAT?

*Research Question 6:* To what extent, does mother's educational level relate to child's early literacy levels?

- a. Q6a: To what extent, does mother's educational level relate to child's early literacy on reading, concept of printing, and writing as reflected on the teacher-rated ELSP?
- b. Q6b: To what extent, does mother's educational level relate to child's early literacy on receptive vocabulary as reflected on the PPVT-R?
- c. Q6c: To what extent, does mother's educational level relate to child's early literacy on phonological awareness as reflected on the CPAT?

Questions 3 – 5 were explored by independent *t*-tests as the grouping variables has only two categories. Question 6 was examined by one-way ANOVAs as maternal education has three categories. For the one-way ANOVAs, if there is an ominous significance, the Bonferroni test is used for the post-hoc tests as it maintains the familywise error rate.

Table D.2 in Appendix D displays the results of the standard Z scores of skewness and kurtosis for the three literacy scores in the four statistical tests. It indicates that the normal distribution assumption is generally met. Again, the adjusted degree of freedom is used if the homogeneity of variances assumption is violated.

Table 17 presents the results of the independent *t*-tests on Research Questions 3, 4, and 5. The results for the one-way ANOVAs on mother education are displayed separately in Table 19. Table 17 indicates, in relation to Research Question 3 and group differences on children's literacy between immigrant and native groups, that children in the immigrant groups are significantly lower than the counterparts from the native families on receptive vocabulary and

phonology:  $t(103) = -3.86, p < .001$  on the PPVT-R for receptive vocabulary; and  $t(61) = -2.58, p < .05$  on the CPAT for phonological awareness. The immigrant group is also most significantly lower than the native group at the .05 level on the ELSP for the overall literacy ability rated by the classroom teachers:  $t(66) = -1.78, p = .057$ . Nevertheless, the effect sizes of these three group differences were all below the threshold of .20 for a small practical significance. Hence, the null hypotheses between the two groups were rejected statistically at the .06 level for the teacher-rated ELSP total score, at the .001 level for receptive vocabulary on the PPVT-R, and at the .05 level for phonological awareness on the CPAT. But the magnitudes of these differences were not large enough to have practical meaning. In short, children from the immigrant families appeared to be mildly lower than their peers from native families on literacy.

Research Question 4 focuses on the influences of participation in the government intervention programs on children's literacy, specifically examining the group differences on children's literacy between the participation and non-participation groups of immigrant mothers. Table 17 shows that the two groups are not at all different from each other on all three literacy measurement instruments:  $t(39) = -.41, p > .05$  on the total teacher-rated ELSP score;  $t(39) = -.76, p > .05$  for the total PPVT-R score; and  $t(32) = .85, p > .05$  for the total phonological awareness scores on the CPAT. The effect sizes in Cohen's  $d$  demonstrate that these differences are inconsequential, supporting the null hypotheses: Immigrant mothers' participation in intervention programs appears not to relate to their children's literacy.

For Research Question 5, regarding the influence of family income on children's literacy, Table 17 indicates that children from high-income families are only statistically higher than the counterparts from the low income families at the .05 level on receptive vocabularies:  $t(118) = -2.38, p < .05$ . Family income does not affect the other two scores:  $t(118) = -1.80, p > .05$  on the teacher-rated ELSP score; and  $t(118) = .26, p > .05$  on phonological awareness

from the CPAT. Additionally, all of the three effect sizes for the group differences in Cohen's  $d$  are trivial, generally supporting the null hypotheses on Research Question 5.

Table 18

The Group Difference on Children's Literacy

Demographic variables	ELSP $M(SD)$	PPVT-R $M(SD)$	Phonology $M(SD)$
Family Type ( $N = 120$ )			
Immigrant ( $n = 41$ )	38.63(12.47)	106.78(11.28)	41.66(11.34)
Native ( $n = 79$ )	42.61(9.75)	116.22(15.10)	46.77(7.98)
	$t(66^a) = -1.78, p > .05, d = -.05$	$t(103^a) = -3.86, p < .001, d = -.13$	$t(61^a) = -2.58, p < .05, d = -.07$
Governmental training ( $N = 41$ )			
Yes ( $n = 21$ )	37.86(12.95)	105.48(11.63)	43.14(8.66)
No ( $n = 20$ )	39.45(12.22)	108.15(11.02)	40.10(13.67)
	$t(39) = -.41, p > .05, d = -.03$	$t(39) = -.76, p > .05, d = -.05$	$t(32^a) = .85, p > .05, d = .08$
Family income ( $N = 120$ )			
$\leq \$10,000$ ( $n = 56$ )	39.36(11.43)	109.68(15.02)	45.27(9.66)
$> \$10,000$ ( $n = 64$ )	42.91(10.16)	115.89(13.63)	44.81(9.50)
	$t(118) = -1.80, p > .05, d = .04$	$t(118) = -2.38, p < .05, d = .06$	$t(118) = .26, p > .05, d = -.01$

Note.  $a$  – the adjusted degree of freedom is used as the assumption of homogeneity variances is violated.

ELSP = *Emergent Literacy Scale for Preschoolers*,

PPVT-R = *Peabody Picture Vocabulary Test – Revised*,

CPAT = *Chinese Phonological Awareness Test*.

The last question on the group differences focused on the influence of mother's educational level on child's literacy. As there were three categories for maternal education, the group differences were examined in one-way ANOVAs. The post-hoc tests were further performed in the Bonferroni test. Furthermore, the practical significances in eta square ( $\eta^2$ ) were reported. In determining the magnitudes of the practical significances, Cohen's guidelines for the ANOVAs were followed: 1% as the minimum threshold for a small effect size, 9% for a medium effect size, and 25% as the threshold for a large effect size.

Table 18 first displays the means and standard deviations in the three groups on mother's education on the three literacy scores. The group differences on these literacy scores among the three groups were further examined in three one-way ANOVAs. The results are presented in Table 19. The table shows that children's literacy skills on the teacher-rated ELSP were significantly related to their mothers' education levels:  $F(2, 117) = 4.06, p < .01$ . The practical significance of the differences was 7%. In other words, 7% of the variances on the teacher-rated ELSP score can be explained by mother education. The post-hoc Bonferroni test reveals that children with mothers at the high school level were significantly higher than the counterparts with mother at the lower education levels. However, children with mothers graduated from higher education were not higher than the other two groups at the .05 level.

Similarly, a mother's education level related to her child's literacy level on receptive vocabularies as measured by the PPVT-R:  $F(2, 117) = 4.06, p < .001$ . Moreover, mother education accounts for 20% of the variances on the PPVT-R score, a medium effect size. The Bonferroni test demonstrated that the children from the mothers at the higher education level scored significantly higher than the peers in another two groups at the .01 level.

Finally, the three groups of children with mothers at three different education levels did not differ from one another on phonological awareness as measured by the CPAT:  $F(2, 117) = 1.58, p > .05$ . Additionally, the effect size of the maternal education level on child's



phonological awareness was small. Mother education accounted for only 2% of the variances on children’s phonological awareness. In summary, the null hypothesis for Research Question 6 was supported on children’s phonological awareness, and partially rejected on the teacher-rated literacy skills and receptive vocabulary.

*Table 19*

The Means and S.D. on Children’s Literacy by Mother Education

Mother education	Children’s literacy		
	ELSP <i>M(SD)</i>	PPVT-R <i>M(SD)</i>	Phonology <i>M(SD)</i>
Junior high school and below ( <i>n</i> =39)	37.30(12.55)	105.54(11.48)	42.92(.10.58)
Senior high school ( <i>n</i> =41)	43.56(8.43)	112.00(10.92)	46.63(8.60)
2-year college and higher ( <i>n</i> =40)	42.73(10.53)	121.27(16.44)	45.43(9.23)

*Note.* ELSP = Emergent Literacy Scale for Preschoolers for teacher-rated literacy skills  
 PPVT-R = Peabody Picture Vocabulary Test – Revised for receptive vocabulary skills  
 CPAT = Chinese Phonological Awareness Test for phonological awareness

Table 20

The Group Difference on Children’s Literacy by Mother Education

	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>p</i>	$\eta^2$
<b>ELSP</b>						
Mother education	912.12	2	456.06	4.06	<.01	.07
Error	13152.38	117	112.41			
Total	14064.50	119				
<b>PPVT-R</b>						
Mother education	4951.32	2	2475.66	14.26	<.001	.20
Error	20317.67	117	173.66			
Total	25268.99	119				
<b>CPAT</b>						
Mother education	284.87	2	142.43	1.58	>.05	.03
Error	10532.06	117	90.02			
Total	10816.93	119				

*Note.* *ELSP* = *Emergent Literacy Scale for Preschoolers for teacher-rated literacy skills*  
*PPVT-R* = *Peabody Picture Vocabulary Test – Revised for receptive vocabulary skills*  
*CPAT* = *Chinese Phonological Awareness Test for phonological awareness*

### The Relationship between Maternal Parenting Styles and Children’s Literacy

Research Questions 7 – 9 concentrated on the relationships between maternal parenting styles and children’s literacy in the first grade. As both parenting styles and children’s literacy were treated as interval data, the relationships were examined by Pearson’s product-moment bi-variate correlations. Moreover, as children’s literacy was evaluated on three different measurement instruments targeting on different domains of the early literacy, the three research questions were further refined. It should be noted that the 12 children in kindergarten and Grade 2 were excluded from considerations for these three questions:

*Question 7:* To what extent, does maternal authoritative parenting style relate to first graders’ early literacy?

- a. Q7a: To what extent, does maternal authoritative parenting style relate to first graders' early literacy on reading, concept of printing, and writing as reflected on the teacher-rated ELSP?
- b. Q7b: To what extent, does maternal authoritative parenting style relate to first graders' early literacy on receptive vocabulary as reflected on the PPVT-R?
- c. Q7c: To what extent, does maternal authoritative parenting style relate to first graders' early literacy on phonological awareness as reflected on the CPAT?

*Question 8:* To what extent, does maternal authoritarian parenting style relate to first graders' early literacy?

- a. Q8a: To what extent, does maternal authoritarian parenting style relate to first graders' early literacy on reading, concept of printing, and writing as reflected on the teacher-rated ELSP?
- b. Q8b: To what extent, does maternal authoritarian parenting style relate to first graders' early literacy on receptive vocabulary as reflected on the PPVT-R?
- c. Q8c: To what extent, does maternal authoritarian parenting style relate to first graders' early literacy on phonological awareness as reflected on the CPAT?

*Question 9:* To what extent, does maternal permissive parenting style relate to first graders' early literacy?

- a. Q9a: To what extent, does maternal permissive parenting style relate to first graders' early literacy on reading, concept of printing, and writing as reflected on the teacher-rated ELSP?
- b. Q9b: To what extent, does maternal permissive parenting style relate to first graders' early literacy on receptive vocabulary as reflected on the PPVT-R?
- c. Q9c: To what extent, does maternal permissive parenting style relate to first graders' early literacy on phonological awareness as reflected on the CPAT?

early literacy on phonological awareness as reflected on the CPAT?

Table 20 displays the correlation coefficients in Pearson  $r$  between the maternal parenting styles and the three literacy scores, first in the entire sample, and after in the two sub-samples. Nearly all of the correlations were insignificant at the .05 level. The only exception was the one between authoritative parenting and the receptive vocabulary on the PPVT-R in the entire sample:  $r(108) = .23, p < .05$ . However, this significant correlation had a small practical significance. Only about 5% of the variances on children's receptive vocabulary could be explained by maternal authoritative parenting. Hence, the no relationship hypothesis for Research Questions 7 – 9 is generally supported in this study.

*Table 21*

Correlations between Maternal Parenting Styles and Children's Literacy

	ELSP	PPVT-R	CPAT
The entire sample ( $N = 108$ )			
Authoritative	-.06	.23*	-.03
Authoritarian	.07	.07	-.15
Permissive	-.13	-.12	.01
The immigrant sample ( $n = 33$ )			
Authoritative	.05	.11	.04
Authoritarian	-.12	.31	-.27
Permissive	-.23	.06	.03
The native sample ( $n = 75$ )			
Authoritative	-.16	.21	-.12
Authoritarian	.17	-.00	-.07
Permissive	-.04	-.09	.09

Note. \*  $p < .05$ .

*ELSP = Emergent Literacy Scale for Preschoolers for teacher-rated literacy skills*

*PPVT-R = Peabody Picture Vocabulary Test – Revised for receptive vocabulary skills*

*CPAT = Chinese Phonological Awareness Test for phonological awareness*

## The Prediction on Children's Literacy

The last research question attempted to predict children's literacy with some demographic variables and maternal parenting styles. This goal was realized through the linear regression analysis technique. The dependent or criterion variables were the three scores on children's literacy. The independent or predictor variables were children's gender and age, mother's age, education, type in terms of the immigration status, father's education, family income, and the parenting styles. Six demographic variables in the original design were excluded from the regression analysis: child grade, status of biological mother, major child caregiver, mother's birthplace, mother's ROC citizenship, and mother's participation in the intervention programs. These variables either had a single data value or had insufficient sizes in certain categories even after re-grouping.

For the ten predictor variables, child age and the three parenting styles were interval data, whereas the other six variables were categorical variables. These categorical predictors were converted to interval variables by criterion coding (Schumacker & Williams, 1993). In other words, the dependent variable mean of each group of a categorical predictor was used to replace the original nominal value. This criterion-coding technique allowed "the use of a single vector to represent all categories of the nominal independent variable (instead of multiple dummy coded variables and the simultaneous use of such vectors with other criterion coded variables in the same regression analysis" (Henson & Hwang, 2002, p. 717). As shown in Table D.3 in Appendix D, separate criterion-coded values on the predictors were used for each of the three regression analyses on children's literacy. These means in Table B.3 were not only used for criterion coding, but they were referenced for interpretation of the significant predictor variables as well.

However, there are several competitive approaches for the linear regression analysis. Hair et al. (2009) stated that backward regression is often used to search for the best model to

maximize the prediction in the case of lack of strong theories. Hence, backward regression was employed in the present study as no substantial work suggests a particular model to predict children's literacy. Backward regression starts with a regression including all the predictor variables. It then deletes the most insignificant independent variable, one at a time, until the maximum prediction in terms of the largest  $F$  value with fewest predictors is reached. Backward regression has the advantage of maximizing the prediction with a minimum subset of salient predictor variables. However, the eliminated predictors cannot be back to the prediction equation anymore. Thus, Hair et al. stated that backward regression is better used if there is no multicollinearity among the predictors as multicollinearity could lead to a suppression effect. Hence, the degree of multicollinearity among the predictor variables has to be assessed first.

Multicollinearity is examined through correlations among the predictor variables as shown in Tables B.4 – B.6. These correlation coefficients in most of the cases were not high. Multicollinearity is further assessed precisely by using the variance inflation factor (VIF), the inverse of the tolerance value which is the amount of the variability not explained by other independent variables. Hair et al. (2009) recommended using 10 as the maximum threshold for the VIF value. But the threshold values of the VIFs are usually smaller for regression models with small samples. For the present study, the more restrictive VIF value of 1.96, equivalent to a tolerance of .51 or a multiple correlation coefficient of .70, was used. The calculated VIF values for each predictor on the three regression models are displayed in Table 21. None of these values exceeded the threshold. Thus, multicollinearity is not a threat to the three regression analyses.

Additionally, there are four fundamental assumptions for a linear multiple regression: (a) the linearity of relationships between the predictors and the criterion variable, (b) homoscedasticity or constant variance of the errors, (c) independence of error terms, and (d)

normality of the error terms, that is, the error terms appear to be normally distributed. The first three assumptions usually are examined through the studentized residual diagram, whereas the last one is often detected with the normal probability plot. The results of the studentized residual and normal probability plots as displayed in Figures E.1 – E.6 in Appendix E show that these assumptions were not seriously violated for the three regression analyses. Hence, the backward regression appeared to be an appropriate technique for the prediction of children's literacy.

As stated earlier, the backward regression starts with the full set of the predictors. It eliminates the least important one in each run until it has reached the maximum  $F$  value. However, for the present study, the value of the adjusted  $R^2$  was used to determine the best prediction model as it is more robust due to its adjustments to the model specification, measurement, and sampling errors. Thus, the regression equation with the largest adjusted  $R^2$  was deemed the best prediction model. Table D.7 in Appendix D shows that the best regression model for the teacher-rated ELSP score is Model 6, the best model for the receptive vocabulary as reflected on the PPVT-R is Model 6, and the best one for phonological awareness on the CPAT is Model 5, respectively.

In interpreting the practical significance of an adjusted multiple  $R^2$  Cohen's (1988) rule of thumb is followed: .01 as the minimum threshold for small effects, .09 for medium effects, and .25 for large effects. For the contribution of the individual predictors, the standardized regression coefficient (i.e.,  $\beta$ ) was used rather than the unweighted regression coefficient (i.e. B) due to its comparability across the predictors with different units of measure.

For the best regression model on the total score of children's literacy rated by the classroom teacher on the ELSP, the prediction is significant at the .001 level:  $F(5, 114) = 5.41$ ,  $p < .001$ ,  $R^2 = .19$ ,  $R^2_{\text{Adjusted}} = .16$ . Sixteen percent of the variance on the ELSP score could be explained by the 5 predictor variables in the equation after adjustment of the errors: child

gender, child age, mother education, maternal authoritative parenting style, and maternal permissive parenting style. Among the 5 predictor variables, child gender was the most salient, followed by child age and mother education. All of these 3 predictors were significant at the .01 level. The other 2 predictors for the parenting styles were not critical in this regression model. As girls had higher means than boys as displayed in Table B.3, the positive  $\beta$  or  $t$  value for child gender implied girls tend to have higher literacy scores on the teacher-rated ELSP. Similarly, older children or those with mothers with higher levels of education were likely to have better literacy ability than the younger ones or the counterparts with mothers with lower education levels.

The best prediction model on receptive vocabularies as reflected on the PPVT-R score also had five predictor variables: child gender, mother education, father education, family income, and authoritative parenting. These five variables collectively significantly predicted children's receptive vocabulary at the .001 level:  $F(5, 114) = 12.62, p < .001, R^2 = .36, R^2_{\text{Adjusted}} = .33$ . The prediction had a large effect size. Thirty-three percent of the variance on receptive vocabulary could be explained by the five predictor variables. Of these predictors, child gender, again, was the most important one, followed by father education, mother education, and authoritative parenting style. Family income was the only insignificant one in the equation. Thus, these results indicated that girls have better receptive vocabulary abilities than boys. And children from families with higher levels of parental education or a higher degree of maternal authoritative parenting were more likely to demonstrate higher receptive vocabulary skills as the PPVT-R than those with lower levels of parental education or lower degree of maternal authoritative parenting.

Finally, the prediction model on children's phonological awareness was also significant at the .001 level:  $F(6, 113) = 7.23, p < .001, R^2 = .28, R^2_{\text{Adjusted}} = .24$ . The six predictors altogether accounted for 24% of the total variance on the CPAT score after the error reduction.



Among the six predictor variables, child age was the most salient predictor, followed by maternal authoritarian parenting style, family income, father education, and family type. Child gender was the only one not significant. Older children tended to perform better than the younger ones on the CPAT. Children from richer families or with a higher level of father education were likely to have a higher degree of phonological awareness than their peers from poorer families or with a lower level of father education. The negative standardized coefficient for maternal authoritarian parenting style indicated that maternal authoritarian parenting negatively influenced children's phonological awareness. In other words, children from the families with a greater degree of maternal authoritarian parenting tended to show a lower level of phonological awareness on the CPAT. Finally, as the immigrant family group had a lower mean than the native family as shown in Table B.3, children with immigrant mothers were likely to be lower than counterparts from the native families on phonological awareness as measured by the CPAT.

In summary, demographic variables and maternal parenting styles can significantly predict children's literacy to a medium or a large degree. However, the significant predictor variables vary from domains of children's literacy. Child gender, mother education, and child age are the top three predictors for teacher-rated literacy skills. Child gender, father education, and mother education are the three most important predictor variables for receptive vocabulary on the PPVT-R. On prediction of children's phonological awareness, child age, maternal authoritarian parenting, and family income are the three most salient independent variables. These results altogether seem to indicate that demographic variables generally have stronger influences than maternal parenting styles. Of the three maternal parenting styles, only authoritarian parenting is found to be significant on prediction of children's phonological awareness on the presence of other five demographic variables.

Table 22

Prediction on Children's Literacy

Predictors	ELSP				PPVT-R				Phonology			
	VIF	$\beta$	<i>t</i>	<i>p</i>	VIF	$\beta$	<i>t</i>	<i>p</i>	VIF	$\beta$	<i>t</i>	<i>p</i>
Mother type	1.72	–	–	–	1.35	–	–	–	1.65	.21	2.07	.042*
Child gender	1.01	.26	3.04	.003**	1.03	.25	3.25	.002**	1.01	.12	1.48	.141
Child age	1.01	.24	2.74	.007**	1.01	–	–	–	1.02	.33	4.00	.000** *
Mother age	1.17	–	–	–	1.18	–	–	–	1.15	–	–	–
Mother education	1.74	.25	2.87	.005*	1.81	.26	2.65	.009**	1.34	–	–	–
Father education	1.36	–	–	–	1.28	.32	3.15	.002**	1.42	.26	2.23	.028*
Family income	1.32	–	–	–	1.29	-.17	-1.73	.086	1.24	.27	2.71	.008**
Authoritative	1.05	-.11	-1.17	.246	1.07	.18	2.23	.028*	1.06	–	–	–
Authoritarian	1.10	–	–	–	1.16	–	–	–	1.11	-.26	-3.03	.003**
Permissive	1.18	-.16	-1.70	.092	1.18	–	–	–	1.19	–	–	–

$F(5, 114) = 5.41, p < .001,$   
 $R^2 = .19, R^2_{Adjusted} = .16$

$F(5, 114) = 12.62, p < .001,$   
 $R^2 = .36, R^2_{Adjusted} = .33$

$F(6, 113) = 7.23, p < .001,$   
 $R^2 = .28, R^2_{Adjusted} = .24$

Note. \*  $p \leq .05$ , \*\*  $p \leq .01$ , \*\*\*  $p \leq .001$ .

## CHAPTER V

### DISCUSSION

#### Summaries and Discussions

The five specific purposes of this exploratory study are to: (a) investigate to what extent, if any immigrant mothers of first graders are similar to or different from their native counterparts on parenting styles; (b) examine to what extent, if any government-sponsored integration programs are related to maternal parenting styles in the immigrant mothers and their children's literacy development; (c) examine how children's literacy relates to maternal parenting styles; (d) determine to what extent, if any children's literacy is related to mothers' age, mothers' participation in the Taiwan integration training programs, parents' education level, or family income; and (e) determine the best predictive models of children's literacy by maternal parenting styles and demographic variables in the family. Subsequently, ten research questions have been established for the present study. Due to lack of theories and substantial works, null or no-relationship hypotheses are proposed for these research questions.

The first question on the relationship between mother's immigration status and parenting styles reveals that the immigrant mothers score lower in terms of authoritative parenting style and higher on permissive parenting style than the native mothers at the .01 level. However, these two groups are not different from each other on authoritarian parenting style. In addition, the practical significances of the group differences on the three parenting styles are very small. Thus, the null hypotheses are partially rejected. Prior research regarding Taiwanese parenting styles support the finding that Taiwanese parents, in contrast to parents from mainland China, generally present authoritative characteristics. Significant cultural differences from the Western society in which the parenting styles theory was developed have led to Chinese parents scoring higher on the authoritarian scale than European-Americans, rather than the authoritative (Chao, 1993). This impression has been reinforced by other

cross-cultural studies of Chinese parenting styles (Chen & Luster, 1999). Taiwanese mothers do not fit this general Chinese mold, however, as the majority of parents in Taiwan are classified by data as authoritative (Chen & Luster, 1999).

Research Question 2 examined the influence of government-sponsored integration training programs on maternal parenting styles in the immigrant mothers. Of the 41 immigrant mothers, approximately half of them had participated in the programs to different extents, ranging from a few months to over a year. Unfortunately, the differences on the three maternal parenting styles between the participants and non-participants are not statistically significant at the .05 level. The effect sizes for the differences between the two groups on the three parenting styles are limited. Thus, it appears that participation in the integration programs does not relate to maternal parenting styles. The null hypotheses are supported. This finding agrees with previous research on the impact of such integration attempts, which have raised questions about the programs' effectiveness. Such programs, meant to change or 'Taiwanize' immigrants, may only reinforce differentiation or create a stronger perception of otherness (Wang & Bélanger, 2008). Nevertheless, it should be noted that the present study is correlational per se. Any cause-and-effect conclusions cannot be drawn from the findings. Hence, the no-differences conclusion does not necessarily indicate the government-sponsored integration programs are ineffective on improvement of maternal parenting styles. Other factors such as the pre-existing differences may offset the effectiveness of the training programs.

The next four research questions concentrate on the relationships between the familial demographic characteristics and children's literacy. Specifically, question 3 explores the differences on children's literacy between the immigrant and native families. The result shows that children from the immigrant families are generally lower than the peers from the native families on different domains of literacy, especially on receptive vocabulary and

phonological awareness. The practical significances of these differences, however, are small. In addition, as the immigrant group is usually inferior to the native counterpart on family income and parents' education levels, the lower scores of the children in the immigrant group are not necessarily contributed to immigration status of the mothers.

Furthermore, this study found significant differences in age between the immigrant and native samples: immigrant mothers tend to be younger, with only six above the age of thirty-five, while the majority of native mothers fell into the older categorization. This difference could also influence the overall groups' parenting styles and subsequently, their children's academic abilities, as suggested by previous research which has shown that parental age is linked to methods and capabilities of child rearing. For instance, research exploring the link between parental age and resource allocation found that older mothers are more likely to provide their children with both monetary and non-monetary educational and cultural resources (Powell, Steelman, & Carini, 2006). This could also tie in socio-economic family characteristics, since the immigrant families were significantly lower in terms of SES and given that they would have fewer resources to provide, these parents would be less likely to provide pre-school education for their children. Further considerations on the impact of parental age on children's development is addressed by a study analyzing parenting disciplinary styles, which showed that younger parents display greater use of limit setting (Wade & Kendler, 2001), while another, which focused on children's behavioral problems, found that younger fathers were more likely to have children with hyperactivity (Keown & Woodward, 2002). Considering the relatively small differences between groups with regard to the children's literary abilities and the potentially significant influence of these other familial characteristics, the null hypotheses are partially supported. Because of the strong relationship between immigration status and other demographic factors, these findings are explained in more detail in the analysis of subsequent research questions.

Research Question 4 examines if participation in the integration programs of the immigrant mothers is associated with their children's performances on literacy. The findings indicate that there are no differences at all between the participation group and the non-participation group. The effect sizes of the group differences on the three literacy scores are trivial as well. Hence, it appears that mothers' participation in the integration training programs are not related to their children's literacy performances. The null hypotheses are supported. It is possible, as prior studies have suggested, that by reinforcing the differences between immigrant spouses and native Taiwanese, such assimilation programs actually hinder full integration, which could limit the impact on mothers and children alike (Wang & Bélanger, 2008). However, this finding should be interpreted with caution as this is not a well-controlled experimental study.

The next question studies if family income is associated with children's literacy. The findings from this study show that children from higher income families perform better on receptive vocabulary than their lower income peers. However, the two groups are similar to each other on the other two tests. Moreover, the effect sizes of the differences between the two groups are less than the 0.1 minimum thresholds for a small effect size. Thus, it appears that family income does not much directly relate to children's literacy. The null hypotheses are generally supported. These findings are contrary to previous research. Many studies have consistently shown family income as a significant predictor of educational attainment, and even more influential than parental occupation and education (Korenman, Miller, & Sjaastad, 1995; Smith, Brooks-Gunn, & Klebanov, 1997; White, 1982). These differences could be related to the specific measurements of educational achievement measured in this study, cross-cultural inconsistencies, or sample size and characteristics.

The last question on the group difference focuses on the relationship between children's literacy and mothers' education level. The results reveal that children with mothers graduated

from senior high school perform better than the peers with mothers of another two groups on the literacy skills rated by the classroom teachers. On receptive vocabulary as measured by the PPVT-R, children of mothers graduated from higher education make higher grades than the counterparts whose mothers have lower education levels. Furthermore, maternal education level could explain 7% and 20% of the variances on children's literacy skills on reading, concept of print, and writing as reflected on the teacher-rated ELSP and on receptive vocabulary as measured by the PPVT-R, respectively. However, there are no differences on phonological awareness among the three groups with different maternal education levels. Accordingly, the null hypotheses are only partially supported. These findings are consistent with previous research which has demonstrated a link between parental – particularly maternal - education levels and children's academic success (Davis-Kean, 2005; Klebanov, Brooks-Gunn, & Duncan, 1994; Smith, Brooks-Gunn, & Klebanov, 1997; Hortacsu, 1995). Although these studies addressed different measurements of academic ability, the general consensus that maternal education is related to childhood education is similar.

The next three questions explore the relationship between maternal parenting styles and first graders' literacy. In general, it is expected that authoritative parenting style is positively associated with children's literacy, whereas authoritarian and permissive parenting styles are related to children's literacy negatively. Nevertheless, this study found that the three maternal parenting styles typically do not relate to children's literacy, either in the entire sample or the two subsamples. The only exception is the positive correlation at the .05 level between maternal authoritative parenting style and children's receptive vocabulary in the entire sample. Thus, the no-relationship hypotheses are largely supported. These findings are somewhat surprising. Previous studies have consistently found that parenting styles are a significant predictor of childhood educational attainment, specifically showing that authoritative parenting is positively associated with academic performance while authoritarian and

permissive parenting styles are negatively associated (Baumrind, 1966, 1991a; Lamborn, Mounts, Steinberg, & Dornbusch, 1991; Spera, 2005; Cooney, 1998; Tiller, et al., 2003; Darling, 1999; Darling & Steinberg, 1993; Dornbusch, Ritter, Leiderman, Roberts, & Fraleigh, 1987). Research which has contradicted such findings among Asian communities has still found a correlation between parenting style and academic achievement, finding instead that authoritarian parenting is a positive predictor of success (Dornbusch et al., 1987). Other research which has shown that socioeconomic and demographic characteristics are more important predictors have still acknowledged the significance of parenting styles on academic ability (Tiller et al., 2003). This study's findings may be different from the larger body of research because of factors related to the instrumentation used for the measurement of parenting style and literacy, or due to differences in the participant sample's characteristics (Tiller et al., 2003). One contributing factor could be that, as previous studies have suggested, traditional concepts of good and effective parenting in Taiwan and the various Southeast Asian countries in which the immigrant mothers were born may have little relationship to the Western framework that informed the original understanding of parenting styles theory (Dornbusch et al., 1987). Using a system developed within the context of one cultural model in a society with a significantly different cultural tradition could confuse the data and lead to inconclusive findings. Furthermore, new immigrant families are often uniquely structured, founded on contracts and arranged by brokers rather than courtship or love (Nguyen Thi, 2005). Since these distinct family dynamics are not addressed by the instrumentation, they could contribute to contradictory or inconclusive results.

The final research question attempts to predict children's literacy with maternal parenting styles and some socio-demographic variables of the child, the mother, or the family. The results show that the three domains of children's literacy can be significantly predicted at the .001 level. Moreover, the practical significances of the predictions are medium or large.



Hence, the no-relationship hypotheses are rejected for Research Question 10. However, the best prediction models and the most salient predictor variables are different for different domains of children's literacy. In general, child's age and gender are the most significant predictors across the domains of children's literacy. For the three maternal parenting styles, authoritative parenting is positively related to receptive vocabulary at the .05 level in the presence of the other four predictors. Similarly, authoritarian parenting negatively associates with children's phonological awareness at the .01 level in the presence of the other five predictor variables. These results are similar to previous research, particularly of European-American samples, although with regards to a general view of academic performance rather than specific literacy skills (Baumrind, 1966, 1991a; Dornbush et al., 1987; Lamborn, Mounts, Steinberg, & Dornbusch, 1991; Spera, 2005).

The above findings are based on the scores on the four standard measurement instruments: the PSDQ, the ELSP, the PPVT-R, and the CPAT. Although these four tools have demonstrated sufficient reliability and validity evidences in other studies, the psychometric properties of an instrument vary with the test administrations in different samples. Thus, it is necessary to examine reliability and validity of the measurement instruments in the current sample.

First of all, the PSDQ does not show acceptable reliability initially. Not every item on the PSDQ appears to be reliable in the Taiwan Chinese culture, especially some items on the authoritarian and permissive scales. Thus, these unreliable items are excluded for the present study. On the factorial correlations, this study reveals that authoritative parenting is negatively associated with both authoritarian and permissive parenting styles, whereas the latter two are positive correlated. Moreover, the magnitude of the association between authoritarian and permissive is larger than that between authoritative and authoritarian or permissive. These findings are consistent with many other studies in both the Western and

Eastern cultures (Xu, 2007; Chen, Dong, & Zhou, 1997). It is also interesting to note that construct validity on the PSDQ appears to be more supported in the immigrant group than in the native group. In other words, the PSDQ appears to be more applicable to the less educated and low income immigrant mothers. This could be related to other environmental or neighborhood factors; for instance, children with wealthier or more educated parents may have more access to resources which would either mitigate or supplement parenting characteristics. This difference in the applicability of the PSDQ would be a valuable area of focus for future studies.

Second, for the three instruments on children's literacy, reliability is not assessed due to the lack of the detailed records on each item for each child on the three tests. However, the inter-factor correlation on the ELSP or the inter-item correlation on the CPAT shows that these two instruments demonstrate validity evidences in the present sample. Surprisingly, the three domains of children's literacy from the three measurement instruments are not significantly related to one another.

### Contributions

This is the first study to investigate the relationship between parenting styles and early literacy in Taiwan, in a way which addresses issues relevant to new immigrant families, native families, and schools. In a country in which so many fears have developed regarding future societal stability, particularly within the context of a dramatically changing demography, this study provides a statistical foundation to progress the conversation. It responds to general concerns that new immigrant families may be undermining the educational strength, and therefore economic future of the Taiwanese society. Furthermore, this study creates a more informed framework for ongoing political discussions regarding the government's role in acclimating immigrant families through integration programs.

This research indicates that there was no significant difference on maternal parenting

styles and children's literacy between the mothers who participated in the integration programs and those who did not attend. This finding helps the designers of integration programs to evaluate the effectiveness of existing classes. Foremost, this research suggests that however the courses are currently designed; they are not making an impact on the educational success of children of new immigrant mothers. As these mothers' acclimatization, or lack thereof, and the subsequent impact on their children has been a leading concern of politicians, pundits, and policy-makers in Taiwan, these findings are a significant milestone in the search for understanding and solutions. If these programs were to be redesigned, aiming to influence the literacy levels of these children, this research suggests that the focus should be on addressing inequalities in demographic characteristics, rather than attempting to influence or educate mothers with regards to parenting styles.

#### Limitations

There are certain limitations in this study, which will be addressed as follows. First, this research study has been done in eleven mid-sized elementary schools in cities of in Taipei, Hsinchu, Taichung, Chiayi, Tainan, and Kaohsiung. In addition, the participants in the study constitute a convenient sample, which means the research results might be biased (Rosenthal & Rosnow, 1975) and not suitable for generalizing the whole population. The review of literature suggests that there may be a generational effect on parenting styles, meaning that those new immigrant families who have been in Taiwan longer may begin to take on the cultural parenting characteristics of Taiwanese parents (Guo, 2006). However, research on this effect would be better suited to more in-depth study at a later date, and this study focused more generally on the comparison between Taiwanese and new immigrant parents. Future research could compare the parenting styles of immigrant mothers using length of residency as a variable, and comparing those findings to a native Taiwanese standard.

Second, due to the small sample size, any cause-and-effect conclusions cannot be drawn from the findings. As such, this is a correlational research to find out whether one or more variables can effectively predict any other variables, which cannot validate any causal relationships among variables (Liu, 2007).

Third, there was limited examination of the contributions of paternal characteristics or participation in the parent-child interaction (Xu, 2007). Other studies also indicated that few differences exist between mothers' and fathers' parenting styles in western society (Baumrind 1991b; Rubin et al., 1999), so this research study focused only on mothers' parenting styles.

Last, this research study has an excessive reliance on *t*-tests. Thus, the Type I error rate may be inflated as too many separate *t*-tests are conducted on this relatively small sample (Maxwell & Delaney, 2004). This shortcoming can be overcome by 2-way or 3-way ANOVAs with a large sample size in the future.

## Implications

### *Practical Implications*

The immigrant mothers are generally lower on authoritative parenting style and higher on permissive parenting style than the native counterparts as expected, although the differences are always significant. In addition, maternal authoritative parenting is typically associated with positive outcomes of children's literacy (Chen & Luster, 1999), and authoritarian and permissive parenting styles have negative impacts on children's literacy. Thus, we should help the immigrant mothers to be more authoritative and less authoritarian and permissive.

The findings of no differences on maternal parenting styles and children's literacy between the mothers who participated in the integration programs and those who did not attend indicate that we need to further determine if the integration program is effective. This can be done through focused, better-designed experimental studies. Initially, these studies

would identify the appropriate instruments to measure the programs' impact on the mothers' language and literacy abilities, and then analyze how those mothers communicate those skills to their children. If there are still no differences between participating and non-participating mothers, the training programs must be improved to make them more effective.

In this research, we can easily tell that demographic variables, especially child gender and age are better predictors than maternal parenting styles on children's early literacy levels. Reasons might be the small sample size and the translated PSDQ from English to Chinese, which cannot adequately demonstrate the psychometric properties.

### *Research Implications*

One area of focus for future research would be a comprehensive review of the language and translations provided during data collection. As prior research has shown, even instrumentation translations that achieve linguistic equivalence are not necessarily valid if they do not adequately address cultural and functional differences (Peña, 2007). Since, the PSDQ, a key instrument in this study, was translated from English to Chinese for use in Taiwan where it was administered to non-native speakers from several cultures; it may have compromised the validity of the research. This could be part of the reason why this study was at times contrary to established research in finding few significant relationships between variables. Future researchers may benefit from developing a new instrument specifically for this purpose, which would account for these cultural and linguistic differences.

Continued studies could also benefit from a more critical analysis of the type of language and literacy abilities being tested for both the students and their mothers. Specifically, future tests could address the differences between basic interpretive communicative skills (BICS) and cognitive academic language proficiency (CALP). Established research has shown that speakers of a second language develop conversational skills, or BICS, easier and more rapidly than they do with academic language skills, or

CALP (Aukerman, 2007). This can create problems for the learner when she struggles to communicate in the classroom or stops trying all together, even though she is relatively proficient in the language necessary to function in simple daily conversations (Aukerman, 2007). Such studies also demonstrate that if a student has strong academic proficiency in her first language, she will more easily develop those skills in subsequent languages (Jiang & Keuhn, 2001). This is significant for the mothers as well as their children: while the mothers may or may not have developed CALP in their native language prior to moving to Taiwan and learning Chinese, their children are often raised in linguistically split houses and may not have had an opportunity to develop those skills in either language, putting them at a disadvantage when they begin school. The results of this kind of research could inform government-provided integration programs, and the early education curriculum designed for schools with new immigrant children.

In order to collect the most accurate data possible, it would likely benefit future researchers to provide translators for each of the languages spoken by participating mothers. These assistants would be able to help the participants fully understand the questions and provide the most complete and precise answers.

The impact of cultural variations could be better understood by considering a number of additional variables, including comparisons among the immigrant mothers' various countries-of-origin, and analysis of the mothers' length of residency. Basic maternal characteristics and their influence on their children's academic success could be better understood by, as one example, specifically testing or controlling for maternal age. Future studies should also address the differences inherent to urban and rural settings. The effectiveness of government integration programs could be further studied by testing the immigrant mothers' Chinese literacy skills, as described with full consideration of CALP as opposed to BICS. Future research could compare the abilities of participating and

non-participating mothers, and examine how length of study impacts the abilities of mothers in the participating group.

Because of the link between maternal education and childhood literacy, an instrument could be found or developed which would measure how frequently and in what way the mothers interact with their children in an educational context. For example, future research could study if immigrant mothers who read to or with their children have any influence on their children's abilities. Analysis of several variables relating to the mother-child relationship could provide greater insight, including number of children, birth order, and child gender. In a country in which most women are having fewer children, new immigrant families characteristically have a much higher birth rate (Hsieh & Wang, 2005). A prior study of Canadian families showed that subsequent births have altered the manner in which parents raise their children, finding greater consistency but less positive communication (Strohschein, Gauthier, Campbell, & Kleparchuk, 2008). Further research could adapt this study for the specific context of new immigrants in Taiwan, along with a greater focus on parenting style and the implications for children's academic success.

This question leads to another regarding larger families: does birth order influence parenting style or childhood literacy? An American study found that children reported differences in parenting style based on birth order, while the parents themselves perceived no difference (Sputa & Paulson, 1995). A similar study in Japan found significant differences in perceived parenting style as related to birth order and gender: fathers expressed more rejection for male children generally, and specifically more for male children with younger siblings, and females with older siblings. Meanwhile, mothers displayed much more warmth for their female children generally, and especially for girls with younger brothers or older sisters, all of which may be related to specific Japanese cultural expectations for each gender and sibling patterns (Someya, Uehara, Kadowaki, Tang,

& Takahashi, 2000). While Western-based studies have found no difference in parenting styles between child genders (Kaufmann, Gesten, Santa Lucia, Salcedo, Rendina-Gobioff, & Gadd, 2000), the same should not necessarily be expected in Asia. Preference for sons has been a long-recognized historical pattern throughout much of Asia, at times leading to inequality, denial of healthcare, or even feticide (Purewal, 2010; Shuzhuo, Chuzhu, & Feldman, 2004). This is also the case to an extent in Taiwan, where educational expectations and attainment are often determined by gender and birth order, favoring first-born sons in a manner likely to govern resource allocation (Yu, 2006). In subsequent research, these questions should be addressed within the specific context of new immigrant families in Taiwan.

Finally, a large sample size and randomly selected samples should be used to better generalize the majority of the population.



APPENDIX A  
THE UNT IRB APPROVAL LETTER



OFFICE OF THE VICE PRESIDENT FOR RESEARCH AND ECONOMIC DEVELOPMENT  
Research Services

May 16, 2011

Hui-Fen Wang  
Department of Teacher Education and Administration  
University of North Texas

Institutional Review Board for the Protection of Human Subjects in Research (IRB)  
RE: Human Subject Application #07162

Dear Ms. Wang:

The UNT IRB has received your request to modify your study titled "Parenting Styles and Early Literacy among New Immigrant Families in Taiwan." As required by federal law and regulations governing the use of human subjects in research projects, the UNT IRB has examined the request to add the Chinese Phonological Awareness Test, the Emergent Literacy Scale for Preschoolers and a demographic survey to this study. The modifications to this study are hereby approved for the use of human subjects. **Federal Policy 45 CFR 46.109(e) stipulates that IRB approval is for one year only, September 18, 2010 to September 17, 2011.**

Enclosed is the consent document with stamped IRB approval. Please copy and use this form **only** for your study subjects.

Please contact Shelia Bourns, Research Compliance Analyst, at (940) 565-3940, or Boyd Hemdon, Director of Research Compliance, at (940) 565-3941, if you wish to make changes or need additional information.

Sincerely,

Patricia L. Kaminski, Ph.D.  
Associate Professor  
Chair  
Institutional Review Board

PK/sb

APPENDIX B  
INFORMED CONSENT FORM

## Informed Consent Form-Graduate Student Investigator and Adult Subjects

It is important that you read and understand the following explanation of the purposes and benefits of the study and how this research study will be conducted before participating in the study.

**Title of Study:** Parenting Styles and Early Literacy among New Immigrant Families in Taiwan

**Principal Investigator:** Hui-Fen Wang, a doctoral student in Early Childhood Education at the University of North Texas (UNT).

**Purpose of the Study:** First grade children in Taiwan will be asked to complete the Peabody Picture Vocabulary Test-Revised (PPVT-R) and Chinese Phonological Awareness Test (CPAT) during school time for a period of 15-20 minutes each. Their scores will be matched to the scores given to them by their teachers through the Emergent Literacy Scale for Preschoolers (ELSP), and their parents' responses on the Parenting Styles and Dimensions Questionnaire (PSDQ) and a Demographic Survey to determine the relationship, if any, between parenting styles and first grade children's literacy development.

The specific objectives of this study are to: (1) investigate if a relationship exists between a mother's immigration status and her parenting style; (2) investigate if a relationship exists between a mother's immigration status and the literacy level of 1<sup>st</sup> grade children in Taiwan; (3) investigate if a relationship exists between participation in government-sponsored integration programs and a new immigrant mother's parenting style; (4) investigate if a relationship exists between participation in government-sponsored integration programs and the literacy level of 1<sup>st</sup> grad children in Taiwan; and (5) investigate if a relationship exists between different parenting styles and the literacy level of 1<sup>st</sup> grade children in Taiwan.

**Study Procedures:** Participating parents will need to attend a 30-minute introductory meeting and spend approximately 25-30 minutes completing the PSDQ and Demographic Survey; the total time will not exceed 1 hour. Translators will be present and available for assistance throughout the process. Participating teachers will evaluate their students' abilities using the Emergent Literacy Scale for Preschoolers, requiring approximately 5-10 minutes per child.

**Foreseeable Risks:** No foreseeable risks are involved in this study.

**Benefits to the Subjects or Others:** The researcher hopes to determine if a mother's immigration status influences her parenting style, if immigration status influences first grade children's literacy levels, and if different parenting styles influence first grade children's literacy levels, while also determining if government-sponsored integration programs influence parenting styles and first grade children's literacy levels.

**Compensation for Participants:** There is no compensation for participation in this study.

**Procedures for Maintaining Confidentiality of Research Records:** All information identifying you will remain confidential. All data will be secured in a locked filing cabinet at the home office of the researcher for a period of three years. The research results will only be used

for completing the researcher's doctoral dissertation; for writing journal articles; and for presentations at scholarly conferences.

**Questions about the Study:** If you have any questions about the study, you may contact Hui-Fen Wang by telephone at [REDACTED] or the faculty advisor, Dr. George S. Morrison, UNT Department of Early Childhood Education, by telephone at [REDACTED]

**Review for the Protection of Participants:** This research study has been reviewed and approved by the UNT Institutional Review Board (IRB). The UNT IRB can be contacted at [REDACTED] with any questions regarding the rights of research subjects.

**Research Participants' Rights:** Your signature below indicates that you have read all of the above and that you confirm all of the following:

- Hui-Fen Wang has explained the study to you and answered all of your questions. You have been told the possible benefits and the potential risks and/or discomforts of the study.
- You understand that you do not have to take part in this study, and your refusal to participate or your decision to withdraw will involve no penalty or loss of rights or benefits. The study personnel may choose to stop your participation at any time.
- You understand why the study is being conducted and how it will be performed.
- You understand your rights as a research participant and you voluntarily consent to participate in this study.
- You have been told you will receive a copy of this form.

\_\_\_\_\_  
Printed Name of Participant

APPROVED BY THE UNT IRB  
FROM 9/18/10 TO 9/17/11  
JB

\_\_\_\_\_  
Signature of Participant

\_\_\_\_\_  
Date

**For the Principal Investigator:** I certify that I have reviewed the contents of this form with the participant signing above. I have explained the possible benefits and the potential risks and/or discomforts of the study. It is my opinion that the participant understood the explanation.

\_\_\_\_\_  
Signature of Principal Investigator

\_\_\_\_\_  
Date

## Informed Consent Form- Graduate Student Investigator and Minor Subjects

It is important that you read and understand the following explanation of the purposes and benefits of the study and how this research study will be conducted before participating in the study.

**Title of Study:** Parenting Styles and Early Literacy among New Immigrant Families in Taiwan

**Principal Investigator:** Hui-Fen Wang, a doctoral student in Early Childhood Education at the University of North Texas (UNT).

**Purpose of the Study:** First grade children in Taiwan will be asked to complete the Peabody Picture Vocabulary Test-Revised (PPVT-R) and Chinese Phonological Awareness Test (CPAT) during school time for a period of 15-20 minutes each. Their scores will be matched to the scores given to them by their teachers through the Emergent Literacy Scale for Preschoolers (ELSP), and their parents' responses on the Parenting Styles and Dimensions Questionnaire (PSDQ) and a Demographic Survey to determine the relationship, if any, between immigration status, parenting styles, and first grade children's literacy development.

The specific objectives of this study are to: (1) investigate if a relationship exists between a mother's immigration status and her parenting style; (2) investigate if a relationship exists between a mother's immigration status and the literacy level of 1<sup>st</sup> grade children in Taiwan; (3) investigate if a relationship exists between participation in government-sponsored integration programs and a new immigrant mother's parenting style; (4) investigate if a relationship exists between participation in government-sponsored integration programs and the literacy level of 1<sup>st</sup> grad children in Taiwan; and (5) investigate if a relationship exists between different parenting styles and the literacy level of 1<sup>st</sup> grade children in Taiwan.

**Study Procedures:** Your child will complete the PPVT-R and CPAT. Each test is taken in approximately 15-20 minutes, for a total of 30-40 minutes.

**Foreseeable Risks:** No foreseeable risks are involved in this study.

**Benefits to the Subjects or Others:** The researcher hopes to determine if a mother's immigration status influences her parenting style, if immigration status influences first grade children's literacy levels, and if different parenting styles influence first grade children's literacy levels, while also determining if government-sponsored integration programs influence parenting styles and first grade children's literacy levels.

**Compensation for Participants:** There is no compensation for participation in this study.

**Procedures for Maintaining Confidentiality of Research Records:** All information identifying your child will remain confidential. All data will be secured in a locked filing cabinet at the home office of the researcher for a period of three years. The research results will only be used for completing the researcher's doctoral dissertation; for writing journal articles; and for presentations at scholarly conferences.

**Questions about the Study:** If you have any questions about the study, you may contact Hui-Fen Wang by telephone at [REDACTED], or the faculty advisor, Dr. George S. Morrison, UNT Department of Early Childhood Education, by telephone at [REDACTED].

**Review for the Protection of Participants:** This research study has been reviewed and approved by the UNT Institutional Review Board (IRB). The UNT IRB can be contacted at [REDACTED] with any questions regarding the rights of research subjects.

**Research Participants' Rights:** Your signature below indicates that you have read all of the above and that you confirm all of the following:

- Hui-Fen Wang has explained the study to you and answered all of your questions. You have been told the possible benefits and the potential risks and/or discomforts of the study.
- You understand that you do not have to allow your child to take part in this study, and your refusal to allow your child to participate or your decision to withdraw him/her from the study will involve no penalty or loss of rights or benefits. The study personnel may choose to stop your child's participation at any time.
- You understand why the study is being conducted and how it will be performed.
- You understand your rights as the parent/guardian of a research participant and you voluntarily consent to your child's participation in this study.
- You have been told you will receive a copy of this form.

\_\_\_\_\_  
Printed Name of Parent or Guardian

\_\_\_\_\_  
Signature of Parent or Guardian

\_\_\_\_\_  
Date

**For the Principal Investigator:** I certify that I have reviewed the contents of this form with the parent or guardian signing above. I have explained the possible benefits and the potential risks and/or discomforts of the study. It is my opinion that the parent or guardian understood the explanation.

\_\_\_\_\_  
Signature of Principal Investigator

\_\_\_\_\_  
Date

APPROVED BY THE UNT IRB  
FROM 9/18/10 TO 9/17/11  
NB

## Child Assent Form

You are being asked to be part of a research project being conducted by Hui-Fen Wang, a doctoral student in Early Childhood Education at the University of North Texas.

This study involves your parents completing a Parenting Styles and Dimensions Questionnaire (PSDQ) and a Demographic Survey at the introductory meeting for a period of 25-30 minutes, your teacher evaluating you with the Emergent Literacy Scale for Preschoolers (ELSP), and you completing the Peabody Picture Vocabulary Test-Revised (PPVT-R) and Chinese Phonological Awareness Test (CPAT), which will take about 15-20 minutes each. Then the researcher will match your parents' results with your classroom teachers' and your results to determine what relationship, if any, exists between parenting styles and children's literacy level.

You will be asked to complete the Peabody Picture Vocabulary Test-Revised (PPVT-R) and Chinese Phonological Awareness Test (CPAT) which will take you about 15-20 minutes each, for a total of 30-40 minutes.

If you decide to be part of this study, please remember you can stop participating at any time you want to.

If you would like to be part of this study, please sign your name below.

\_\_\_\_\_  
Printed Name of Child

\_\_\_\_\_  
Signature of Child

\_\_\_\_\_  
Date

\_\_\_\_\_  
Signature of Principal Investigator

\_\_\_\_\_  
Date

### Waiver of Assent

The assent of \_\_\_\_\_ (insert name of child) was waived due to:

\_\_\_\_\_ Age

\_\_\_\_\_ Maturity

\_\_\_\_\_ Psychological State

APPROVED BY THE UNT IRB  
FROM 9/18/10 [Signature] 9/17/11

\_\_\_\_\_  
Printed Name of Parent/Guardian

\_\_\_\_\_  
Signature of Parent/Guardian

\_\_\_\_\_  
Date



## 同意書- 研究者與成人參與者

參與研究前，請閱讀和瞭解以下對於本研究的目的、貢獻和研究進行方式的解說。

研究名稱：台灣新住民家庭的父母教養類型與兒童早期讀寫能力關係之研究

研究者：王慧芬，美國北德州大學幼兒教育學系博士候選人

研究目的：台灣國小一年級學童將在校期間被施予「修訂畢保德圖畫詞彙測驗」(PPVT-R)和聲韻覺識測驗(CPAT)。施測時間共約30-40分鐘。班級老師將參與填寫學前兒童讀寫能力發展評定量表(ELSP)。國小一年級學童測驗的分數和班級老師所填寫學前兒童讀寫能力發展評定量表(ELSP)將與媽媽所填寫之教養類型和基本資料的問卷進行分析，以瞭解教養類型是否與一年級兒童的讀寫能力發展有關。

本研究的目的包括：(1)瞭解母親的國籍與其教養類型是否有關；(2)探討母親的國籍是否與台灣國小一年級學童的讀寫能力程度有關；(3)調查參與政府補助之學習課程與新住民媽媽教養類型間之關係；(4)瞭解媽媽參與政府補助之學習課程與台灣國小一年級學童的讀寫能力程度間是否存在任何關係；和(5)檢測不同的教養類型與台灣國小一年級學童的讀寫能力程度是否有關係。

研究程序：首先，您需要先參與30分鐘的研究說明會；然後利用25-30分鐘的時間完成「父母教養類型問卷」和基本資料；全程將不超過一個小時。若因參與者的語言理解需要，翻譯者將全程給予協助。

潛在風險：本研究不存在風險。

研究貢獻：研究者希望能確定母親的國籍是否影響其教養類型和國小一年級學童的讀寫能力程度，以及母親的教養類型是否會影響國小一年級學童的讀寫能力程度，同時也瞭解政府補助之學習課程是否會影響母親的教養類型和國小一年級學童的讀寫能力程度。

參與報酬：本研究不支付參與者報酬。

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- 您瞭解此研究被執行的原因和過程。
- 您瞭解身為研究參與者的權利，並自願同意參與此研究。
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\_\_\_\_\_  
研究參與者姓名

\_\_\_\_\_  
研究參與者簽名

\_\_\_\_\_  
日期

研究者：我保證我已與研究參與者說明同意書內容。我已經解釋本研究的可能的貢獻、潛在危險和/或使人不適的事項。我認為研究參與者已瞭解我對本研究的所有說明與解釋。

\_\_\_\_\_  
研究者簽名

\_\_\_\_\_  
日期

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FROM 9/18/10 TO 9/17/11  
*RB*

## 同意書 - 研究者與未成年參與者

參與研究前，請閱讀和瞭解以下對於本研究的目的、貢獻和研究進行方式的解說。

**研究名稱：**台灣新住民家庭的父母教養類型與兒童早期讀寫能力關係之研究

**研究者：**王慧芬，美國北德州大學幼兒教育學系博士候選人

**研究目的：**台灣國小一年級學童將在校期間被施予「修訂畢保德圖畫詞彙測驗」(PPVT-R) 和聲韻覺識測驗(CPAT)。施測時間共約 30-40 分鐘。班級老師將參與填寫學前兒童讀寫能力發展評定量表(ELSP)。國小一年級學童測驗的分數和班級老師所填寫學前兒童讀寫能力發展評定量表(ELSP) 將與媽媽所填寫之教養類型和基本資料的問卷進行分析，以瞭解教養類型是否與一年級兒童的讀寫能力發展有關。

本研究的目的包括：(1) 瞭解母親的國籍與其教養類型是否有關；(2) 探討母親的國籍是否與台灣國小一年級學童的讀寫能力程度有關；(3) 調查參與政府補助之學習課程與新住民媽媽教養類型間之關係；(4) 瞭解媽媽參與政府補助之學習課程與台灣國小一年級學童的讀寫能力程度間是否存在任何關係；和 (5) 檢測不同的教養類型與台灣國小一年級學童的讀寫能力程度是否有關係。

**研究程序：**您的孩子將由研究人員協助完成「修訂畢保德圖畫詞彙測驗」(PPVT-R) 和聲韻覺識測驗(CPAT)二項測驗。每項測驗約費時 15-20 分鐘，總測驗時間約 30-40 分鐘。

**潛在風險：**本研究不存在風險。

**研究貢獻：**研究者希望能確定母親的國籍是否影響其教養類型和國小一年級學童的讀寫能力程度，以及母親的教養類型是否會影響國小一年級學童的讀寫能力程度，同時也瞭解政府補助之學習課程是否會影響母親的教養類型和國小一年級學童的讀寫能力程度。

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中的任何時刻，選擇終止您的參與。
- 您瞭解此研究被執行的原因和過程。
- 您瞭解身為研究參與者的權利，並自願同意參與此研究。
- 您曾被告知您將收到此同意書乙份。

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\_\_\_\_\_  
研究參與者姓名

\_\_\_\_\_  
研究參與者簽名

\_\_\_\_\_  
日期

研究者：我保證我已與研究參與者說明同意書內容。我已經解釋本研究的  
可能的貢獻、潛在危險和/或使人不適的事項。我認為研究參與者已瞭解我  
對本研究的所有說明與解釋。

\_\_\_\_\_  
研究者簽名

\_\_\_\_\_  
日期

## 兒童同意書

你被邀請參加美國北德州大學幼兒教育系博士候選人，王慧芬，所執行的研究。

此研究包括你的父母參與 30 分鐘的研究說明會；並利用 25-30 分鐘的時間完成「父母教養類型問卷」和基本資料。你的班級老師將參與填寫學前兒童讀寫能力發展評定量表 (ELSP)。以及你完成「修訂畢保德圖畫詞彙測驗」(PPVT-R) 和聲韻覺識測驗 (CPAT) 二項測驗。每個測驗大約 15-20 分鐘，總測驗時間約 30-40 分鐘。然後研究者會將你的測驗分數和班級老師所填寫之學前兒童讀寫能力發展評定量表 (ELSP) 與媽媽所填寫之教養類型和基本資料的問卷進行分析來探討媽媽的教養類型和孩子讀寫能力程度間的關係。

如果你決定參加這個研究，請記得你隨時都可以退出。

如果你願意參加這個研究，請在下面簽你的名字。

APPROVED BY THE UNIVERSITY  
FROM 9/18/10 9/17/11  
*BS*

\_\_\_\_\_  
兒童姓名

\_\_\_\_\_  
兒童簽名

\_\_\_\_\_  
日期

\_\_\_\_\_  
研究者簽名

\_\_\_\_\_  
日期

### 同意放棄參加

\_\_\_\_\_  
(兒童姓名)放棄參與的原因：

\_\_\_\_\_  
年齡

\_\_\_\_\_  
發展狀況

\_\_\_\_\_  
心理狀況

\_\_\_\_\_  
父母/監護人姓名

\_\_\_\_\_  
父母/監護人簽名

\_\_\_\_\_  
日期

APPENDIX C  
DEMOGRAPHIC INFORMATION SHEET

家庭基本資料：

1. 年齡：

15-20     21-25     26-30     31-35     36-40     41-45     46-50

2. 孩子的性別： 男孩     女孩

3. 您是孩子的親生母親嗎？ 是     不是

4. 您是孩子的主要照顧人嗎？

是     不是；假如不是，那誰是孩子主要照顧人？\_\_\_\_\_

5. 您的出生國家：

台灣     越南     印尼     泰國     菲律賓     其他地區：\_\_\_\_\_

6. 您是否曾經上過政府所主辦的融合課程？ 有     沒有

假如有，您花多少時間在這個融合課程裡？

少於 6 個月     6 個月至一年     一年以上

7. 您家庭的年收入：

少於 \$ 75,000     \$75,001 - \$300,000     \$300,001 - 600,000

\$600,001 - \$900,000     \$900,001 - \$1,200,000     \$1,200,001 - \$1,500,000

\$1,500,001 - \$1,800,000     \$1,800,001 - \$2,100,000     \$2,100,001 - \$2,400,000

\$2,400,001 - \$2,700,000     \$2,700,001 - \$3,000,000     多於 \$3,000,000

8. 您的最高教育程度:

- |                                 |                                 |                                     |                               |
|---------------------------------|---------------------------------|-------------------------------------|-------------------------------|
| <input type="checkbox"/> 小學肄業   | <input type="checkbox"/> 小學畢業   | <input type="checkbox"/> 國中肄業       | <input type="checkbox"/> 國中畢業 |
| <input type="checkbox"/> 高中/職肄業 | <input type="checkbox"/> 高中/職畢業 | <input type="checkbox"/> 五專/二專/二技畢業 | <input type="checkbox"/> 大學肄業 |
| <input type="checkbox"/> 大學畢業   | <input type="checkbox"/> 碩士     | <input type="checkbox"/> 博士         |                               |

9. 孩子父親的最高教育程度:

- |                                 |                                 |                                     |                               |
|---------------------------------|---------------------------------|-------------------------------------|-------------------------------|
| <input type="checkbox"/> 小學肄業   | <input type="checkbox"/> 小學畢業   | <input type="checkbox"/> 國中肄業       | <input type="checkbox"/> 國中畢業 |
| <input type="checkbox"/> 高中/職肄業 | <input type="checkbox"/> 高中/職畢業 | <input type="checkbox"/> 五專/二專/二技畢業 | <input type="checkbox"/> 大學肄業 |
| <input type="checkbox"/> 大學畢業   | <input type="checkbox"/> 碩士     | <input type="checkbox"/> 博士         |                               |

10. 您是否具有「中華民國國籍」?  是  否



APPENDIX D  
INFORMATIONAL TABLES

Table D. 1

Evaluations of the Normal Distributions for Research Questions on Parenting Styles

Research Questions	Authoritative			Authoritarian			Permissive		
	<i>Z</i> <sub>skewness</sub>	<i>Z</i> <sub>kurtosis</sub>	<i>N. D.</i>	<i>Z</i> <sub>skewness</sub>	<i>Z</i> <sub>kurtosis</sub>	<i>N. D.</i>	<i>Z</i> <sub>skewness</sub>	<i>Z</i> <sub>kurtosis</sub>	<i>N. D.</i>
Question 1 ( <i>N</i> = 120) - by mother type	1.79	-.79	Yes	3.37	2.38	No	-2.85	-.65	No
Question 2 ( <i>N</i> = 41) - by training participation	1.03	-.14	Yes	2.25	1.13	Yes	-.66	-1.45	Yes

Note. *N. D.* = Normal Distribution

Table D. 2

Evaluations of the Normal Distributions for Research Questions on Children's Literacy

Research Questions	ELSP			PPVT-R			Phonology		
	<u>Z<sub>skewness</sub></u>	<u>Z<sub>kurtosis</sub></u>	<u>N. D.</u>	<u>Z<sub>skewness</sub></u>	<u>Z<sub>kurtosis</sub></u>	<u>N. D.</u>	<u>Z<sub>skewness</sub></u>	<u>Z<sub>kurtosis</sub></u>	<u>N. D.</u>
Questions 3, 5, and 6 ( <i>N</i> = 120) - by mother type - by family income - for mother education	-2.09	-.73	Yes	1.94	-1.46	Yes	-4.79	1.04	No
Question 4 ( <i>N</i> = 41) - by training participation	-2.11	-1.78	Yes	1.63	1.76	Yes	-2.49	-.67	Yes

Note. N. D. = Normal Distribution

Table D. 3

Mean for Each Group in the Categorical Predictors

Coding Categories	ELSP		PPVT-R		CPAT	
	<i>M</i>	<i>n</i>	<i>M</i>	<i>n</i>	<i>M</i>	<i>n</i>
Family type						
1 = immigrant	38.63	41	106.78	41	41.66	41
2 = native	42.61	79	116.22	79	46.77	79
Gender						
1 = boy	39.15	67	108.63	67	44.01	67
2 = girl	41.91	53	118.51	53	46.30	53
Mother age						
1 = 21-35	39.41	64	110.36	64	41.14	64
2 = 36-50	43.66	56	116.00	56	46.04	56
Family income						
1 = \$10,000 and below	39.35	56	109.68	56	45.27	56
2 = \$10,001 and above	42.91	64	115.89	64	44.81	64
Mother education						
1 = junior high sch and below	37.31	39	105.54	39	42.92	39
2 = high school	43.56	41	112.00	41	46.63	41
3 = 2-year college and above	42.73	40	121.27	40	45.03	40
Father education						
1 = junior high sch and below	40.03	40	106.98	40	42.33	40
2 = high school	41.05	41	110.12	41	46.34	41
3 = 2-year college and above	42.72	39	122.18	39	46.41	39

Table D. 4

Correlation among the Predictors on ELSP

	1	2	3	4	5	6	7	8	9	10
1. Mother type	–									
2. Child gender	.00	–								
3. Child age	-.07	-.19 <sup>a</sup>	–							
4. Mother age	.46 <sup>c</sup>	.01	.00	–						
5. Mother education	.66 <sup>c</sup>	.16	-.12	.51 <sup>c</sup>	–					
6. Father education	.47 <sup>c</sup>	.17	-.13	.34 <sup>c</sup>	.48 <sup>c</sup>	–				
7. Family income	.42 <sup>c</sup>	.06	-.07	.47 <sup>c</sup>	.54 <sup>c</sup>	.60 <sup>c</sup>	–			
8. Authoritative	.24 <sup>b</sup>	.02	-.18 <sup>a</sup>	.08	.28 <sup>b</sup>	.21 <sup>a</sup>	.23 <sup>a</sup>	–		
9. Authoritarian	-.07	-.18 <sup>a</sup>	.03	-.13	.13	-.07	-.10	-.23 <sup>b</sup>	–	
10. Permissive	-.26 <sup>b</sup>	-.07	.18 <sup>a</sup>	-.28 <sup>b</sup>	-.13	-.21 <sup>a</sup>	-.31 <sup>c</sup>	-.37 <sup>c</sup>	.49 <sup>c</sup>	–

Note. a =  $p < .05$ , b =  $p < .01$ , c =  $p < .001$ .

Table D. 5

Correlation among the Predictors on PPVT-R

	1	2	3	4	5	6	7	8	9	10
1. Mother type	—									
2. Child gender	.00	—								
3. Child age	-.07	-.19 <sup>a</sup>	—							
4. Mother age	.46 <sup>c</sup>	.01	.00	—						
5. Mother education	.76 <sup>c</sup>	-.02	.04	.52 <sup>c</sup>	—					
6. Father education	.54 <sup>c</sup>	.16	-.13	.36 <sup>c</sup>	.46 <sup>c</sup>	—				
7. Family income	.42 <sup>c</sup>	.06	-.07	.47 <sup>c</sup>	.46 <sup>c</sup>	.62 <sup>c</sup>	—			
8. Authoritative	.24 <sup>b</sup>	.02	-.18 <sup>a</sup>	.08	.23 <sup>a</sup>	.24 <sup>b</sup>	.23 <sup>a</sup>	—		
9. Authoritarian	-.07	-.18 <sup>a</sup>	.03	-.13	.01	-.03	-.10	-.24 <sup>b</sup>	—	
10. Permissive	-.26 <sup>b</sup>	-.07	.18 <sup>a</sup>	-.28 <sup>b</sup>	-.17	-.19 <sup>a</sup>	-.31 <sup>c</sup>	-.37 <sup>c</sup>	.49 <sup>c</sup>	—

Note. a =  $p < .05$ , b =  $p < .01$ , c =  $p < .001$ .

Table D. 6

Correlation among the Predictors on CPAT

	1	2	3	4	5	6	7	8	9	10
1. Mother type	–									
2. Child gender	.00	–								
3. Child age	-.07	-.19 <sup>a</sup>	–							
4. Mother age	.46 <sup>c</sup>	.01	.00	–						
5. Mother education	.67 <sup>c</sup>	-.10	.10	.44 <sup>c</sup>	–					
6. Father education	.61 <sup>c</sup>	.10	-.08	.31 <sup>c</sup>	.40 <sup>c</sup>	–				
7. Family income	-.42 <sup>c</sup>	-.06	.07	-.47 <sup>c</sup>	-.34 <sup>c</sup>	-.55 <sup>c</sup>	–			
8. Authoritative	.24 <sup>b</sup>	.02	-.18 <sup>a</sup>	.08	.16	.26 <sup>b</sup>	-.23 <sup>a</sup>	–		
9. Authoritarian	-.07	-.18 <sup>a</sup>	.03	-.13	-.05	.10	.10	-.24 <sup>b</sup>	–	
10. Permissive	-.26 <sup>b</sup>	-.07	.18 <sup>a</sup>	-.28 <sup>b</sup>	-.16	-.08	.31 <sup>c</sup>	-.37 <sup>c</sup>	.49 <sup>c</sup>	–

Note. a =  $p < .05$ , b =  $p < .01$ , c =  $p < .001$ .

Table D. 7

A List of the Models for the Three Predictions

Dependent variables	Model	<i>R</i>	<i>R</i> <sup>2</sup>	<i>R</i> <sup>2</sup> <sub>Adjusted</sub>
ELSP	Model 1	.453	.205	.132
	Model 2	.453	.205	.140
	Model 3	.451	.203	.146
	Model 4	.448	.201	.151
	Model 5	.445	.198	.156
	Model 6	.438	.192	.156
	Model 7	.427	.182	.154
	Model 8	.410	.168	.147
PPVT-R	Model 1	.608	.369	.312
	Model 2	.607	.369	.317
	Model 3	.607	.368	.323
	Model 4	.606	.368	.328
	Model 5	.602	.362	.328
	Model 6	.597	.356	.328
Phonology	Model 1	.534	.285	.219
	Model 2	.534	.285	.226
	Model 3	.533	.284	.232
	Model 4	.532	.283	.238
	Model 5	.527	.277	.239
	Model 6	.513	.263	.231



APPENDIX E  
THE STUDENTIZED RESIDUAL PLOTS

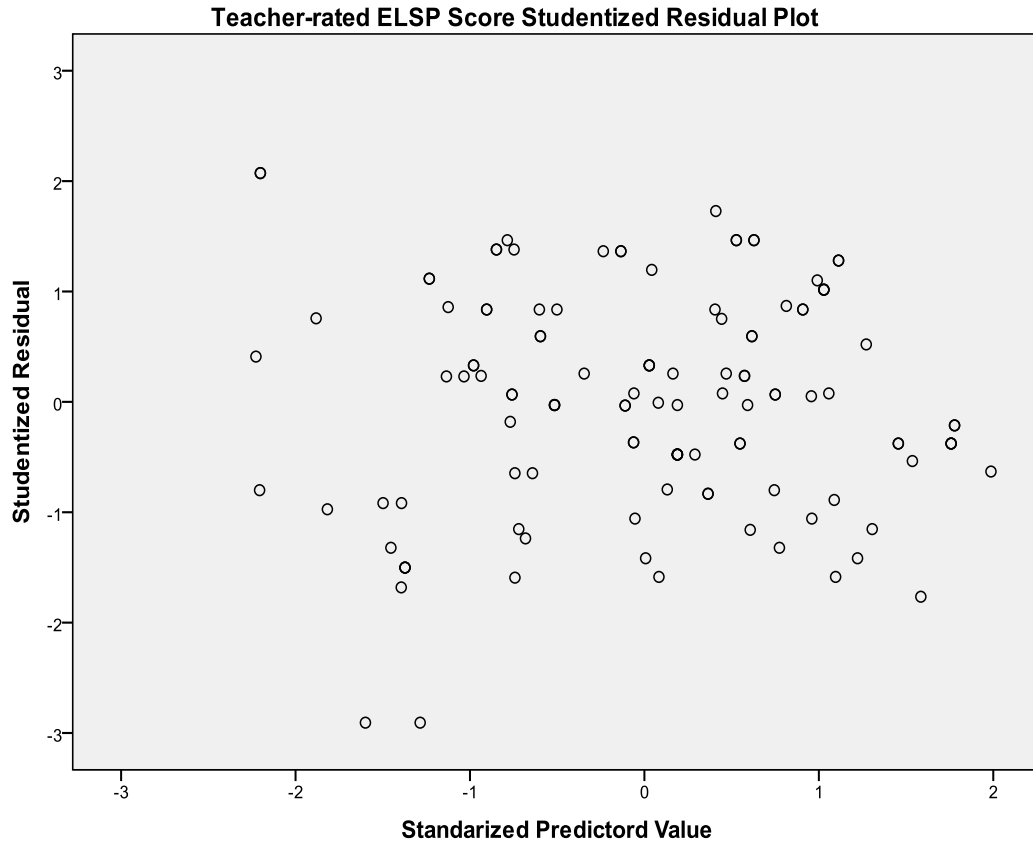


Figure E.1. The studentized residual plot for the teacher-rated ELSP score.

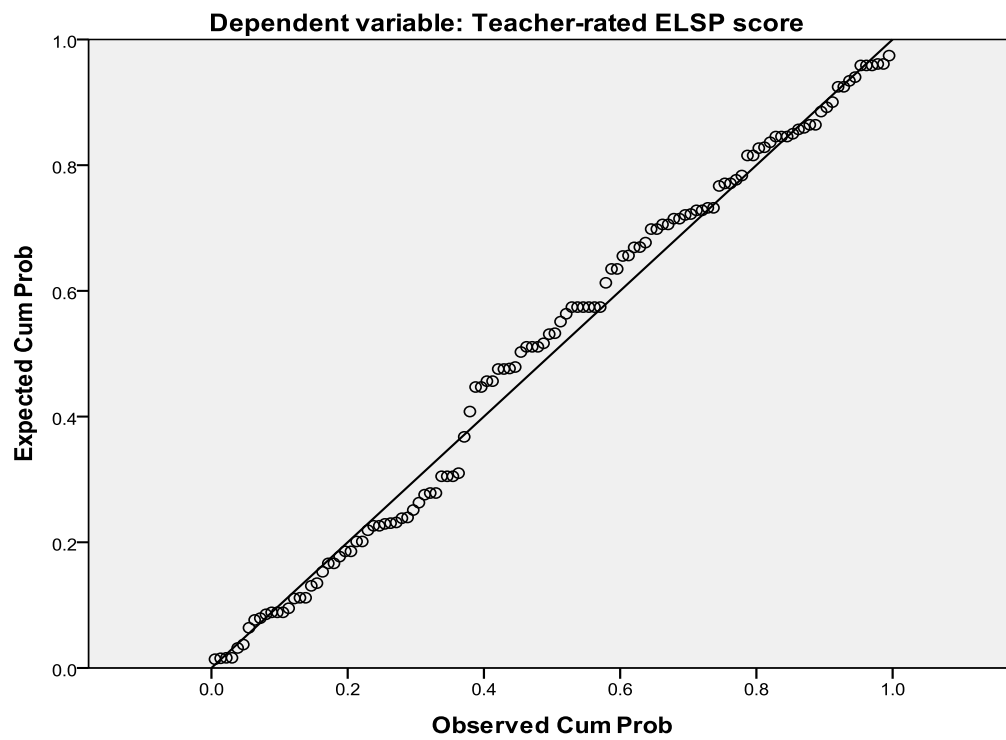
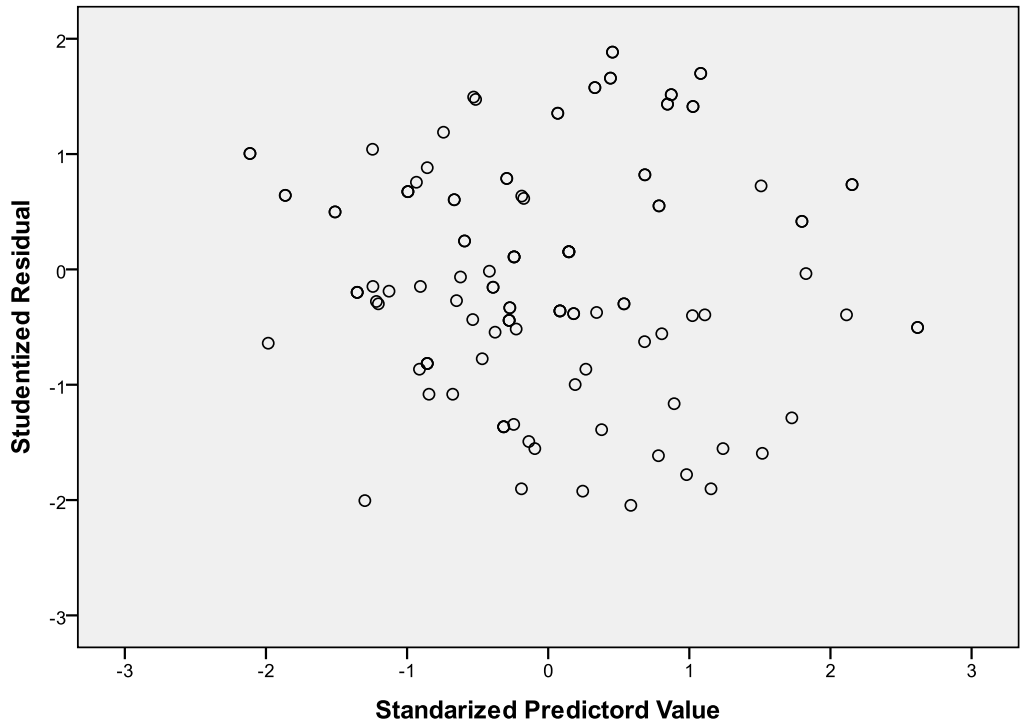
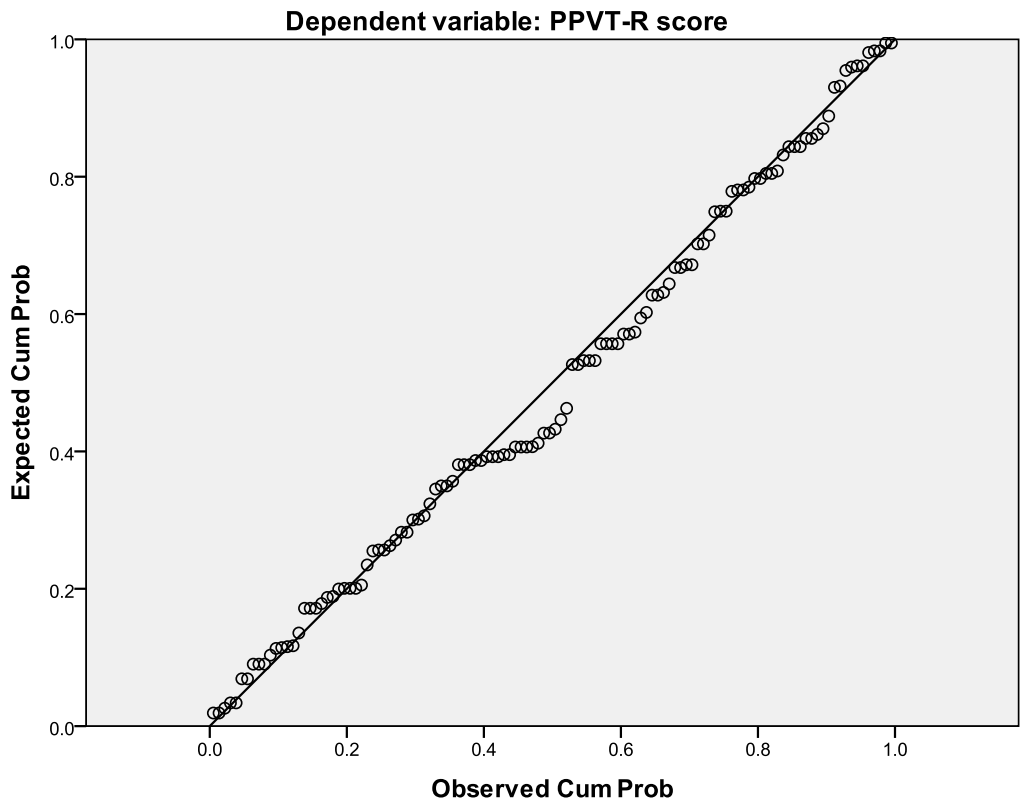


Figure E.2. The normal probability plot for the teacher-rated ELSP score.

**Teacher-rated ELSP Score Studentized Residual Plot**

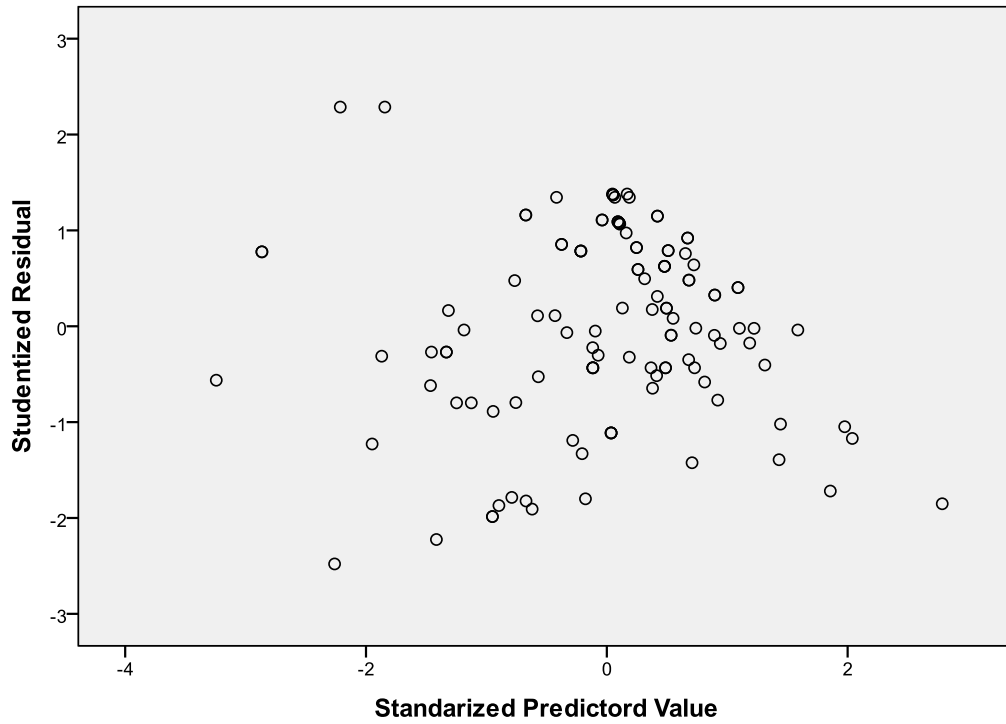


*Figure E.3.* The studentized residual plot for the PPVT-R score.



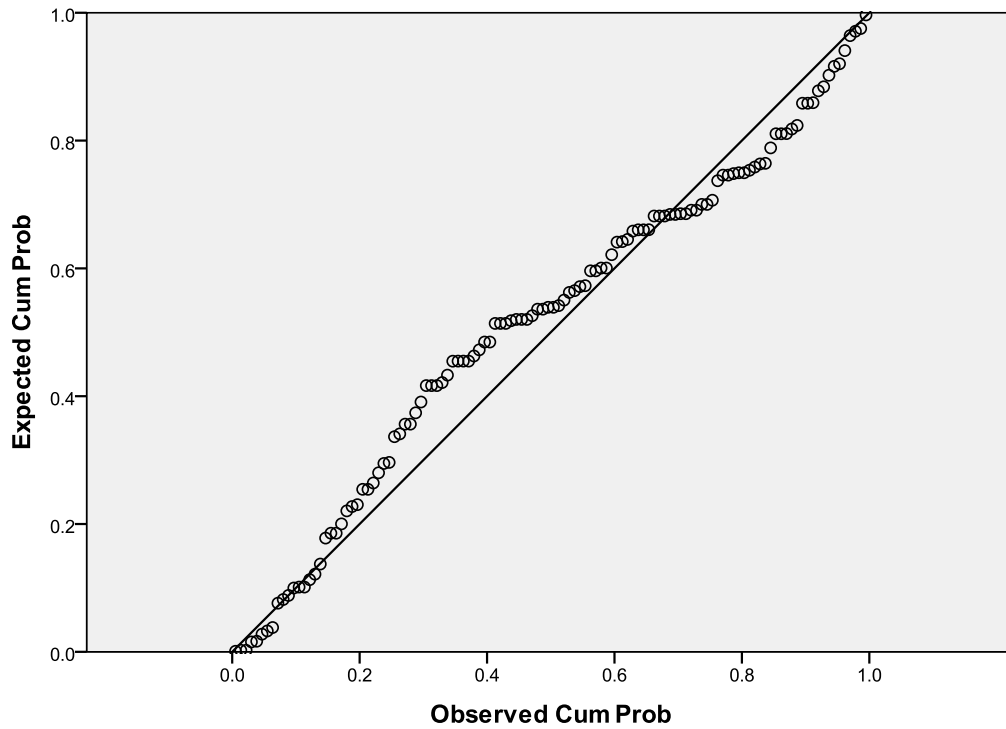
*Figure E.4.* The normal probability plot for the teacher-rated ELSP score.

**The Studentized Residual Plot for the Phonology Score**



*Figure E.5.* The studentized residual plot for the phonology score.

**Dependent variable: Phonology score**



*Figure E.6.* The normal probability plot for the teacher-rated ELSP score.

APPENDIX F

THE PSDQ

學生姓名：\_\_\_\_\_ 班級：\_\_\_\_\_ 學校：\_\_\_\_\_

### 父母的教養類型問卷

這份問卷的資料將會被嚴格保密，並僅供研究之用。此內容不涉及您的任何個人利害關係，也沒有其他人會知道您所提供的資料，因此請您放心根據您的實際情況作答。以下的問題包含了一些當父母與孩子互動時所表現出來的行為。這些問題主要是用來測量作為父母的您，多常對您的孩子表現出某些特定的行為。

1 從來沒有                      2 偶爾                      3 大概有一半時間                      4 常常                      5 總是

	從來沒有	偶爾	一半時間	常常	總是
1.我鼓勵孩子說出自己遇到的麻煩。	1	2	3	4	5
2.我更多地是透過懲罰而不是講道理來引導孩子。	1	2	3	4	5
3. 我知道我孩子朋友的名字。	1	2	3	4	5
4. 我感到孩子難管教。	1	2	3	4	5
5. 我在孩子表現好時，會讚美他/她。	1	2	3	4	5
6. 我在孩子不聽話時，會打他/她。	1	2	3	4	5
7. 我會跟孩子說笑及玩遊戲。	1	2	3	4	5
8. 我會克制自己不指責或者不批評孩子，縱使孩子的表現與我的期待不符。	1	2	3	4	5
9. 我在孩子受傷或覺得很挫折時，會安慰他/她。	1	2	3	4	5
10. 我以剝奪權利的方式懲罰孩子時，不作或很少作解釋。	1	2	3	4	5
11. 我溺愛孩子。	1	2	3	4	5
12. 我在孩子心煩意亂時，給予安慰及諒解。	1	2	3	4	5
13. 我在孩子有不良行為時，會大聲斥責。	1	2	3	4	5
14. 我與孩子相處容易且隨意。	1	2	3	4	5
15.我允許我的孩子去惹別人生氣。	1	2	3	4	5
16. 我在孩子參與活動之前，會告訴孩子我對他/她的期望。	1	2	3	4	5
17. 我斥責和批評是為了讓孩子進步。	1	2	3	4	5
18. 我對孩子有耐心。	1	2	3	4	5
19. 我在孩子不順從時，會拉拽他/她跟著我。	1	2	3	4	5
20. 我嘴上說要懲罰孩子，但並不真的去做。	1	2	3	4	5
21.我對孩子的感受及需求很敏感。	1	2	3	4	5
22.我允許孩子參加家庭規則的制定。	1	2	3	4	5
23.我與孩子爭吵。	1	2	3	4	5
24.我對自己做父母的教養能力感到有自信。	1	2	3	4	5
25.我向孩子講要遵守規範的道理。	1	2	3	4	5
26.我關心自己的感受比關心孩子的感受還要多。	1	2	3	4	5

27.我會告訴孩子我欣賞他/她試著做的事或他/她的成就。	1	2	3	4	5
28.我會用隔離的方式來懲罰孩子，而不作或很少作解釋。	1	2	3	4	5
29.我鼓勵孩子談自己行為的後果，以幫助孩子瞭解自己行為造成的影響。	1	2	3	4	5
30.我怕管教孩子的不良行為，會使孩子不喜歡我。	1	2	3	4	5
31.我在要求孩子做某件事之前，會考慮到孩子的想法及願望。	1	2	3	4	5
32.我生氣時，會對孩子發脾氣。	1	2	3	4	5
33.我知道或關注孩子在學校的情況。	1	2	3	4	5
34.我會用口頭威嚇懲罰孩子比實際懲罰他還多。	1	2	3	4	5
35.我用擁抱和親吻孩子的方式，來表達親情。	1	2	3	4	5
36.我對孩子的不良行為視而不見。	1	2	3	4	5
37.我用體罰作為管教孩子的方式。	1	2	3	4	5
38.我在孩子犯錯時會執行管教。	1	2	3	4	5
39.我在管教孩子的過程中出現錯誤時，會向孩子道歉。	1	2	3	4	5
40.我告訴孩子該做什麼事。	1	2	3	4	5
41.我在孩子喧鬧時，會對孩子讓步。	1	2	3	4	5
42.我在孩子有不良行為時，會跟孩子深談並講道理。	1	2	3	4	5
43.我在孩子有不良行為時，會打他/她耳光。	1	2	3	4	5
44.我和孩子意見不一致。	1	2	3	4	5
45.我允許孩子打斷他人談話。	1	2	3	4	5
46.我跟孩子有親密相處的時間。	1	2	3	4	5
47.我在二個孩子打架時，會先懲罰他們後，再問明情況。	1	2	3	4	5
48.我鼓勵孩子自由的表達其想法，縱使是與父母親意見不同。	1	2	3	4	5
49.我用獎賞來“賄賂”讓孩子能服從。	1	2	3	4	5
50.我在孩子行為不符合期望時，會斥責或批評他/她。	1	2	3	4	5
51.我鼓勵孩子表達他們自己的意見，以展現對孩子的尊重。	1	2	3	4	5
52.我替孩子定了一個嚴格完善的規則。	1	2	3	4	5
53.我向孩子說明我對他好的行為及不好的行為的感受。	1	2	3	4	5
54.我用威嚇當作一個懲罰，且少有或不說明原由。	1	2	3	4	5
55.我在做家庭計劃時，會考慮孩子的喜好。	1	2	3	4	5
56.我在孩子問我為什麼他/她必須服從時，我會說：因為是我說的，或者是，因為我是你的父母親，我要你這樣做。	1	2	3	4	5
57.我沒把握該如何處理孩子的不良行為。	1	2	3	4	5
58.我對孩子解釋他/她的行為所產生的後果。	1	2	3	4	5
59.我命令孩子做事。	1	2	3	4	5
60.我將孩子的不良行為導向至讓人可接受的行為。	1	2	3	4	5
61.我在孩子不聽話時，我會手推開他/她。	1	2	3	4	5
62.我強調要遵守規則的理由。	1	2	3	4	5

APPENDIX G

THE ELSP



學生姓名：\_\_\_\_\_ 班級：\_\_\_\_\_ 學校 \_\_\_\_\_

本量表請老師根據參與研究之個別兒童在教室的表現填寫  
學前兒童讀寫發展評定量表

A 閱讀發展能力				
評量項目	行為描述	得分		備註
		不	總 曾 時 是	
A-1 自發地看書。		0	1 2	
A-2 要求別人唸書給他聽或買書給他看。		0	1 2	
A-3 注意聆聽他人唸書。		0	1 2	
A-4 看書時會發問有關書的內容。		0	1 2	
A-5 看書時會評論書的內容。		0	1 2	
A-6 與別人共同看書時，會與別人討論書的內容。		0	1 2	
A-7 讀一本故事書，並能說出或回答故事的內容，如：看圖說故事、根據故事內容回答問題或翻書說熟悉的故事給他人聽（包括假裝閱讀他早已記住、熟悉的故事）。		0	1 2	
<b>開放性的重述故事大意（以兒童不熟悉的故事，聽了1-2次後的反應）</b>				
A-8 說出故事的背景，如：舉出故事中的人物（獅子王、小紅帽）、地點或時間等。		0	1 2	
A-9 說出故事的主題，如：故事主角遇到的問題或要達成的目標。		0	1 2	
A-10 描述故事的情節，如：主角的問題如何解決？目標如何達成？		0	1 2	
A-11 閱讀或聆聽故事後，能預測後續結果、說出自己的感覺和想法、以及因果的「解釋性」說明或問題。如：說出「三隻小豬」中的豬小弟所建的房子不會倒塌的原因。		0	1 2	
<b>得分（最高22分：最低0分）：_____分</b>				
B 圖書及文字的概念發展				
評量項目	行為列舉	得分		備註
		不	總 曾 時 是	
B-1 知道握持一本書的方式，如：拿書時不會顛倒。		0	1 2	
B-2 知道一本書的書名寫在何處，如：兒童指著一本書的書名，問大人這是不是「三隻小豬」的故事書（他根據書的封面插圖推測，或他早已認識這本書，只是不認得「三隻小豬」中的其中兩個字「隻」、「豬」）。		0	1 2	
B-3 知道從哪一頁開始閱讀，如：兒童知道依據書本的頁次，翻到正確的頁面，即有目的的翻書，而不只是任意翻書。		0	1 2	

B-4 有「作者」的概念，如：兒童詢問大人「三隻小豬」的故事\圖畫是誰寫\畫的；或兒童在自己的圖畫上自動或請人代筆寫下自己的名字。		0 1 2	
B-5 知道文字是由上而下、由右而左閱讀，如：當聽故事時，會循著由上而下、由右而左的方向在書本上指出。		0 1 2	
B-6 知道書中的圖畫和文字所說的是有關連的，如：兒童請大人將他想說的話或所畫的圖畫用文字寫出來。		0 1 2	
B-7 會指認和說出周遭環境中常見的字或符號，如：學校名字、住家附近的街道名、交通號誌、海報、電視廣告或商店名稱、食品包裝名稱，如：看到M說出麥當勞。		0 1 2	
B-8 會使用圖書、報紙查詢需要的資料，如：翻書找出想告訴別人的動物或上課的內容（如青蛙與蝌蚪）：察看報紙的電視節目表、股票版、或氣象報告。		0 1 2	

得分（最高 16 分：最低 0 分）：\_\_\_\_\_分

### C 書寫發展能力

評量項目	行為列舉	得分		備註
		不	總曾時是	
C-1 請人代筆寫他／她想要寫的話。		0	1 2	
C-2 嘗試著寫或自創字型（不拘書寫的程度或正確性）。		0	1 2	
C-3 自己選擇書寫或塗鴉的主題（平時會自發的塗鴉，而不是被指定才書寫）。		0	1 2	
C-4 將所寫的內容說給他人聽。		0	1 2	
C-5 能寫自己的名字。		0	1 2	
C-6 主動要求大人拿紙筆給他書寫、塗鴉或詢問如何寫某個字。		0	1 2	
C-7 試著修正自己所寫字體，如：將分散的字體組成較集中的樣子。		0	1 2	
C-8 與他人討論或合作書寫。以書寫或繪圖的方式，與他人共同完成一個有情節的故事或有意義的圖書。		0	1 2	
C-9 為了某種目的和需要而寫，如：學大人使用備忘錄或有自己的電話簿。		0	1 2	
C-10 書寫的內容意圖在「敘述」事情。如：到動物園後會將到動物園的經過利用繪圖方式表達出來，或僅是用簡單符號或類似字體的簡單線條代替說明。		0	1 2	

得分（最高 20 分：最低 0 分）：\_\_\_\_\_分

APPENDIX H

THE CPAT

## 一、子音分類測驗

### 指導語：

小朋友您好，我現在要念兩個聲音給你聽，請你特別注意這兩個聲音「前面的」部分，看一看他們是「一樣的」或「不一樣的」。例如我說：「ㄋㄛ、ㄋㄟ」這兩個字，他們「前面的地方」都是「ㄋ」，所以他們是「一樣的」。那你再看一下「ㄉㄠ、ㄉㄞ」，他們「前面的地方」，一個是「ㄉ」，一個是「ㄍ」，兩個是「不一樣的」。所以我們的超級任務就是要找出他們到底是「一樣的」或「不一樣的」。「一樣的」請在答案紙上打「○」，「不一樣」打「X」讓我們練習看看。

### 練習題：

「ㄐㄛ、ㄐㄞ」：「前面的地方」是「一樣的」，打「○」。

「ㄉㄠ、ㄉㄞ」：「前面的地方」是「不一樣的」，打「X」。

「ㄉㄛ、ㄉㄞ」：「前面的地方」是「一樣的」，打「○」。

「ㄉㄞ、ㄉㄟ」：「前面的地方」是「不一樣的」，打「X」。

### 正式題：

1. 「ㄋㄚ、ㄋㄞ」
2. 「ㄉㄛ、ㄉㄞ」
3. 「ㄍㄟ、ㄍㄞ」
4. 「ㄆㄛ、ㄆㄞ」
5. 「ㄉㄞ、ㄉㄟ」
6. 「ㄐㄞ、ㄐㄞ」
7. 「ㄆㄛ、ㄆㄞ」
8. 「ㄐㄞ、ㄋㄞ」
9. 「ㄐㄞ、ㄆㄞ」
10. 「ㄉㄞ、ㄉㄞ」
11. 「ㄋㄞ、ㄍㄞ」
12. 「ㄍㄞ、ㄍㄞ」
13. 「ㄍㄞ、ㄍㄞ」
14. 「ㄍㄞ、ㄍㄞ」
15. 「ㄍㄞ、ㄍㄞ」
16. 「ㄍㄞ、ㄍㄞ」
17. 「ㄐㄞ、ㄐㄞ」
18. 「ㄍㄞ、ㄋㄞ」
19. 「ㄍㄞ、ㄍㄞ」
20. 「ㄍㄞ、ㄍㄞ」

## 二、同韻判斷測驗

### 指導語：

小朋友您好，以前有一個小朋友，他說話最後一個聲音「後面的」地方都是相同的，到後來只要聽到那個聲音就知道是那個人來了，有許多小朋友就模仿他，在說話的最後也用不同的聲音來代表他自己。現在我要請你來猜猜看，這兩個聲音是不是同一個人說的。例如「ㄐㄊ」、「ㄎㄊ」的最後一個音都是／ㄊ／，我們就知道說這是同一個人說的。所以我們的超級任務就是要找出他們到底是「一樣的」或「不一樣的」。「一樣的」請在答案紙上打「○」，「不一樣」打「X」讓我們練習看看。

### 練習題：

「ㄗㄚ，ㄗㄊ」，你就寫「X」  
「ㄗㄚ，ㄎㄚ」，你就寫「○」

### 正式題：

好了，現在我們開始。

1. 「ㄉㄨㄟ、ㄉㄨㄟ」
2. 「ㄉㄨㄟ、ㄉㄨㄟ」
3. 「ㄉㄨㄟ、ㄉㄨㄟ」
4. 「ㄉㄨㄟ、ㄉㄨㄟ」
5. 「ㄉㄨㄟ、ㄉㄨㄟ」
6. 「ㄉㄨㄟ、ㄉㄨㄟ」
7. 「ㄉㄨㄟ、ㄉㄨㄟ」
8. 「ㄉㄨㄟ、ㄉㄨㄟ」
9. 「ㄉㄨㄟ、ㄉㄨㄟ」
10. 「ㄉㄨㄟ、ㄉㄨㄟ」
11. 「ㄉㄨㄟ、ㄉㄨㄟ」
12. 「ㄉㄨㄟ、ㄉㄨㄟ」
13. 「ㄉㄨㄟ、ㄉㄨㄟ」
14. 「ㄉㄨㄟ、ㄉㄨㄟ」
15. 「ㄉㄨㄟ、ㄉㄨㄟ」
16. 「ㄉㄨㄟ、ㄉㄨㄟ」
17. 「ㄉㄨㄟ、ㄉㄨㄟ」
18. 「ㄉㄨㄟ、ㄉㄨㄟ」
19. 「ㄉㄨㄟ、ㄉㄨㄟ」
20. 「ㄉㄨㄟ、ㄉㄨㄟ」

### 三、聲調覺識測驗

#### 指導語：

小朋友您好，你會唱歌嗎？你唱歌的時候聲音都會高高低低，那你說話的時候，有沒有高高低低呢？來，你聽我唸一遍「一」「一ノ」「一V」「一、」。這四個聲音有不一樣嗎？哪裡不一樣？我唸兩個聲音，請你比較看看，「一樣的」請在答案紙上打「O」，「不一樣的」打「X」。讓我們練習看看。

太好了！我們一起來練習看看。

#### 練習題：

「ㄇㄝ」、「ㄇㄝˊ」→不一樣

「ㄍㄨ」、「ㄍㄨˊ」→不一樣

「ㄟ」、「ㄟˊ」→一樣

「ㄟˊ」、「ㄟˊ」→一樣

#### 正式題

- |                |                |
|----------------|----------------|
| 1. 「ㄉㄤ」「ㄉㄤˊ」   | 2. 「ㄉㄤ」「ㄉㄤˊ」   |
| 3. 「ㄉㄤˊ」「ㄉㄤˊ」  | 4. 「ㄉㄤノ」「ㄉㄤノ」  |
| 5. 「ㄉㄤノ」「ㄉㄤノ」  | 6. 「ㄉㄤノ」「ㄉㄤノ」  |
| 7. 「ㄉㄤノ」「ㄉㄤノ」  | 8. 「ㄉㄤノ」「ㄉㄤノ」  |
| 9. 「ㄉㄤノ」「ㄉㄤノ」  | 10. 「ㄉㄤノ」「ㄉㄤノ」 |
| 11. 「ㄉㄤノ」「ㄉㄤノ」 | 12. 「ㄉㄤノ」「ㄉㄤノ」 |
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