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中文「老」字之第一語言習得研究

L1 Acquisition of '*Lao*' in Mandarin Chinese

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摘要

本研究旨在探討以中文為母語之兒童對中文「老」字的隱喻辭意理解，主要探討的議題包括標誌理論、語意透明度、生命效應、題型效應以及年齡因素。本研究包含兩個理解能力測驗：口頭詮釋測驗與選擇題測驗。研究對象包含實驗組的一百位兒童，依平均年齡七歲至十一歲分成五組，每組二十人，以及對照組的二十位成人。

研究結果顯示，字面意義比隱喻意義容易習得。其中，兒童對語意較模糊的隱喻用語有較多錯誤，兒童的理解能力隨著年齡增長而增加。「老」的生命效應除了與修飾的名詞搭配有關之外，亦與隱喻意義之辨識有關。在題型效應方面，兒童在選擇題測驗的表現比口頭詮釋測驗好，顯示兒童在辨識隱喻用語語意之能力優先於口頭詮釋。最後，年齡是習得隱喻用語的關鍵因素，七歲兒童仍在理解字面語意階段，八歲及九歲兒童雖能理解隱喻用語，但仍未達到成人能力的階段，十歲及十一歲兒童已能理解隱喻用語搭配無生命名詞；總言之，兒童對於「老」隱喻用語之習得能力隨著年齡增長而提升。

關鍵字：中文、第一語言習得、隱喻用語、生命效應

ABSTRACT

The present study focuses on the specific figurative expression *lao* which can be interpreted both literally and non-literally in Chinese. It aims to investigate Chinese-speaking children's understanding of *lao* by examining five factors: the difficulty of metaphoricality, the degree of transparency, animacy effect, task effect, and age effect. Two comprehension tasks (i.e., interpretation and multiple-choice) were conducted and both of them were presented in a designed story scenario. The subjects were one hundred children in the elementary school in Taiwan, and they were further divided into five groups according to their ages (i.e., 7 year-olds to 11-year-olds). Also, twenty adults were recruited as the control group.

The results showed that the literal meaning of *lao* was found easier to comprehend than the non-literal meaning of *lao*. With regard to the degree of transparency in the non-literal meanings of *lao*, the opaque non-literal meaning was found to be challenging for all the children. Concerning the task effects, no matter which type of meanings of *lao*, the subjects performed significantly better on the Multiple-choice task than on the Interpretation task. Finally, the results indicates that children at age 7 could only comprehend the literal meaning of *lao*, but those 8 to 9-year-olds could comprehend the non-literal meanings of *lao* and *lao* with inanimate NPs in particular, although their performances were still not adult-like. Our 10 to 11-year-old subjects were found to be able to comprehend the non-literal meanings of *lao* with both animate and inanimate NPs.

Keywords: Mandarin Chinese, first language acquisition, figurative expressions, animacy

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Chapter One

Introduction

1.1 Motivation

Learning a word is a complex process that involves mappings between a form, a meaning, and a sound. The arbitrary relationship between form and meaning results in difficulties for memorization and the process of rote learning is notoriously slow (Bloom 1963). Interpreting the precise meaning of words like adjectives is a challenging process because of the diverse semantic content of adjectives. According to Dixon (1982), there are seven types of adjectives: Dimension, Physical Property, Color, Human Propensity, Age, Value and Speed and the meanings of adjectives vary based on the nouns they modify. For example, the word *good* in ‘a good teacher’ and ‘a good meal’ denotes different properties (Klibanoff and Waxman 1998). In addition, there are cases that a word may refer to more than one meaning; to be specific, two levels of meanings are composed, literal and non-literal. For example, the word *si* in Chinese denotes someone’s endpoint of life, which is taken as the literal meaning ‘die.’ On the other hand, *si* ‘die’ can be non-literal, meaning ‘nasty’ in the specific context (Hsieh 2008). According to the Markedness Theory (Jakobson 1941, Trubetzkoy 1939), a literal meaning is an unmarked form, which is simple, general and natural and thus is early acquired by children. A non-literal meaning presents an infrequent and complex speech form in one language, and thus is a marked form. Although non-literal expressions are marked in one language, they are commonly used in our daily conversation (Lakoff and Johnson 1980); therefore, to know how children interpret non-literal meanings is an intriguing issue in language acquisition.

There is a wide range of literature in which different types of metaphorical

can use the adjective *nianqing* ‘young’ to modify *laopo* meaning ‘a young wife’ and the adjective phrase would be understood with no difficulty.

Regarding the comprehension of the polysemy, the underlying relations between different senses within *lao*’s semantic field are worth discussing. In terms of the relations between senses, the polysemy can be two types: linear polysemy and non-linear polysemy (Cruse 2000: 110). Senses exhibit a linear relation if one sense is a specialization of the other. On the other hand, within the non-linear polysemy, the senses are related in two ways, metaphorically or metonymically (Cruse 2000: 112). When the sense is extended in the metaphorical process, it is used figuratively based on the resemblance from the concrete to the abstract concepts. In addition, the metonymy is the other process in which the sense is used figuratively based on an associated relationship. That is, the metonymy works by contiguity or association from the original sense to the extended sense. In addition to the relationship between different senses in a polysemous word, in the first language acquisition studies, the relationship between literal meaning and figurative meaning has been studied which will be further discussed in Section 1.2 (Gibbs 1987, Nippold 1993).

To interpret non-literal meanings of a word is not an easy task for young learners. Specifically, it would become more difficult to interpret the same word with different meanings (Hsieh 2008). Therefore, the present study will investigate a different type of metaphorical expressions different from what has been examined in previous studies (Honeck and colleagues 1978, Prinz 1983, Vosniadou and Ortony 1983, Nippold and colleagues 1984, Levorato and Cacciari 1999, Temple and Honeck 1999, Cain and colleagues 2009, Vulchanova and colleagues 2011). It aims to analyze a specific figurative expression *lao* in Chinese, and see if Mandarin children would have difficulties in interpreting and comprehending figurative expressions with the aid

of linguistic context.

1.2 Theoretical Background

In the course of language-acquisition, to comprehend the word meaning requires ‘an ability to infer the intention of others, an ability to acquire concepts, an appreciation of syntactic structure, and certain general learning and memory abilities’ (Bloom 1963: 10). Among various first language acquisition research on comprehension of metaphorical expressions, some variables affecting the comprehension of metaphorical languages have been commonly discussed (Reynolds and Ortony 1980, Nippold and colleagues 1984, Gibbs 1987, Vosniadou 1987, Levorato and Cacciari 1999, Hsieh 2008).

With regard to the figurative expressions, the degree of transparency is regarded as one of the linguistic properties in the literature (Gibbs 1987, Nippold 1993). Gibbs (1987) claimed that ‘idioms differ in the extent to which their literal meanings relate to their figurative interpretations,’ and classified idioms into two types. One is metaphorically opaque idiom in which its figurative meaning was not apparently related to the literal meaning. The other one is metaphorical transparent idiom in which the figurative meaning was closely related to the literal meaning. It is stated that only after children at age 8 or 9 began to explain the figurative meanings of metaphorical opaque idioms since the obscure historical reasons was involved.

Concerning the time point of children’s comprehension of metaphorical expressions, different claims have been proposed. The comprehension of metaphorical expressions has an extended phase of development. The age of comprehension is basically prior to 10 and may differ according to the tasks and materials employed (Vosniadou 1987). For example, Nippold and colleagues (1984) found that children at

age 7 were able to comprehend the proportional and psychological metaphors in the multiple-choice questions. Vosniadou and colleagues (1984) demonstrated that children at age 4 were able to enact their metaphorical interpretations with toys in a special constructed toy world. Levorato and Cacciari (1999) found that the 9-year-olds could understand the meaning of an idiom out of context based on its transparency in the multiple-choice task. Overall speaking, age has been found to be a crucial factor affecting children's acquisition of metaphorical expressions due to the variety of materials and tasks employed in these previous studies.

In addition, some studies have discussed the influence of animacy on children's comprehension of certain linguistic expressions. Gelman and Koenig (2001) studied children's preference for the animacy-agency association in interpreting the verb *move* in English. Hsieh (2008) examined whether children's comprehension of metaphorical meanings of *si* would be constrained by animacy of the subject NP and her results showed that the younger children (Grades 1 to 3) had difficulties in interpreting sentences with inanimate NPs. To interpret the non-literal meaning of *si* with an inanimate subject was challenging.

Another concern about language acquisition is the Markedness Theory, which was first proposed by Trubetzkoy (1939) and Jakobson (1941) in Prague school. The markedness value is considered one of the universal principles of grammar and can be used to dictate the acquisition sequences (Goodluck 1991). The unmarked form is regarded as the default form which is more frequent, natural, and predictable than the marked form of the comparison set. For example, the regular plural form of a noun is marked such as *cats* because it has an extra affix while the singular form *cat* is the unmarked form. Based on the distributional evidence, it is shown that the unmarked forms are less difficult and early acquired.

To sum up, to see if the issues (i.e., degree of transparency, age, animacy, task effect, and metaphoricality) are dominant factors in comprehending Chinese words *lao*, the present study will address these issues in children's comprehension of a specific expression *lao* in Mandarin Chinese.

1.3 Research Questions

To examine whether the theoretical background can well account for Chinese children's comprehension of *lao* expressions, the following research questions are addressed as follows:

- 1) Are the non-literal meanings of *lao* more difficult than the literal meanings of *lao* for Mandarin-speaking children?
- 2) When children acquired the non-literal meanings, which type of meaning of *lao* is more difficult for Mandarin-speaking children to comprehend, transparent or opaque?
- 3) Does the animate feature of the NP modified by *lao* affect the interpretation of *lao*?
- 4) At what age do children correctly comprehend the non-literal meanings of *lao* in Mandarin?
- 5) Is there any task effect between the Interpretation Task and the Multiple-choice Task?

1.4 Significance of the Study

Children's acquisition of metaphorical expressions has drawn numerous attention and has been analyzed in different perspectives in language acquisition research (Reynolds and Ortony 1980, Ackerman 1982, Prinz 1983, Vosniadou and Ortony 1983,

Vosniadou and colleagues 1984, Gibbs 1987, Vosniadou 1987, Winner 1988, Nippold and Taylor 1995, Levorato and Cacciari 1995, 1999, 2002, 2004, Cain and colleagues 2009). Though the theoretical issues concerning children's ability to comprehend or produce figurative languages have been largely discussed, these previous studies focus mainly on metaphorical language in English. Few studies have addressed L1 metaphorical language comprehension in Chinese (e.g. Hsieh 2008, Hsieh and Hsu 2010). There was a study looking into the figurative expressions of a word in particular (Hsieh 2008) but *lao* was not discussed. Though some theoretical studies have discussed the meanings and properties of *lao*, the developmental stage of how *lao* is interpreted has not been explored. Therefore, the present study aims to provide a thorough picture of children's comprehension of the non-literal expression *lao* in Chinese. By exploring a number of theoretical issues, the present study also aims to fill the research gap in previous studies.

1.5 Organization of the Thesis

This thesis is organized as follows: Chapter Two discusses the syntactic and semantic properties of *lao* and introduces a new classification of *lao*. Four empirical studies on L1 acquisition of figurative expressions are reviewed. Chapter Three describes the research design of the present study. Chapter Four reports the results and presents the analysis of non-literal meanings of *lao*, and followed by a brief summary of the major findings and limitations of the present study in Chapter Five.

Chapter Two

Literature Review

In this chapter, the theoretical background and classification of *lao*, and L1 acquisition of metaphorical expressions are explored. Section 2.1 reviews four Chinese studies on the semantic and syntactic properties of *lao*. In Section 2.2, four empirical studies on L1 acquisition of metaphorical expressions are discussed. In Section 2.3, a new classification of the linguistic properties of *lao* is proposed. Finally, a short summary of this chapter is provided in Section 2.4.

2.1 Theoretical Studies of *Lao*

Lao is a word with diverse senses and different parts of speech. In spite of its complex linguistic feature, *lao* is frequently used in the daily conversation. As a result, previous researches have discussed the word *lao* with different foci (Wang 1996, Ji 2000, Zhou 2000, Dong 2002, Guan 2002, Ma 2002, Yang 2003, Liu 2005, Liu 2007, Feng 2008, Zhang and Yu 2009, Zuo 2009). In this section, three of the related studies (Ma 2002, Liu 2007, Zuo 2009) of *lao* are reviewed.

2.1.1 Ma (2002)

The Chinese word *lao* is frequently used in Mandarin Chinese. A total of 17 senses of *lao* are listed in the *Contemporary Chinese Dictionary (Xiandai Hanyu Cidian)*. *Lao* is defined as a polysemous word that has a complex semantic field in which the diverse senses are linked by its core meaning, 'old.' Ma (2002) states that *lao* is a distinct polysemous word and some senses of it are derived from its core meaning while others are associated or deduced from the meaning derived from the core meaning.

The semantic properties of *lao* can be categorized into three levels and the core meaning of each level refers to (a) old, (b) a long period of time, and (c) change dramatically, respectively. The 17 meanings of *lao* is summarized in Table 2-1. The first level ‘old’ refers to Meaning one (e.g. *lao ren* ‘elders’), Meaning two (e.g. *jing lao* ‘to respect elders’), and Meaning three as in (1).

- (1) Zhangsan de fuqin zuotian lao- le. (Ma 2002:96)¹
 Zhangsan DE father yesterday old- ASP
 ‘Zhangsan’s father died yesterday.’

Table 2-1 The Classification of *Lao* in Ma (2008)

No.	Definition	No.	Definition
1	Old	10	Deterioration of macromolecular compounds
2	To respect elders	11	(Colors)To be deeper
3	To die	12	(States) For a long time
4	Experienced	13	(Actions)To happen repetitively
5	Someone existed a long time ago	14	Very; extremely
6	Outmoded	15	Someone in the final ranking
7	Original	16	Prefix indicating the ranking
8	(Vegetables)To be over-ripened	17	Surname
9	(Foods)To be overcooked		

The first meaning of *lao* as in (a) refers to ‘people who is old,’ as the opposite of ‘young’. The second meaning is ‘elders,’ and the third meaning refers to someone who passed away, which is a colloquial usage and *lao* must be followed by the aspect

¹ *Lao* functioned as a verb meaning ‘to die’ in (1) is not applicable in Taiwan.

marker *le*. According to XuShen *Shuo Wen JieZi*², *lao* originally denotes ‘old.’ Therefore, Ma (2002) indicated that the second meaning is the primary meaning of which the intrinsic feature –‘old’ (of an elder) is the core meaning of *lao* in the semantic field.

The core meaning–‘old’ comprises a feature ‘a prolonged period of time,’ which constructs the second level in the semantic field. ‘A prolonged period of time’ links Meaning four (e.g. *laoshou* ‘an experienced expert’), Meaning five (e.g. *laopengyou* ‘an old friend’), Meaning eight, as in (2), and Meaning 12 (e.g. *laozhugu* ‘an old customer’) together.

(2) Cai tai lao- le. (Ma 2002:96)

vegetables too old- ASP

‘The vegetables are too over-ripped.’

Meaning five refers to ‘something/ someone existed from a long time ago,’ which is the opposite of ‘new.’ Meaning eight describes ‘the state of overripe (vegetable),’ and Meaning 12 describes the state ‘for a long time.’ Meaning five, Meaning eight, Meaning 12 shares a notion of ‘continuing duration,’ directly relating to the core meaning of the second level. However, Meaning four refers to ‘one who is experienced at something,’ showing an indirect relationship with ‘a long period of time.’ In addition, Meanings six and seven also belong to the second level; Meaning six refers to ‘outmoded’ (e.g. *laonaojin* ‘an outdated brain’) and Meaning seven refers to ‘original’ (e.g. *laodifang* ‘an original place’). Both are deduced from Meaning five.

Things change through a long period of time. The core meaning of the second level ‘a prolonged period of time’ brings about several types of changes. Therefore, the core meaning of the third level turns into ‘changing dramatically,’ which links

² XuShen defined *lao*: “*Lao, kao ye. Qishiyuelao*” which means that *lao* also named as *kao*, people who are seventy-year-old can be referred as aged.

affixation, in which *lao* is added as a prefix to the main component of the lexicon. In modern Chinese, words following *lao* can still form a word. Thus, the prefix *lao-* loses its meaning completely and is used as a morphological element to facilitate one-syllable words to transform into two-syllable words. Liu (2007) states that *lao* has not been used as a prefix until the Tang and Song Dynasties.

Liu (2007) proposes that the grammaticalization of *lao* has underwent the process of metaphor. Grammaticalization is a process of lexical change and also a mental and cognitive process. Lakoff (1987) proposes an idealized cognitive model (ICM), which includes four models: image-schematic, metaphoric, metonymic, and symbolic models. Liu (2007) claims that the grammaticalization of *lao* should be formed through a metaphoric process. Metaphor is a cognitive process of transferring meanings from a concrete concept (source) to an abstract concept (target). The main characteristic of metaphor is the similarity between two domains. She suggests that the semantic bleaching is one of the processes of grammaticalization, in which the content of a lexical entity becomes abstract and gradually disappeared. *Lao* extends its meanings from one meaning to other meanings through this metaphorical process. To be specific, the frequency adverb *lao* projects its meaning from time domain (meaning ‘a long period of time’) into a property domain (denoting ‘the duration of an action’). Therefore, it is concluded that a close relationship is found between the semantic extension of *lao* and man’s cognitive mechanism.

Overall, Liu (2007) focuses on the mechanism of grammaticalization of *lao* and explains the grammaticalization process of three syntactic categories of *lao*. She summarizes a complete course of grammaticalization of *lao* both diachronically and synchronically. There is merely a general explanation for the metaphoric process; however, the process in which the meaning of *lao* shifts from core to peripheral is not

mentioned. A comprehensive account for the literal and non-literal meanings of *lao* is still necessary.

2.1.3 Zuo (2009)

In modern Chinese, *lao* is regarded as a polysemy with a complicated semantic system. Zuo (2009) analyzes the semantic feature of the adjective *lao* and demonstrates a selection restriction of adjectives on the argument. It is argued that *lao* has three semantic features: time continuity, self-change, and quantity. Therefore, the argument nouns should be constrained to the features of continuity and changeability.

First of all, Zuo (2009) proposes that the core meaning of *lao* is ‘old’ which further encloses another feature ‘a prolonged period of time.’ As a result, the adjective *lao* includes the feature of time continuity. If we employ the “*lao* + N” structure as the description of the present state of the object (N), the object must undergo a long continuing period of time from the initial state to the present state. That is, *lao* represents the time continuity from past to now. Owing to the specific semantic feature of *lao*, the nouns collocated with *lao* must be semantically restricted to the feature ‘time continuity.’ For example, the animate noun, *zuxian* ‘the ancestor’ whose semantic feature includes the time continuity of life, is defined as a person from whom one is descended. In addition, elder kinship terms can co-occur with *lao* since the feature ‘a prolonged period of time’ is deduced from the definition of the kinship term (e.g. *zufu* ‘the grandfather’).

Besides, inanimate nouns which are closely related to human beings, so they are able to co-occur with *lao* because the relation between nouns and human being results in the displacement of a semantic feature. Zuo (2009) states that the semantic feature ‘time continuity’ shifts from human beings to inanimate nouns closely related to

human beings. For example, *gutou* ‘the bone,’ *tui* ‘legs,’ or *xi guan* ‘habits’ are given the feature ‘time continuity’ by the displacement. As a result, inanimate nouns are able to co-occur with *lao*. The feature of ‘time continuity’ can also shift to nouns relating to human’s occupation and identity. For example, ‘someone was a financial worker by occupation for a prolonged period of time’ can be *lao caizheng* ‘financial work’.

Secondly, Zuo (2009) states that there must be a constantly changeable and dynamic process when objects change from the initial state to the present state. This kind of change is formed without external forces; thus, it is called self-change. That is, the semantic feature of *lao* ‘a prolonged period of time’ represents the self-change feature of argument nouns. For example, *yuangong* ‘staff’ in *laoyuangong* is not old due to the external force; instead, the staff has worked for a long time or the staff is growing old, which is an internal state of change (i.e., self-change).

Since nouns co-occurring with *lao* have the feature of ‘time continuity,’ things must change as time elapses. According to Zuo (2009), the way of change includes quality of change and quantity of change; so does self-change over time. For example, *lao jingcha* ‘the police officer’ referring to someone who has been a police officer for a long time, is a type of quantity self-change. According to the degree of vitality, animate nouns are divided into three categories: (a) high degree of vitality, referring to nouns denoting human beings, (b) less high degree of vitality, referring to nouns of animal types, (c) low degree of vitality, referring to nouns of plants types. As the degree of vitality grows higher, the possibility of self-change becomes higher. The states resulting from self-change differ according to the degree of vitality. That is, the higher degree of vitality yields the higher possibility of self-change, and the resulting state becomes more complicated, and vice versa. For example, if we analyze the

phrase *lao jingcha* ‘*lao* police officer’ independently, four types of self-change take place as presented in (7a)-(7d) (Zuo 2009):

- (7) a. one who is a police officer for a long period of time
- b. an aged police officer
- c. an experienced police officer
- d. one who retired from being a police officer

Since the police officer is a human being with the highest degree of vitality, the resulting state is especially complicated. Zuo (2009) suggests that an appropriate interpretation is made only when the phrase is used in the linguistic context. As a result, *lao* represents the self-change property of objects resulting from the continuing changes over time.

Overall speaking, according to Zuo (2009), *lao* as an adjective in the “*lao* + N” construction has several semantic features: time continuity, self-change, and degree of quantity. It is argued that *lao* semantically constrains the feature of co-occurring nouns. However, her study cannot provide the explanation for the animacy of the noun modified by *lao*. Moreover, a complete account for literal and metaphorical meanings of *lao* is not given, either.

2.1.4 Summary

To sum up, in the *Contemporary Chinese Dictionary*, *lao* has 17 meanings. A close relationship is found between various meanings that form a complicated semantic field of *lao* (cf. Ma 2000). *Lao* functions as an adjective, meaning ‘old,’ followed by a noun to form a noun phrase. *Lao* semantically constrains the co-occurring noun (cf. Zuo 2009). In addition to adjectives and adverbs, *lao* can be an affix which undergoes the process of grammaticalization to form a lexical word. The

mechanism of grammaticalization is discussed (cf. Liu 2007). Most of these previous studies offer a descriptive rather than theoretical account for the specific properties of *lao*. Although the semantic features and the relationship of *lao* are discussed, no researchers have discussed the relationship of *lao* in literal and non-literal expressions. In the next section, we will review four empirical studies on L1 acquisition of figurative expressions.

2.2 Empirical Studies of First Language Acquisition of Metaphorical Expressions

In this section, four empirical studies on children's acquisition of metaphorical language and the development order are reviewed in chronological order (i.e., Levorato and Cacciari 2002, Hsieh 2004, Hsieh 2008, Hsieh and Hsu 2010).

2.2.1 Levorato and Cacciari (2002)

Levorato and Cacciari (2002) proposed a model of the acquisition of figurative language, named the Global Elaboration Model (henceforth GEM) to explicate the development of figurative competence. The GEM is exemplified by five developmental phases which include the abilities and level of knowledge to process language with possible age range, as shown in Table 2-2:

Table 2-2 Five Developmental Phases in GEM³

The developmental phase	Description of figurative languages	Age
Phase 1	A primitive type of processing is carried out consisting of a piece-by-piece elaboration of the linguistic input; children process language literally even when it does not make sense in the linguistic context (Levorato and Cacciari 2002:129).	0-7
Phase 2	Children start searching for the clues which could lead to a non-literal interpretation of the linguistic input. During this phase children to realize that a discrepancy between what is said and what is expected should not always be interpreted as a communicative error (Levorato and Cacciari 2002:129).	8-10
Phase 3	The child acquires the knowledge that the same communicative intention can be realized through different sentence forms (literally, idiomatically, metaphorically, and so forth). ..., in phase 3, the internal state of the speaker, his/her intentions and knowledge, are taken into consideration (Levorato and Cacciari 2002:129).	10-12
Phase 4	An ability to use a conventional repertoire of figurative expressions is achieved by fifteen-year-olds. The developmental gap between the ability to comprehend and to produce figurative language, still presented in phase 3, is progressively reduced, particularly as far as idiomatic expressions are concerned (Levorato and Cacciari 2002:130).	15
Phase 5	An adult-like figurative competence is reached that is characterized by the ability to use figurative language in a creative way and based on a metalinguistic and metasemantic awareness (Gombert, 1992) representing the most mature acquisition is also achieved (Levorato and Cacciari 2002:130).	adult

³ The statements of Global Elaboration Model (Levorato and Cacciari 2002) are summarized into Table 2-2 for the sake of convenience.

They investigated the development of meta-linguistic awareness in the creation of figurative expressions with the support of the GEM. Two experiments were conducted in the study. Experiment 1 was an elicitation task in which their subjects were asked to create a new expression to denote the target expression. The targets consisted of two types: (1) nine common actions that were familiar to children, e.g. *Rivelare un segreto* (revealing a secret), (2) nine common emotions that were generally experienced by children, e.g. *Essere felici* (being happy). Four age groups were recruited from two schools of Padua (Italy): 108 nine-year-old children (Mean age=9;6), 124 eleven-year-old children (Mean age=11;3), 112 adolescents (Mean age=18;5, range from 14;1 to 19;7), and 100 adults (university students). There were two types of instructions: (1) the nominal instruction: the subjects were allowed to produce a new figurative expression without constraints (e.g. ‘Target is...’), (2) the comparative instruction: the subjects were asked to use a comparative structure ‘Target is like ...’, which the researchers attempted to explore whether the constraint ‘like’ would influence the subjects’ creation of figurative expressions.

The answers to new figurative expressions were classified into four categories. The first category is Synecdoches/ Metonymies which refer to expressions “when the part for the whole was referred to, or the opposite” (p. 134). For instance, ‘having a red face’ (nine-year-olds), ‘walking with lowered head’ (teenagers) are expressions to the target item *Being ashamed* (common emotion). Secondly, “when the conceptual relation between the target and the new expression was easily inferable” (p.134), it is defined a transparent metaphor, e.g. ‘putting glue in the pajamas’, ‘to be a boiled potato’ (eleven-year-olds), which is an expression for the common action *Sleeping too much*. The third type is an opaque metaphor, which is defined as “when a more complex mapping from source to target is required than for a transparent metaphor”

(p. 134). For instance, ‘being like a glue’, ‘being like a blanket of snow that prevents life’ (adolescents) are productions to the common emotion *Being jealous*. The fourth type is a convention idiom, which is defined “when the subject used existing idiomatic expressions or slight variants” (p.134), e.g. ‘being on top of the sky’ is the production of the common emotion *Being happy*. The production is similar to the Italian idiom ‘being in the seventh sky.’

The results of Experiment 1 showed that the ability to produce new figurative expressions had a developmental trend which was only up to adolescence (9-year-olds=37%, 11-year-olds=42.4%, adolescents=67.5%, and adults=61.3%). In other words, the adolescents behaved similarly to the adults. The comparative instruction (‘is like’) was found to produce more figurative expressions for all age groups except the adults since the operator ‘like’ provided the young children with the cue of generic cross-domain similarity. Also, the production of transparent metaphors was easier because the conceptual domain between the source and target is already existing and thus easily inferable than opaque metaphors.

Experiment 2 investigated the comprehensibility, appropriateness and novelty of examples of transparent and opaque metaphors elicited in Experiment 1. Nearly 50 % of the samples were randomly selected and judged by 240 adults. The subjects were asked to rate on a seven-point scale to each expression (from 1= not at all, to 7= extremely). Results of Experiment 2 showed that the production became more comprehensible, novel, and appropriate with the increasing age. It was unexpected that the production with the nominal instruction obtained the highest scores for three scales than the comparative instruction which elicited more production in Experiment 1. The production of many children went beyond the paraphrase of the target expressions, which supporting the GEM that children are able to go beyond the literal

expressions.

To summarize, Levorato and Cacciari (2002) investigated the ability to produce figurative expressions for two targets (i.e., actions and emotions) in two instructions (i.e., nominative and comparative), and judged the answers by the appropriateness, comprehensibility, and novelty. The subjects' production was classified into four categories: Synecdoches/ Metonymies, Transparent metaphors, Opaque metaphors, and Conventional idioms. The results of Experiment 1 showed that the subjects produce more transparent metaphors among all types of figurative expressions. However, the lack of other types of figurative expressions (e.g. metonymies or conventional idioms) does not entail the lack of the subjects' inability to produce the figurative expression. It may be due to the influences of the instructions involving 'is' (i.e., nominative) and 'is like' (i.e., comparative). To be specific, the instruction may impose some constraints on the production of figurative expressions.

2.2.2 Hsieh (2004)

During the course of language acquisition, metaphorical ability is considered to be acquired late. There are considerable studies concerning English metaphors; however, little attention is paid to the development of Chinese metaphors. Hsieh (2004) explored the development of Chinese figurative language, especially metaphors and metonymies by investigating both children's comprehension and production. Metaphors and metonymies are both cognitive processes but work in different ways. Metaphors include two conceptual domains in which an abstract concept is understood based on the concrete object; that is, in the mechanism of metaphor, the metaphorical meaning is mapped from the source domain to the target domain. On the other hand, metonymies involve no domain change. Hsieh (2004)

conducted two tasks and recruited 80 subjects. They were divided into four age groups and each group consisted of 20 subjects. Their mean age were 6 (kindergartener), 10 (fourth grade of primary school), 15 (junior high student), and 19 (university student).

In Experiment 1, the metaphorical production of all age groups was investigated. The production of metaphorical expression was elicited with two types of instruction: the Nominal instruction (A is B) and the Comparative instruction (A is like B). Sixteen test items were used and classified into two categories: concrete nouns and emotion adjectives. Thus, four factors were discussed between the instruction types and target types. Experiment 1 was conducted to see which type of target item (concrete nouns or emotion adjectives) was better for metaphor elicitation. Test items were selected from Gentner (1988) and Levorato and Cacciari (2002). Since some metaphors were culture-specific, some cultural unrelated items were modified to be close to Taiwanese culture. Besides, the nominal instruction was tested prior to the comparative instruction to make sure that the linguistic pattern 'is like' does not prompt the mappings. The answers elicited from Experiment 1 were classified into three general categories: literal (including paraphrase, examples, description), metaphorical (including attributive, relational, double, conventional), and metonymical (synecdoche, producer-product, user-object, cause-effect).

Experiment 2 was a comprehension test which consisted of two parts and it was conducted based on the results of Experiment 1. First of all, Hsieh (2004) investigated the subjects' preference for comprehending metaphors of concrete nouns. That is, whether the subjects preferred attributive metaphors or relational metaphors was discussed. Two types of metaphors which differed in that attributive metaphors are mapped based on the shape or appearance of an object and relational metaphors are

mapped based on their function. The second part was to discover the subjects' preferences for metaphors or metonymies when they comprehended emotion adjectives.

In Experiment 2, 16 questions were given altogether with three choices: in the comprehension of concrete nouns, choices including (a) attributive metaphor, (b) relational metaphor, and (c) nonsense mapping, as in (8); as for the comprehension of emotion adjectives, choices comprised differently (a) metaphoric expression, (b) metonymic expression, and (c) nonsense item, as shown in (9). In addition to the eliciting questions, the subjects were asked to justify their answers to confirm the meaningful mappings and exhibit the mapping processes.

(8) The moon is like A. a ball B. a light bulb C. a rice dumpling, because ...
(Hsieh 2004:41)

(9) Being happy is like A. a smile face B. singing birds C. head down,
because ... (Hsieh 2004:42)

The results of Experiment 1 indicated that under concrete nouns, targets with comparable instructions (X^2 value = 110.35, $df = 9$, $p < .05$) triggered more metaphors than nominal instructions (X^2 value = 109.98, $df = 9$, $p < .05$). The results were corroborated by Levorato and Cacciari (2002) that the comparative instruction which served as a prompt indeed enhanced the performance in mapping domains. Moreover, the elicitation under concrete nouns with the nominal instruction, the younger children (Mean ages = 6;7, 10;11) used attributive metaphors more frequently (6-year-olds: $N=73$, 45.625% and 10-year-olds: $N=61$, 38.125%) than relational-nominal metaphors (6-year-olds: $N= 6$, 3.75% and 10-year-olds: $N=18$, 11.25%); on the contrary, the rest of the age groups (mean ages = 15;10, 19;05) preferred to use relational-nominal metaphors (15-year-olds: $N=51$, 31.875% and 19-year-olds: $N=30$, 18.75%) than

attributive metaphors (15-year-olds: N=13, 8.125% and 19-year-olds: N=20, 12.5%). Under the elicitation of emotion adjectives with comparative instruction, the elder groups (Mean ages = 15;10, 19;05) produced more metaphors (15-year-olds: N=94, 58.75% and 19-year-olds: N=82, 51.025%) than the younger groups (6-year-olds: N=2, 1.25% and 10-year-olds N=16, 10.00%). Generally speaking, the emotion adjectives with the nominal instruction triggered metonymies frequently (N=16.25%, 21.25%, 21.25%, 26.25%, in four groups respectively) than metaphors (N= 0%, 2.5%, 7.5%, 15.625%). The triggered metonymy was only limited to the subtype- cause and effect. Overall, the junior high students (Mean age = 15;10) produced the most metaphors of the age groups.

The results of Experiment 2 showed that the younger children tended to comprehend concrete nouns based on the shape or appearance of the object (i.e., attributive metaphors) (6-year-olds: P = 81.875% and 10-year-olds: P = 76.875%). On the other hand, when comprehending emotion adjectives, the younger children preferred metaphoric mapping (6-year-olds: P = 57.5% and 10-year-olds: P = 55.625%) than metonymical mapping (6-year-olds: P = 39.375% and 10-year-olds: P = 43.75%); with the growth of age, metonymical expressions were preferred (15-year-olds: P=59.375% and 19-year-olds: P = 53.125%). Overall, Hsieh (2004) indicated that the children inclined to elicit metaphors based on the appearance of the objects. Besides, concrete nouns were prone to elicit metaphors whereas emotion adjectives were apt to elicit metonymies. However, Hsieh's research design was inconsistent. For example, in the production task, the instruction was differently made for different age groups, resulting in a bias in the findings.

2.2.3 Hsieh (2008)

Metaphors are non-literal uses of linguistic expressions. In order to comprehend the metaphorical expressions, meta-linguistic ability needs to be developed. Since the simple processing ability may not be able to comprehend metaphorical expressions, it is considered that metaphors are acquired late in children's language development. Few studies have been conducted on the first language acquisition of metaphorical expressions in Chinese. Instead of looking into metaphor phrases and idiomatic phrases, Hsieh (2008) focused on a single word *si* 'die' and reclassified its syntactic and semantic properties. She investigated the acquisition of Chinese word *si* with metaphorical meanings.

One hundred forty-four subjects were recruited from Grades 1 to 6 in an elementary school, which were divided into six age groups (Mean ages = 6;4, 7;7, 8;7, 9;7, 10;7, 11;6). Five issues were discussed in the study: Markedness Theory, context effect, animacy effect, age effect, and categorical effect. Two tasks were employed; Words in Isolation (WII) and Words in Context (WIC).

(10) *Si-diao* 'die off'

(11) *Jinxian hen shangxin, yinwei tade xiaomao zuotien si-diao le.*

'Jinxian was sad, because her kitten died last night.'

The first task consisted of *si* items in isolation as in (10) and the second task presented *si* items in context with animate or inanimate NP subjects as in (11). Both tasks included multiple-choice questions. In order to test the subjects' comprehension of the literal and metaphorical meanings of *si*, three options were given in each question: (a) literal meaning, (b) metaphorical meaning, and (c) irrelevant meaning. Hsieh (2008) categorized *si* into three types based on its syntactic categories: Type 1 as a verb (which further classified into three subtypes: Type 1-1 a single verb, Type

1-2 in an RVC construction (V+*si*), and Type 1-3 followed by a verb (*si*+V)), Type 2 as an adjective, and Type 3 as an adverb. Each type was divided into literal and non-literal meanings based on the semantic properties of *si*.

The results showed that the literal expressions were easier to comprehend than metaphorical expressions which supported the Markedness Theory that as long as the marked form was acquired (i.e., the non-literal meaning), the unmarked form would be acquired (Hsieh 2008: 69). Moreover, it was found that the children's performance was remarkably enhanced by the contextual clues (i.e., WIC task).

The overall results for the comprehension of metaphorical meanings indicated that the children performed better on the WIC task than on the WII task, supporting previous literature that metaphors were found much easier to comprehend in context than in isolation (Gardner and Winner 1978).

As far as the animacy effect is concerned, the younger children (i.e., Grades 1 to 3) encountered more difficulties in comprehending sentences with inanimate NPs than animate NPs. Hsieh claimed that since the animacy effect was violated, the children failed to interpret the non-literal meanings of *si*. On the other hand, the elder children (i.e., Grades 4 to 6) had no difficulties in comprehending sentences with inanimate NPs, showing that the NP with an animate feature can determine the meanings of *si*.

In addition, regarding the categorical effect, the answers to metaphorical meanings of *si* followed a difficulty hierarchy in which Type 1 (*si* as a verb) > Type 2 (adjective) > Type 3 (adverb). This tendency corresponded to the acquisition of word class that verbs and nouns were frequently used; thus acquired earlier than other syntactic categories. The fact that adverbs that were the most difficult to comprehend might be due to the peripheral and optional contribution to the meanings of *si*. Among the subtypes of *si* as a verb, Type 1-3 (*si*+V) was the easiest to interpret. Overall

speaking, it was found that the subjects' metaphorical ability was constrained by the categorical type of *si*.

Furthermore, age was found to play an influencing role in the development of metaphorical ability. For the children at higher grades, they were performed better at interpreting both literal and metaphorical meanings; also, they comprehended the syntactic types of *si* better than the younger children. The age of 10 was found to be the breakthrough of interpreting children's metaphorical ability. This finding was consistent with the previous results (Gardner and Winner 1978, Gibbs 1987, Levorato and Cacciari 2002, Prinz 1983). On the whole, Hsieh (2008) investigated the acquisition of *si* in Chinese and discussed five issues. She discussed *si* expressions in three types of parts of speech: as a verb, as an adjective, and as an adverb; thus, different syntactic constructions of *si* were compared. Although similar linguistic expressions (i.e., single word with different meanings) were discussed, whether the findings of *si* apply to the results of *lao* remains an issue.

2.2.4 Hsieh and Hsu (2010)

Much attention is paid to the studies of the development of idiomatic expressions in production and comprehension. Most of the studies of idiomatic development focused on the native speakers of English, French, and Italian. There was little research of the idiomatic expression comprehended by Mandarin-speaking children. Thus, Hsieh and Hsu (2010) conducted two experiments to investigate the effect of familiarity, context, and linguistic convention on L1 idiom comprehension of Mandarin-speaking children.

A total of 32 subjects were recruited from an elementary school and divided into two age groups: the mean age of the first group was 6;1, and the second was 9;6.

Besides, 16 adults were recruited as a control group. In Experiment 1, the subjects were asked to answer the meanings of chosen idiomatic expressions without any linguistic context. In Experiment 1, a list of 30 plant name idioms was selected from the Academia Sinica Balanced Corpus of Mandarin Chinese. These idioms were rated on a four-point scale by 45 elementary school teachers to confirm the familiarity degree to children. A total of 14 idioms were chosen from the assessment: seven familiar and seven unfamiliar. The subjects' answers were coded and classified into two categories: 'Correct' (i.e., correct idiomatic meaning) and 'other' (i.e., literal meaning or unrelated meaning).

In Experiment 2, a comprehension task along with a meta-pragmatic task was conducted. Hsieh and Hsu (2010) aimed to investigate how context and familiarity influenced children's comprehension and children's meta-pragmatic knowledge. The children were asked to choose a picture describing either the literal meaning or the idiomatic meaning. The selected 14 idioms were embedded in two different stories: one depicting the literal meaning of the idiom and one depicting the idiomatic meaning. Each idiom with a story included four pictures in which the fourth picture contained two sub-pictures: one describing the literal meaning of the idiom and the other the idiomatic meaning.

The subjects were asked to choose one of the sub-pictures based on their comprehension of the idiom. After the picture selection, they needed to give explanations for their choice which was a meta-pragmatic task. In the meta-pragmatic task, the subjects' explanations were classified into four categories: (1) relating to linguistic convention, (2) relating to literal meaning, (3) relating to the context, (4) relating to other factors like story setting or ambiguous explanations.

The results of Experiment 1 showed that the 6-year-olds and 9-year-olds

comprehended familiar idioms better than unfamiliar ones with no context; however, in the familiarity condition, the 6-year-old children produced more ‘Other’ answers whereas the 9-year-old children produced more ‘Correct’ answers. It was found that familiarity played an influential role affecting the children’s comprehension of idiomatic expressions. The results of Experiment 2 showed that the idiomatic context was a significant factor in the comprehension of idiomatic meanings. For the 6-year-olds, although they chose more literal answers in both contexts, the increasing proportion of idiomatic answers in literal and idiomatic context (literal context: 8.48%, idiomatic context: 25.43%, $t(15) = 2.78$, $p = 0.013$ in both familiar and unfamiliar conditions) indicated that the idiomatic context was indeed a useful aid to comprehend idioms. Regarding the familiarity, only the 9-year-olds performed significantly better on the unfamiliar idioms than on the familiar ones ($F(1,15) = 7.079$, $p < .05$). Although the results were not significant, the familiarity effect was found at the age of 6 in that the 6-year-olds chose more correct answers to unfamiliar idioms than to familiar ones. As for the meta-pragmatic task, the 6-year-olds explained their reasons mostly related to the context, the 9-year-olds provided explanations related to the context and linguistic conventions, the adults’ explanations were more related to linguistic conventions, showing that linguistic convention developed significantly at the age of 9.

In brief, the overall results showed that the familiarity effect was found at the age of 6. The context was indeed an important factor in the comprehension of idiomatic meanings at the age of 6, which was evidenced by Gibbs (1991), Abkarian and colleagues (1992), and Levorato and Cacciari (1995, 1999). The results of Experiment 2 showed that all the groups performed better on the idiomatic context condition than on the literal context condition. However, the results are convincing because the

design of the literal context is a great interruption which mislead the subjects to choose the literal meanings rather than idiomatic meanings.

2.2.5 Summary

Table 2-3 summarizes the major findings and limitations of the four empirical studies reviewed in this section.

Table 2-3 Major Findings and Limitations of the Previous Studies

	Major findings	Limitations
Levorato and Cacciari (2002)	<ol style="list-style-type: none"> 1. Linguistic aid: The instruction ‘is like’ (i.e., comparative instruction) is a crucial cue to motivate the metaphor mappings. 2. Age: A developmental trend is found in the creation of figurative expressions. 3. Type: Transparent metaphors were easier to produce than opaque ones. 	<ol style="list-style-type: none"> 1. Subjects: Three age groups (Mean ages=9;6, 11;3, 18;5) and adults 2. Materials: 9 common actions and 9 common emotions 3. Tasks: <ol style="list-style-type: none"> (1) A Production Task (2) A Judgment Task (by adults)
Hsieh (2004)	<ol style="list-style-type: none"> 1. Linguistic aid: The instruction ‘is like’ triggers more metaphors. 2. Age: A development trend of ability is found to produce metaphors for concrete nouns. 3. Type: Concrete nouns were prone to elicit metaphors whereas emotion adjectives were apt to elicit metonymies. 	<ol style="list-style-type: none"> 1. Subjects: Four age groups (Mean ages=6;7, 10;11, 15;10, 19;05) 2. Materials: concrete nouns and emotion adjectives 3. Tasks: <ol style="list-style-type: none"> (1) A Production Task (2) A Comprehension Task
Hsieh (2008)	<ol style="list-style-type: none"> 1. Context: Metaphors were much easier to comprehend in context than in isolation. 2. Age: The age of 10 was the breakthrough of interpreting the metaphorical meaning. 3. Type: The metaphorical ability was constrained by the categorical type of <i>si</i>. 	<ol style="list-style-type: none"> 1. Subjects: Six age groups (Mean ages= 6;4, 7;7, 8;7, 9;7, 10;7, 11;6) and adults 2. Materials: Chinese <i>si</i> expressions 3. Tasks: <ol style="list-style-type: none"> (1) A Word-in-Isolation Task (2) A Word-in-Context Task
Hsieh and Hsu (2010)	<ol style="list-style-type: none"> 1. Context: The idiomatic context was important by the age of 6. 2. Familiarity: The familiarity effect was found at the age of 6. 3. Convention: Convention is a significant factor at the age of 9. 	<ol style="list-style-type: none"> 1. Subjects: Two age groups (Mean ages= 6;1. 9;6) and adults 2. Materials: 14 plant name idioms 3. Tasks: <ol style="list-style-type: none"> (1) A Word-Card Task without context (2) A Story Picture Selection Task in literal and idiomatic context (3) A Meta-pragmatic Task

Generally speaking, in L1 acquisition of metaphorical language, some aids were found to help children in the process of acquisition. First, the word ‘like’ was favored in producing metaphorical language (Levorato and Cacciari 2002, Hsieh 2004). Second, the linguistic context was found to be an influential clue to help comprehend metaphors (Hsieh 2008, Hsieh and Hsu 2010). Influencing effects have also been discussed thoroughly, such as familiarity (Hsieh and Hsu 2010), categorical types (Hsieh 2004, Hsieh 2008), and age (Hsieh 2008, Hsieh and Hsu 2010).

As for the limitations of these studies, although these researches have studied metaphorical language, their research designs were different. First, the materials were extremely distinct. For example, some investigated the type of metaphors (Levorato and Cacciari 2002, Hsieh 2004), some studied the single word expression (Hsieh 2008), and some looked into the specific type of idioms (Hsieh and Hsu 2010). Second, different task types were employed in these studies; for example, some used only a comprehension task (Hsieh 2008, Hsieh and Hsu 2010), some employed only a production task (Levorato and Cacciari 2002), and only one of these previous studies employed both tasks (Hsieh 2004). Last but not the least, the age groups recruited in these studies were not the same. With different research methods, diverse types of figurative expressions, and different age groups, the findings varied as well. Yet, the influential factors like context, age, and type effect have not been commonly discussed.

2.3 A New Classification of *Lao*

In Section 2.1, several studies of the semantic features of *lao* in different syntactic constructions have been reviewed. It is argued that *lao* has diverse meanings and it collocates with different types of nouns (Ma 2002, Zuo 2009). Its meanings

vary according to the syntactic structures that *lao* modifies. In addition, the role of the animacy feature has been claimed to determine the interpretation of metaphoricality in Section 2.2 (Hsieh 2008). In this section, a new classification of *lao* will be proposed. For the seeming new classification, it actually integrates the contribution from those studies (Ma 2002, Zuo 2009, Hsieh 2008). *Lao* is reclassified into five subtypes based on its meanings according to the degree of transparency to the core meaning ‘aged.’

2.3.1 *Lao* with a Literal Meaning

According to the definition⁴ in ancient Chinese, *lao* is a noun that refers to a seventy-year-old elder. Later, it is conventionally used as an adjective in modern Chinese to describe a person who is far advanced in the lifespan (Ma 2002). This is the first type of *lao*, which is interpreted literally. This type corresponds to Meaning 2 discussed in Ma’s (2002) study. When *lao* is used as an adjective, it often co-occurs with a noun as in (12).

- (12) *lao* xiansheng
old man
‘an old man’

In (12), *lao* describes a man who has been living for a long period of time. The meaning of *lao* entails an object being at an advanced age in the life cycle. As far as the literal interpretation is concerned, *lao* has an animacy constraint on its collocating object. That is, the collocating noun ought to be animate, i.e., human beings or animals, in order to match with the semantic feature of *lao*. As indicated in (12), *lao* collocates with the human referent ‘man.’ Specifically, an animate noun which is

⁴ *XuShen* (C.E. 58-147), *ShuoWenJieZi* (說文解字, “Explaining Simple and Analyzing Compound Characters”) was a Chinese dictionary from the Han Dynasty (2nd century CE). It was the first dictionary to analyze the structure of the Chinese characters and to provide the etymology of the words. It was also the first to use the principle of organization by the section headers (i.e., *bùshǒu* 部首).

modified by *lao* comprise several types: (a) social title terms (e.g. *taitai* ‘Mrs.’, *xiansheng* ‘Mr.’), (b) senior kinship terms (e.g. *yeye* ‘grandpa,’ *nainai* ‘grandma,’), and (c) occupation terms (e.g. *jingcha* ‘police officer,’ *yisheng* ‘doctor’) (Feng 2008). The animacy constraint on the noun modified by *lao* can be seen in (13), an ungrammatical sentence if *lao* is interpreted literally.

- * (13) *laoyaoshi*
old key
‘an old key’

As shown in (13), the inanimate object has no life cycle; therefore, *lao* fails to denote the ‘old’ condition of it.

2.3.2 *Lao* with a Non-literal Meaning

In addition to the literal meaning ‘old’, *lao* can be denoted non-literally. Previous studies have shown that the meanings of *lao* consist of several levels: one of the levels refer to the core meaning (i.e., literal meaning), denoting ‘old’; the other level refers to its semantic extensions in which *lao* is interpreted non-literally (Ma 2002, Feng 2008, Zuo 2009). The non-literal interpretation of *lao* is re-classified as Type 2 in the present study.

The literal meaning of *lao* entails the advanced state in a certain timespan, which infers ‘time continuity’ as the common semantic feature of *lao*. The feature ‘time continuity’ is ‘a state that has been long-standing in a certain timespan.’ Two meanings are derived from this semantic feature: (a) ‘someone or something that has existed for a long time,’ and (b) ‘one who is experienced at something’ (Ma 2002). The two extended meanings are regarded as the non-literal meaning of *lao* (Feng 2008).

In the following, (a) and (b) will be further analyzed in terms of its relation with the core meaning of *lao*. The former meaning which is closely related to the core meaning of *lao* (i.e., the transparent non-literal meaning) will be classified as Type 2-1. The latter meaning which is not apparently related to the core meaning (i.e., the opaque non-literal meaning) will be discussed as Type 2-2. Both types of *lao* collocate with nouns in terms of different animacy features.

2.3.2.1 Transparent Non-literal Meaning of *Lao*

Under the semantic feature of ‘time continuity,’ when *lao* denotes ‘someone or something that has existed for a long time,’ it is interpreted non-literally. This meaning corresponds to Meaning 5 discussed in Ma (2002), claims that the meaning entails the common feature that depicts the ongoing time which is extended directly from the core meaning of *lao* ‘old.’ According to Gibbs (1987), transparent idioms refer to the figurative meaning that is not closely related to its literal meaning. Thus, the meaning ‘someone that has existed for a long time’ refers to the transparent meaning of *lao*. Apart from the core meaning, *lao* has no constraint on the animacy of the noun in the object position when it is non-literal. That is, both animate and inanimate nouns can co-occur with *lao*. The animate noun will be discussed in Type 2-1-1 while the inanimate noun in Type 2-1-2.

Type 2-1-1 Transparent non-literal meaning of *lao* modifying an animate noun

First of all, an animate noun like *zhugu* ‘customer’ can be modified by *lao*, as in (14).

(14) *lao zhugu*

old customer

‘the customer who has come regularly for a long time’

As shown in (14), *lao* modifies the relationship between the speaker (who might be a shop owner or a clerk) and the customer. The prolonged relationship has existed for a long time; it presents the feature of ‘time continuity,’ which is closely related to the core meaning ‘old.’

An animate noun modified by the non-literal *lao* displays the characteristic that it describes the interpersonal relationship, such as friendship, companionship, marriage or relations with associates. *Lao* specifies the continuity of the long relationship and it often occurs with nouns like *pengyou* ‘friend,’ *tongxue* ‘classmate,’ and *linju* ‘neighbor.’ The relationship, just like the living organism, has a start point while it is built, through a long, stable period of time span, and an end point.

When *lao* occurs with relationship nouns, it is interpreted non-literally and it refers to the long-term relationship from the acquaintance till the present. As Feng (2008) suggests, the identity, age, and the duration of the relationship determine the non-literal meaning of *lao*. The non-literal meaning of *lao* is mapped from the advanced state of a living organism in the lifespan (i.e., the concrete domain/ the core meaning) to the prolonged continuation in an interpersonal relationship (i.e., the abstract domain/ the extended non-literal meaning).

Type 2-1-2 The transparent non-literal meaning of *lao* modifying an inanimate

noun

In addition to an animate noun, *lao* with a non-literal meaning can occur with an inanimate noun, as in (15).

(15) lao difang

old place

‘a familiar place that has existed for a long time’

In (15), *lao* modifies the familiarity of the place. The familiarity is made in agreement that has existed for a long period of time, showing the feature of ‘time continuity.’ *Lao* occurring with an inanimate noun denotes a mutual agreement that is reached by friends as in (15), or the long-existing object, as in (16).

(16) lao jie

old street

‘a street that has existed for a long time’

Lao in (16) denotes the long-term existence of the street. The street is an inanimate entity so there will be no answer to its birth time. The existence is known by the general agreement shared by the people in a community. The non-literal meaning of *lao* with an inanimate noun refers to ‘something that has existed for a long time.’ Similarly, there is a mapping between the advanced state of a living organism in the lifespan (i.e., the core meaning) to the prolonged duration of the existence of an entity (i.e., the non-literal meaning).

Overall speaking, Type 2-1 consists of two subtypes of *lao* which is closely related to the core meaning: Type 2-1-1 with an animate noun, and Type 2-1-2 with an inanimate noun.

2.3.2.2 Opaque Non-literal Meaning of *Lao*

Regarding the second non-literal meaning of *lao*, it is distinct from the former one in terms of the relation with its core meaning. The former meaning refers to ‘someone or something that existed for a long time,’ which is closely related to the

The meaning of *lao* denotes the ‘experienced’ characteristic that modifies *huli* ‘fox,’ and refers to as ‘someone who is experienced.’

Type 2-2-2 Opaque non-literal meaning of *lao* modifying an inanimate noun

In addition to an animate noun, *lao* can occur with inanimate nouns like *youtiao* ‘deep-fried dough sticks’, denoting someone who is sophisticated, altered by experiences as in (18).

- (18) *lao youtiao*
old deep-fried dough sticks
‘a sophisticated person’

The noun *youtiao* is often fried more than one time to make it crispy. Once it is in the fryer deep-fried over and over again, by analogy it refers to the ‘tactful, sophisticated’ characteristic of human beings. In (18), *lao* means ‘experienced,’ to signify the analogical feature of *youtiao*.

Type 2-2-2 refers to *lao* modifying an inanimate noun as in *lao youtiao* ‘a sophisticated person’ and *laojianghu* ‘a man of long experience’; Type 2-2-1 refers to *lao* modifying an animate noun as in *lao shou* ‘a veteran’ and *lao huli* ‘a sly person.’ These two types share the same property because they both are derived from Type 2-1, and not apparently related to the core meaning of *lao*.

To sum up, Section 2.3 offers a new classification of the meanings of *lao* with respect to its semantic features and syntactic categories. The literal meaning of *lao* is elicited by an animate noun; both the transparent and opaque non-literal meanings of *lao* (e.g., ‘one who is experienced at something’ and ‘someone or something existed for a long time’) collocate with animate and inanimate nouns. Table 2-4 illustrates the classification of the linguistic properties of *lao*.

Table 2-4 The Linguistic Properties of *Lao*

Type			Example
1 [+literal]			<i>lao muqin</i> ‘old mother’
2 [-literal]	2-1 [+transparent]	2-1-1 [+animate]	<i>lao pengyou</i> ‘a friend that made for a long time’
		2-1-2 [-animate]	<i>lao difang</i> ‘a long-existing place’
	2-2 [+opaque]	2-2-1 [+animate]	<i>lao shou</i> ‘a veteran’
		2-2-2 [-animate]	<i>lao youtiao</i> ‘a sophisticated person’

2.4 Summary of Chapter Two

In this chapter, we have discussed the linguistic properties of *lao* in terms of the semantic and syntactic features. As discussed in the previous studies, *lao* is a polysemous word that carries different meanings. The semantic field of *lao* consists of three levels in which the relations are complicated. To be specific, in addition to its core meaning, some meanings of it are closely related to its core meaning while others are not apparently related to its core meaning. In addition, four empirical studies on the acquisition of metaphorical language have been reviewed, and some inadequacies have also been presented. Finally, we have proposed a new classification of *lao* with literal and non-literal meanings with respect to the noun type *lao* modifies. Based on the linguistic properties of *lao* and the previous empirical studies, we will present the research design of the present study in Chapter Three.

Chapter Three

Research Design

In this chapter, the subjects and the research design of the present study were introduced to look into L1 Mandarin-speaking children's ability to comprehend literal and metaphorical expressions of *lao*. In Section 3.1, the background of the subjects recruited for the formal study is described. In Section 3.2, test materials and two comprehension tasks are introduced. In Section 3.3, the research procedures of the pilot study and formal study are reported with the scoring criteria. Finally, a short summary of this chapter is provided in Section 3.4.

3.1 Subjects

Levorato and Cacciari (1995) proposed a model for the acquisition of figurative language, named the Global Elaboration Model (GEM) to explain children's abilities to process figurative language. According to the GEM, children whose ages were approximately up to seven commonly processed language literally and those aged from eight to nine years old started using contextual information to activate world knowledge to process non-literal expressions. In addition, some previous studies have shown that the age of 10 is the breakthrough of the comprehension of metaphorical expressions (Gibbs 1987, Levorato and Cacciari 2002, Hsieh 2008).

Following Levorato and Cacciari's (1995) assumption, the present study intended to recruit children aged from 7 to 11 in order to investigate whether children at age 7 were able to comprehend the figurative expression of *lao* and find out whether the age of 10 was the breakthrough for figurative expressions in Mandarin. Approximately a total of 100 subjects were asked to participate in the study from

public elementary school in Taichung. They were further divided into five groups, from G1 to G5 as the experimental groups. In addition, a group of 20 Mandarin-speaking adults were recruited as the control group.

Table 3-1 Background of the Subjects

Group		Mean Age	Range	Number
Experimental	1	7	7;5~8;6	20
	2	8	8;5~9;4	20
	3	9	9;5~10;5	20
	4	10	10;5~11;5	20
	5	11	11;5~12;4	20
Control	6	25	23~26	20

As Table 3-1 shows, each experimental group consisted of 20 children whose mother tongue is Mandarin Chinese. All the subjects were selected from middle-class families and age-appropriate classes. The subjects had to go to school for five days a week; for the first and second graders, they had 22 periods of classes per week; for the third and fourth graders, 29 periods per week; for the fifth and sixth graders, 31 periods per week. Furthermore, they had language classes every day: five periods of Mandarin, one period of local languages, including Taiwanese Hokkien, Hakka, or the Formosan languages. The third and fourth graders had one period of English; the fifth and sixth graders had two periods of English (per week). Each period lasted for 40 minutes. Mandarin Chinese is the main language for all the subjects to use for communication at school.

Twenty Mandarin-speaking adults were the control group and their ages ranged

from 23 to 26. They were all born in Taiwan and speak Mandarin Chinese as the mother tongue. Most of them were graduate students from National Taiwan Normal University.

3.2 Materials and Methods

Generally speaking, there are two types of approaches to studying language acquisition: longitudinal and cross-sectional studies (Larsen-Freeman and Long 1991). Both longitudinal studies and cross-sectional studies have their merits and drawbacks. Regarding longitudinal studies, the researcher usually investigates a group of participants or an individual case for a long period of time. The benefits are that it is straightforward to examine the natural occurring language and the naturalistic data offer a thorough description of subjects' language behavior. However, the drawback may include the limitation of the subject pool and inconvenience for data collection. Explicitly, this kind of study consists of a small subject pool in consequence of the long-time investigation and the researcher should be as non-intrusive as possible during the whole process of investigation. Owing to the small subject pool, the data obtained from longitudinal studies may not be generalized to other children (Larsen-Freeman and Long 1991).

Compared with the naturalistic context in longitudinal studies, cross-sectional studies provide a controlled context (i.e., the use of an artificial task) for subjects (Larsen-Freeman and Long 1991). In addition, cross-sectional studies set up several factors beforehand in which one is needed to be constant. Therefore, the advantages are that it would be more efficient to look into extensive issues at one time with a large sample size. In addition, the researcher can generalize the results to the large

population instead of merely applying to specific subjects (Larsen-Freeman and Long 1991).

Since the present study aimed to investigate various issues such as age, animacy, task effect, degree of transparency, and metaphoricality. These issues would not be addressed systematically, if the study is conducted longitudinally. Owing to this inadequacy, the present study adopted the cross-sectional means as the research method.

The cross-sectional studies have been generally conducted to explore children's ability to comprehend idiomatic or figurative expressions (Levorato and Cacciari 1995, 1999, 2002, 2004, Nippold and Taylor 2002, Cain and colleagues 2005, 2009, Hsieh and Hsu 2010, Vulchanova and colleagues 2011). For example, Levorato and Cacciari conducted a number of cross-sectional studies (1995, 1999, 2002, 2004), which discussed issues in children's reading comprehension and semantic analyzability of idioms. Hsieh and Hsu (2010) also employed a cross-sectional approach to investigate effects of familiarity, context, and linguistic convention on L1 idiom comprehension of Mandarin-speaking children.

Previous studies have employed a production task to examine children's abilities on figurative expressions (Levorato and Cacciari 1995, 2002). In these studies, researchers coded the collected data into either literal or figurative. However, the purpose of the production task still focused on exploring children's comprehension of figurative expressions. The real production of figurative expressions cannot be elicited. In the present study, it would also be difficult to conduct a production task. For example, if the picture were presented to elicit the production figurative expressions, it would elicit the naming such as *laojingcha* 'an old police officer' or *laoyisheng* 'an old man'; but for items like *laopengyou* 'a friend that one has made for

a long time' or *laohuli* 'a sophisticated person,' it would be difficult to be presented by pictures. Moreover, previous studies showed that children have not started producing conventionalized figurative expressions until the age around 9 (Winner 1988). Since the youngest participants in present study were 7-year-olds, it would be too challenging for them to produce figurative expressions.

The present study investigated children's ability to comprehend the figurative expression of *lao* cross-sectionally. It is hypothesized that children's ability correlates possibly with several factors such as age, task effect, animacy, degree of transparency, and metaphoricality. In order to investigate our subjects' ability of metaphorical language, we conducted two comprehension tasks in the study: the Interpretation Task (IT Task) and the Multiple-choice Task (MC Task).

The interpretation task consists of questions without alternative choices, whereas the multiple-choice task is composed of questions with three alternative choices. It has been found that multiple-choice questions have been commonly used to examine the comprehension of figurative language because they are more easily presentable and appropriate to assess the understandings of figurative language in context (Levorato and Cacciari 1995, Cain and colleagues 2009).

In the present study, the classification and distribution of the test items are shown in Table 3-2. For more details, please refer to Appendixes A and B.

Table 3-2 A Classification of *Lao*

Type			Example	IT Task	MC Task
T1 [+literal]			<i>lao muqin</i> ‘old mother’	Q2, Q10, Q12	Q2, Q10, Q12
T2 [-literal]	T2-1 [+transparent]	T2-1-1 [+animate]	<i>lao pengyou</i> ‘a friend that one has made for a long time’	Q8, Q11, Q15	Q8, Q11, Q15
		T2-1-2 [-animate]	<i>lao difang</i> ‘a long-existing place’	Q1, Q19, Q20	Q1, Q19, Q20
	T2-2 [+opaque]	T2-2-1 [+animate]	<i>lao niao</i> ‘an expert’	Q7, Q14, Q17	Q7, Q14, Q17
		T2-2-2 [-animate]	<i>lao youtiao</i> ‘a sophisticated person’	Q3, Q5, Q18	Q3, Q5, Q18
Fillers			<i>tie gongji</i> ‘a stingy person’	Q4, Q6, Q9, Q13, Q16	Q4, Q6, Q9, Q13, Q16
Total				20	20

As shown above, *lao* as an adjective is categorized into two types based on its meanings: Type 1 refers to the core meaning of *lao*, ‘old.’ Type 2 of *lao* is interpreted non-literally, which can be further divided into two subtypes. Type 2-1 is the transparent non-literal meaning of *lao*, referring to someone or something is ‘long-existing’. Type 2-1-1 refers to *lao*, which co-occurs with an animate noun like *lao pengyou* denoting the long-existing relationship with a friend. Likewise, Type 2-1-2 refers to *lao*, which appears with an inanimate noun like *lao difang* ‘a long-existing place’. Type 2-2 refers to someone who is ‘experienced,’ which is different from Type 2-1; it carries a feature of [+opaque] representing the relationship

with the core meaning of *lao* is not apparently close and semantically opaque. Similarly, Type 2-2-1 refers to the opaque non-literal meaning of *lao* with an animate noun as in *lao niao* ‘an expert,’ and Type 2-2-2 *lao* appears with an inanimate noun as in *lao youtiao* ‘a sophisticated person.’

In both tasks, there were 15 phrases of *lao*. The selected items were chosen based on the literalness of meanings, either literal or non-literal. Furthermore, non-literal meanings were further divided according to the degree of transparency, either transparent or opaque. For the non-literal meanings with transparent and opaque features, it was separated based on the animacy of the *lao* NP. Three items were designed for each subtype and five fillers were added. Twenty questions were included in each task. In the interpretation task, the test question was presented in isolation without any alternative answers. As for the multiple-choice task, the test items were adopted from the interpretation task and were presented with three alternative answers.

Previous studies have already claimed that linguistic context is a critical factor affecting the comprehension of figurative expressions (Levorato and Cacciari 1995, 1999, Hsieh 2008, Hsieh and Hsu 2010). Therefore, in the present study two comprehension tasks were presented in the same designed story scenario. There were two main characters in the story: Brother Crab and Little Monkey. The story was described as follows: Brother Crab has been living under the sea for years. One day, he decided to go on an adventure to the land. He made a new friend there, Little Monkey, but he could not fully understand the language of his new friend’s. The subjects were asked to tell Brother Crab what Little Monkey meant by answering the test questions.

Below are examples of the questions shown to the subjects in the Interpretation Task as in Table 3-3 and the Multiple-choice Task as in Table 3-4.

Table 3-3 An Example of the Interpretation Task

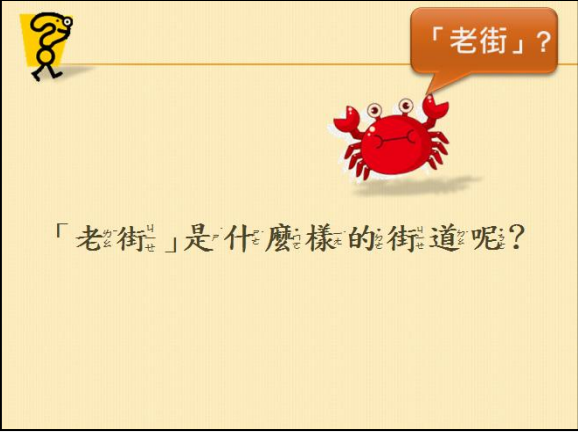
The subject saw:	
The subject heard:	<p><i>“Laojie” shi shenme yang de jiedao ne?</i></p> <p>‘What kind of street does ‘an old street’ mean?’</p>

Table 3-4 An Example of the Multiple-choice Task

<p>The subject saw: < Scene 1 ></p>	
<p>The subject heard: < Scene 1 ></p> <p><i>Pangxie didi zou zai lu shang, yudao xiao houzi. Xiao houzi shou: “Ni di yi ci lai, wo dai ni dao zui renaode laojie guang yi guang, nali you henduo piaoliangde guji.”</i></p> <p><i>Pangxie didi bu zhidao “laojie” shi shenme yisi. Xiao pengyou, qing gankuai gaosu pangxie ba.</i></p> <p>‘Brother Crab walked along and met the little monkey on the street. The monkey said, “Let me show you to the most popular old street. There are many beautiful historic spots. Brother Crab didn’t know what “an old street” means. Please tell him.’</p>	
<p>The subject saw: <Scene 2></p>	
<p>The subject heard: <Scene 2></p> <p><i>“Laojie” shi shenme yang de jiedao ne?</i></p> <p>‘What kind of street does ‘an old street’ mean?’</p> <p>(1) <i>Feichang shouxi</i> ‘very familiar’</p> <p>(2) <i>Henyou lishi</i> ‘with a long history’</p> <p>(3) <i>Henduo lao ren</i> ‘with many elders’</p>	

Both the IT Task and the MC Task presented a designed story scenario and a picture related to the sentence situation. In order to make sure our subjects comprehend the questions and options, designed scenarios shown on the PowerPoint slides were recorded in advance.

3.3 Procedures

3.3.1 Pilot Study

In order to control the quality and validity of the test items, a pilot study was conducted prior to the formal study. For the purpose of this study, children's comprehension of figurative expression *lao* was examined; thus, a pilot study was conducted to make sure the given instruction, test materials, and the tasks presented by the PowerPoint slide were fully comprehensible for all age groups of children.

The pilot study was composed of two comprehension tasks, the Word-in-Isolation task (WII) and the Word-in-Context task (WIC). Each task consisted of 20 questions, including 16 target items and 4 fillers (See Appendix C). The subjects were recruited from one Elementary School in Taichung. A total of 15 students from G1 to G5 (3 people for each grade) were asked to participate in the study. They were given two trials prior to each formal task and asked to answer the questions. The two tasks were conducted one-on-one in an unoccupied classroom and the total time was around 20 minutes.

The results showed that the fifth graders (10 years old; Mean= 0.81 in the WII task, Mean = 0.88 in the WIC task) performed better on both tasks than the first graders (6 years old; Mean 0.44 in the WII task, Mean= 0.53 in the WIC task). The correct response rate for both tasks grew as the subjects' age increased. The results

also indicated that the subjects performed better on literal meanings than on metaphorical meanings (For more information, please refer to Table I in the Appendix D).

It was found that the subjects performed better on the WIC task (Mean=0.81) than the WII task (Mean= 0.68), indicating that the linguistic context is actually a useful aid in comprehending metaphorical expressions. In addition, the results showed that the mean score for *lao* with an animate NP (Mean= 0.78) was higher than *lao* with an inanimate NP (Mean=0.71). Finally, it was found that Type 2 (i.e., affix) (Mean= 0.71) was more difficult than Type 1 (i.e., non-affix) (Mean= 0.77) for the subjects.

However, there were some inadequacies of the design of the pilot study. First, some test materials needed to be modified because it was found that the linguistic context of certain items was misleading (for example, Q8: *lao jingcha* in the Appendix C), and resulting in the third graders' inability to comprehend some items in the WIC task. Second, it was found that two of the second graders' significantly outperform other subjects, showing that average language ability should be taken into consideration in the subject recruitment in the formal study.

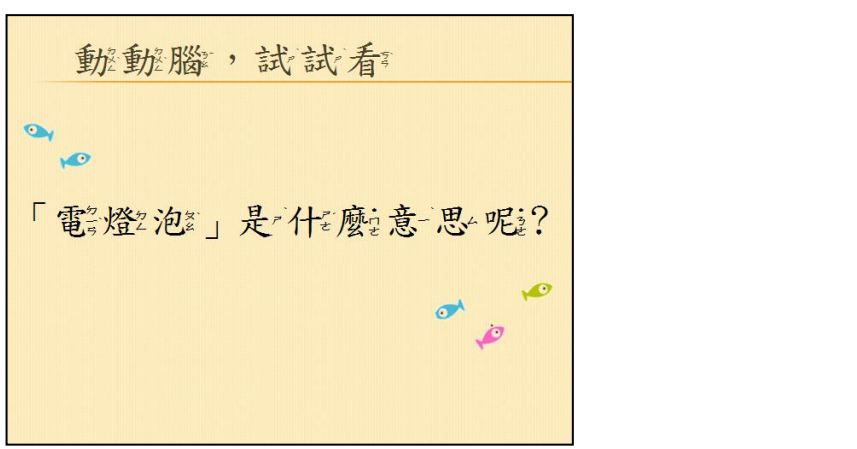
3.3.2 Formal Study

In the formal study, the research procedure was basically similar to that of the pilot study. Since the subjects consisted of young children, a consent form (See Appendix E) was given to their parents in advance. The consent form contained important information of the present study and what to expect if the children took part in the study. In addition, parents were assured that their children's personal

information is kept confidential. Once the consent forms were collected, the tasks were given to the subject.

First, clear instructions were given prior to the tasks. The subjects were introduced to meet the main character in the tasks, Brother Crab. The instruction was described as follows: *Wo shi pangxie didi. Wo zhuzai haidi wangguo li, wo xiangqu ludi shang maoxian haiyou jiao pengyou. Danshi wo ke neng ting bu dong xin pengyou shou de hua. Ke yi bangbang wo ma? 'I am Brother Crab and I live in Undersea Kingdom. I'm going to go on an adventure to the land and make new friends there. But I may not understand what my new friend says. Can you kindly help me?'* In addition, there were two trial questions to make sure the subjects know how to complete the tasks. The trial is illustrated in Table 3-5.

Table 3-5 An Example of a Trial Question

<p>The subject saw:</p>	
<p>The subject heard:</p> <p><i>Dongdong nao, shi shi kan</i></p> <p><i>“Diandengpao” shi shenme yisi ne?</i></p> <p>‘What does “a light bulb” mean?’</p>	

The subjects were asked to answer the questions orally, and the answers were recorded. After the trial, the interpretation task started. As mentioned before, the questions were presented with the pre-recorded voice by the experimenter. The subjects were asked to answer each question according to their intuitions. They had twenty seconds to answer each question. The Interpretation Task took them approximately 15 minutes to complete.

In the multiple-choice task, since the designed story and questions were the same and options were provided, subjects took approximately 10 minutes to complete.

3.3.3 Scoring

In this section, we briefly explain how answers were scored in the two tasks. In the interpretation task, the subjects' responses were rated according to their correctness and in the multiple-choice task, there was only one answer. If the subject chooses the correct answer to the question, he or she was given one point. If the subject does not choose any answer or choose the wrong answer, no point was given. The analysis gave a clear picture of whether our children do not comprehend the questions or whether they interpret the target item literally. The data were scored by two raters. All disagreements in scoring were discussed and resolved so that 100% agreement was attained. All the data were entered into the computer and processed by SPSS as soon as the tasks were completed.

3.4 Summary of Chapter Three

This chapter introduces the background information of subjects, the task designs, the procedures, and the data analysis in the present study. A total of 120 subjects were enrolled: 100 children (aged from 7 to 11-years-old) and 20 adults. Two

comprehension tasks consisted of the interpretation and multiple-choice questions were given to subjects. The answers were rated by two raters and examined by statistical analysis to look into children's comprehension on the figurative expression *lao* in Chinese.

Chapter Four

Results and Discussion

The results of the present study are presented and discussed in this chapter. Section 4.1 reports the differences of the subjects' performances on literal and non-literal meanings of *lao*. Section 4.2 examines the results of the transparent and opaque non-literal meanings of *lao*. Section 4.3 discusses the subjects' performances on the animacy effect of the nouns modified by *lao*. Section 4.4 compares the results of two comprehension tasks, the Interpretation Task and the Multiple-choice Task. Section 4.5 focuses on the developmental patterns of the subjects' interpretation of *lao*. Finally, a brief summary of the results is given in Section 4.6.

4.1 Acquisition of Literal and Non-literal Types

The first research question addressed in the study concerns the difficulty between the literal and non-literal meaning of *lao*. Section 4.1.1 shows the subjects' performance on the two types of meanings of *lao* and Section 4.1.2 further discusses the results of the subjects' responses in terms of the Markedness Theory, according to which the non-literal meaning as the marked form is more difficult to acquire than the literal meaning. That is to say, the acquisition of non-literal meanings dictates the acquisition of literal meanings of *lao*.

4.1.1 A Comparison between Literal and Non-literal Types

As shown in Table 4.1, the overall scores for two types of meanings were significantly different ($F(1, 119) = 122.322, p < .001$), and the *post hoc* comparison showed that the literal type performed better than the non-literal one.

Table 4-1 Subjects' Overall Performances on Literal and Non-Literal Meanings of Lao

Type	M	SD	F	p-value
Literal	0.94	0.10	122.322	.000*
Non-literal	0.75	0.18		

The subjects' mean scores for the literal and non-literal types are shown in Figure 4-1.

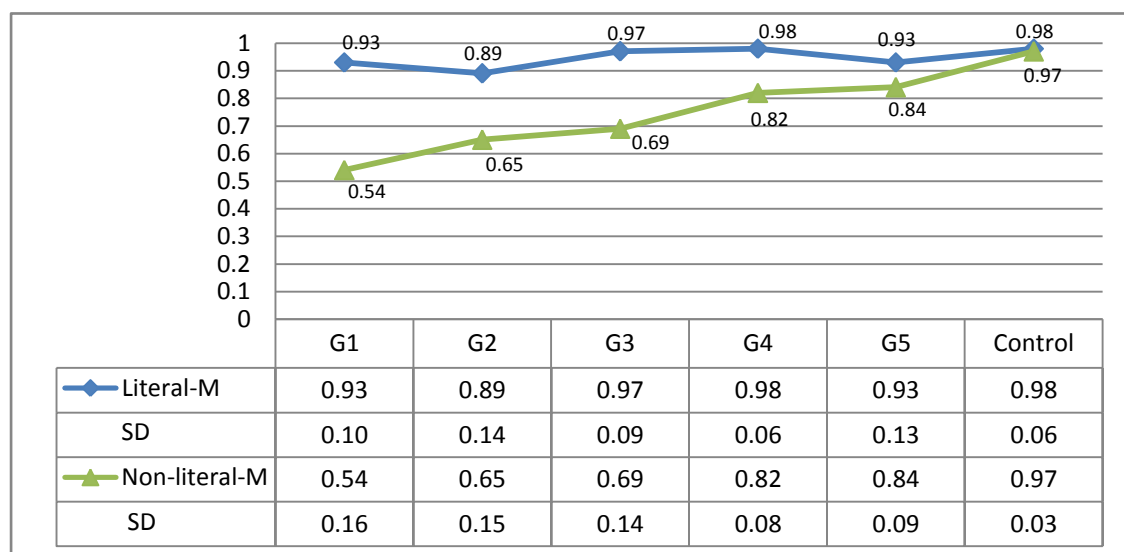


Figure 4-1 Overall Performance of Each Group on Literal and Non-literal Meanings of lao

One-way ANOVA indicated that there was a significant difference among six age groups to the two types of meanings (literal: $F(5, 114) = 2.373, p < .05$; non-literal: $F(5, 114) = 35.141, p < .001$). All the groups performed better on the literal meaning (G1: $M = 0.93 > 0.54$, G2: $M = 0.89 > 0.65$, G3: $M = 0.97 > 0.69$, G4: $M = 0.98 > 0.82$, G5: $M = 0.93 > 0.84$, Control: $M = 0.98 > 0.97$). For the performance of each age group on the two types, the within-group differences are shown in Table 4-2.

Table 4-2 The *p*-values for the within-group Differences between Literal and Non-literal Meanings of *Lao*

	G1	G2	G3	G4	G5	Control
<i>F</i>	90.884	33.796	97.652	67.908	5.468	0.17
<i>p</i>	.000*	.000*	.000*	.000*	.030*	.899

A significant difference was found in G1 ($F(1, 28) = 90.884, p < .001$), G2 ($F(1, 28) = 33.796, p < .001$), G3 ($F(1, 28) = 97.652, p < .001$), G4 ($F(1, 28) = 67.908, p < .001$), and G5 ($F(1, 28) = 5.468, p < .05$). The control group ($F(1, 28) = 0.17, p > .05$) did not respond significantly differently to the two types of meanings, indicating that adults were adept at processing meanings beyond the literal senses and thoroughly familiar with non-literal meanings of *lao*. The statistics showed that the non-literal meaning was more difficult for our subjects to acquire than the literal meaning.

Regarding the between-group comparison, in the literal type, G3, G4, and the control group all performed significantly better than G2 ($p < .05, p < .01, p < .05$ respectively). G1 performed similarly with G2 ($p > .05$), and G3 to G5 all performed similarly with the control group ($p > .05$). In the non-literal type, G2 and G3 performed significantly better than G1 ($p < .01$ and $p < .001$, respectively), G4 significantly outperformed G3 ($p < .01$), G2 ($p < .001$), G1 ($p < .001$), and G5 performed significantly better than G1 to G3 ($p < .001$). The control group significantly outperformed G1 to G4 ($p < .001$), and G5 ($p < .01$). The results presented a developmental pattern in the acquisition of non-literal meanings of *lao* which will be addressed in the next section.

4.1.2 General Discussion

The major finding showed that to acquire the non-literal meaning of *lao* posed more challenges than the literal meaning of *lao*. Figure 4-1 shows a significant

outperformance on the literal type over the non-literal type for all the age groups, which is exactly what we have expected. The literal meaning is generally easier to acquire than the non-literal meaning due to the fact that children's general cognitive structure reflects the property of intellectual concreteness and realism; that is, only referential conception of language is likely to be processed (Levorato and Cacciari 1995). For instance, the children inclined to interpret the meaning of *lao* in *lao jingcha* literally as 'an old police officer' rather than non-literally as 'an experienced police officer,' since they generally made use of the referential feature represented by *lao* such as wrinkles or gray hair to interpret the meaning. On the other hand, the non-literal meaning 'experienced' denoting the result of the aging process involves a less concrete property which is hardly referential from the physical appearance. As a result, to interpret the non-literal meaning of *lao*, children need to notice that there is a discrepancy between what is said and what is meant (Levorato and Cacciari 2002). This result evidently supports the universal principle that explains the order of language development, the Markedness Theory (Jakobson 1971, Eckman 1977, Goodluck 1991). According to the Markedness Theory, once the marked form is acquired, the unmarked form is consequently acquired since the marked form refers to a less frequent or less intuitive language property (i.e., non-literal meaning). In other words, the literal meaning of *lao* was an unmarked form which was used more frequently and acquired easily. The results showed that the literal meaning of *lao* was easier to acquire than the non-literal one, supporting the Markedness Theory.

Regarding the between-group comparison, the older children (G3 and G4) acquired the literal meaning similarly to the control group, and they performed significantly better than G2. It was found that G5 did not significantly outperform the younger children (G1 to G4). To figure out the possible reasons for this, we

re-examined the answers of G5 to the literal type and noticed that the literal item *lao muqin* ‘old mother’ was misleading for some subjects. To be specific, in the Interpretation Task, some children interpreted *lao* as other adjectives such as ‘nice’ or ‘amiably’ instead of the original meaning ‘aged’ as stated in (1) and (2); as for the Multiple-choice Task, they chose one of the options ‘diligent’ rather than the correct one, ‘aged.’

(1) *cisiang de mama* ‘nice mother’ (taken from G5S1)

(2) *heaikeqin de mama* ‘amiable mother’ (taken from G5S6)

However, other literal items like *lao xiansheng* ‘old man,’ or *lao furen* ‘old woman’ were not misleading because the noun phrases *xiansheng* ‘a man’ and *furen* ‘a woman’ were frequently modified by *lao*. It was concluded that part of children in G5 regarded the meaning of *lao* as showing respects when *lao* occurs with the kinship terms *muqin* ‘mother.’

Regarding children’s performances on the non-literal meaning, a steady and developmental curve was presented. Generally speaking, the correct responses to the non-literal meaning of *lao* increased with age. The older children (G4 and G5) significantly outperformed the younger group (G1 to G3), and in particular G2 and G3 performed significantly better than G1. The children at age 11 (G5) obtained the highest scores among all the experimental groups and their scores between literal meaning and the non-literal meaning were close ($F(1, 28) = 5.468, p < .05$). In addition, G4 performed similarly to G5, indicating that the non-literal meaning was not challenging for children beyond ten years old (G4). Since *lao* is a polysemous word which involves the core meaning and meanings beyond the literal level, it was found that to acquire words that stand for many meanings would result in difficulties. Moreover, the children generally acquired the core meaning of polysemous words

first, and the secondary meanings were acquired gradually in subsequent years (Durkin and colleagues 1985). This evidence supports the developmental pattern of acquisition for meanings of *lao*. However, although older children achieved a significant difference with the younger children, the control group significantly outperformed all the children, indicating that the older children still did not fully acquire the non-literal meanings of *lao*. To figure out the possible reasons for this finding, we re-examined our subjects' responses and found that *lao*-phrases which were metaphorically opaque such as *lao youtiao* 'a sophisticated person' and *lao jianghu* 'a sophisticated person' posed great challenges on the Interpretation Task particularly. Therefore, the degree of markedness (cf. Jakobson 1971) for these items was fairly higher than other marked non-literal meanings and raised the difficulties of non-literal meanings for the older children in our study.

The results demonstrated that the age of acquisition of non-literal expressions basically started with ten years old, which is consistent with the results of previous studies (Gardner and Winner 1978, Gibbs 1987, Hsieh 2008, Levorato and Cacciari 2002, Prinz 1983). The developmental trend emerging from the result of the present study is supported by Levorato and Cacciari's (2002) Global Elaboration Model (GEM), which consists of five developmental phases: Phase 1 refers to children who are up to age seven, in which children elaborate meanings piece-by-piece in a primitive or literal way (i.e., G1 in the study). Children aged at eight to nine (i.e., G2 and G3 in this study) are at Phase 2 in which they start to acquire the sensitivity to contextual clues and make use of world knowledge to infer non-literal meanings. At Phase 3, children at ages ten to twelve (i.e., G4 and G5) are aware of the existing discrepancy between what is said and what is intended and that the literality can be violated on the basis of communication purposes. Although children at ages 10 and 11

in the present study did not fully acquire non-literal meanings of *lao*, the evidence that the older children in our study indeed performed significantly better than those at ages 7 to 9 implied that the children at age 10 developed a remarkable meta-linguistic ability to process the meanings beyond the literal sense (Levorato and Cacciari 2002). Moreover, Nippold (2004) states that children at age 10 are able to read proficiently and thus are capable of acquiring new vocabularies by employing the meta-linguistic strategies such as inferring the meanings from linguistic context. These evidence give accounts for why the age 10 is a cutting-point for better acquisition of figurative meanings. However, it was indicated that with the subjects' age increased, their ability to acquire non-literal expressions continued developing up to adolescents and finally to the adulthood (Hsieh 2008). The GEM also showed that the adult-like competence in figurative expressions was not acquired after the age of fifteen.

4.2 Acquisition of Transparent and Opaque Types

In addition to exploring children's ability of literal and non-literal meanings of *lao*, the present study further examines the acquisition difficulty of non-literal meanings: transparent and opaque. As mentioned in Chapter Two, the non-literal meanings of *lao* were re-classified into two types: (1) the transparent non-literal meaning, which is closely related to the literal meaning of *lao*, and (2) the opaque non-literal meaning, which is not apparently related to the core meaning of *lao*. The second research question in the study aims to examine the difficulty between transparent and opaque types of non-literal meanings of *lao*. Section 4.2.1 reports the overall findings of the two types and Section 4.1.2 further discusses the results of the subjects' responses.

4.2.1 A Comparison between Transparent and Opaque Non-literal Meanings

As shown in Table 4-3, the overall scores for the two types of non-literal meanings of *lao*, transparent and opaque were significantly different ($F(1, 119) = 80.198, p < .001$), and the *post hoc* comparison showed that generally the transparent type was acquired better than the opaque type.

Table 4-3 Subjects' Overall Performances on the Transparent and Opaque Meanings of *Lao*

Type	M	SD	F	<i>p</i> -value
Transparent	0.82	0.19	80.198	.000*
Opaque	0.69	0.21		

Figure 4-2 presents the mean scores of the subjects' responses to the two types of non-literal meaning: Transparent and Opaque.

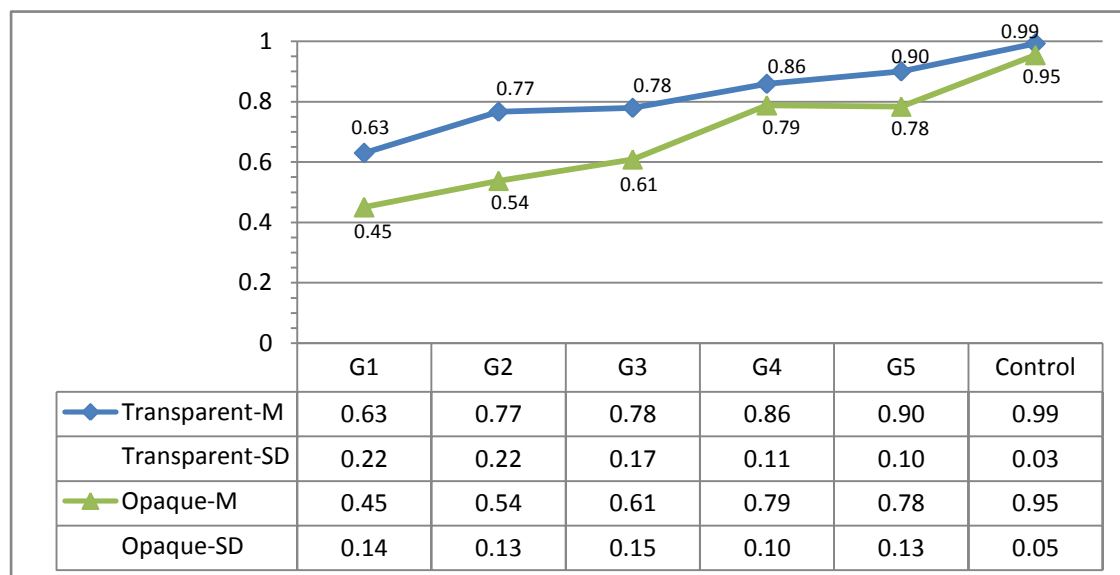


Figure 4-2 Overall Performance of Each Group on Transparent and Opaque Meanings of *Lao*

As shown above, all the groups performed better on the transparent type than the opaque type (G1: $M = 0.63 > 0.45$, G2: $M = 0.77 > 0.54$, G3: $M = 0.78 > 0.61$, G4: $M = 0.86 > 0.79$, G5: $M = 0.90 > 0.78$, Control: $M = 0.99 > 0.95$).

= 0.86 > 0.79, G5: M = 0.9 > 0.78, Control: M = 0.99 > 0.95). Table 4-4 further shows the within-group differences for the performance of each age group between two types.

Table 4-4 The *p*-values for the within-group Differences between the Transparent and the Opaque Meanings

	G1	G2	G3	G4	G5	Control
<i>F</i>	20.775	21.486	26.201	5.431	15.915	8.598
<i>p</i>	.000*	.000*	.000*	.031*	.001*	.009*

A significant difference between the transparent and opaque meanings was found in G1 ($F(1, 28) = 20.775, p < .001$), G2 ($F(1, 28) = 21.486, p < .001$), G3 ($F(1, 28) = 26.201, p < .001$), G4 ($F(1, 28) = 5.431, p < .05$), G5 ($F(1, 28) = 15.915, p < .01$), and the control group ($F(1, 28) = 8.598, p < .01$). Therefore, it has been found that the opaque meaning was more difficult to acquire than the transparent meaning.

Concerning the between-group differences in the two types, one-way ANOVA indicated that there was a significant difference among the six age groups in the two sub-types of the non-literal meaning of *lao* (transparent: $F(5, 114) = 12.661, p < .001$; opaque: $F(5, 114) = 48.687, p < .001$). The *post hoc* comparison showed that for the transparent meaning, G2, G3, and G4 significantly outperformed G1 ($p < .01, p < .01$, and $p < .001$ respectively). G5 significantly outperformed G1 ($p < .001$), G2 ($p < .01$), and G3 ($p < .05$). G5 was not significantly different with G4 ($p > .05$). However, the control group performed significantly better than the experimental group ($p < .001$) except for G5 ($p > .05$). As for the opaque meaning, G2 performed significantly better than G1 ($p < .05$), G3 performed significantly better than G1 ($p < .001$), and G4 and G5 significantly outperformed G1, G2, and G3 ($p < .001$). However, the control group significantly outperformed all the children ($p < .001$). Based on the finding, although

G5 significantly outperformed the younger groups on both types of the non-literal meaning, they still had a significant difference from the control group. However, it was concluded that even G5 had not fully acquired the opaque meaning of *lao* and found the opaque meaning especially difficult.

4.2.2 General Discussion

In addition to the finding that the literal meaning of *lao* was easier to acquire than the non-literal meaning, we further explored the difficulty between the two types of the non-literal meaning, transparent and opaque. Previous studies have noted that metaphoric transparency was found to influence the developmental process of children's acquisition of figurative expressions (Gibbs 1987). The major finding illustrated that the transparent meaning was easier to acquire than the opaque meaning as we had expected. In other words, the meaning which is not closely related to the core meaning of *lao* as in *lao niao* 'an expert' was more challenging for the children to acquire than that which is apparently related to the core meaning of *lao* like *lao pengyou* 'a friend that one has made for a long time.'

As mentioned in Chapter Two, *lao* functions as an adjective and later is grammaticalized as a frequency and degree adverb. Liu (2007) argued that the grammaticalization of *lao* is undergoing the mechanism of metaphor. Specifically, the grammaticalization is formed by means of the similarity between the cognitive domain (i.e., to understand the abstract concept based on the concrete concept). Heine and his colleagues (1991) propose a scale representing the route of grammaticalization motivated by metaphor as represented in (3).

(3) PERSON > OBJECT > ACTIVITY > SPACE > TIME > QUALITY

The scale accounts for the domain of conceptualization in terms of the degree of metaphorical “abstraction” (i.e., left: most concrete; right: most abstract). That is, any one of the concepts on the scale may serve to conceptualize any other categories to its right. Accordingly, Liu (2007) stated that the grammaticalization of the adverb of *lao* is transferred from the PERSON domain (i.e., the origins of the core meaning of *lao* ‘a seventy-year-old elder’) onto the TIME domain (i.e., ‘the duration of action’ as in *lao zai shuijiao* meaning ‘always sleeps’), following the route from the most concrete toward the abstract concept. Along this line, the transparent meaning of *lao* is transferred from the PERSON domain (i.e., the origins of the core meaning of *lao* ‘a seventy-year-old elder’ onto the TIME domain (i.e., ‘the duration of time’ as in *laopengyou* ‘someone who existed from a long time ago.’) In other words, *lao* originally denotes the “maturation (growth of age),” in which “the long-standing of age in the lifespan” is used to express the temporal concept about the continuity of interpersonal relationship metaphorically. Furthermore, the opaque meaning of *lao* as in *laoshou* ‘an experienced person’ is conceptualized from the TIME domain (i.e., ‘a prolonged period of time’) into the QUALITY¹ domain (i.e., ‘an experienced or sophisticated person.’) The concept in the TIME domain ‘a prolonged period of time’ is used to express the consequence or characteristic of someone who undergoes a prolonged period of time. As a result, an explanation for why the transparent meaning of *lao* is easier to process may be due to the fact that according to the scale of conceptualization for human experiences, the transparent meaning is conceptualized by concreteness (i.e., PERSON → TIME), whereas the opaque meaning of *lao* poses more challenging for acquisition since it is conceptualized by a relatively abstract concept (i.e., TIME → QUALITY). According to Ma (2002), the diverse meanings

¹ Heine and his colleagues (1991) defined the QUALITY concept as ‘the catchall for a number of quite divergent conceptualization.’

of *lao* comprise a three-level semantic field. The first level refers to the core meaning ‘old’ and the feature ‘a prolonged period of time’ which is derived from the core meaning constructs the second level. The second level consists of *lao pengyou* ‘someone who existed from a long time ago,’ and another meaning as in *lao shou* ‘an experienced person.’ The latter one (i.e., the opaque meaning) is claimed to be indirectly related with the former meaning as illustrated in Figure 4-3. It has been implied that on the scale of metaphorical concepts, there seems to be a cognitive activity that illustrates an egocentric distance proceeding from the concept closest to human experience (i.e., PERSON) to the one that is the most remote (i.e., QUALITY) (Heine and his colleagues 1991). In other words, the opaque meaning is remote from the children’s personal experience and they need to bear greater cognitive load in processing the metaphorical opaque meaning.

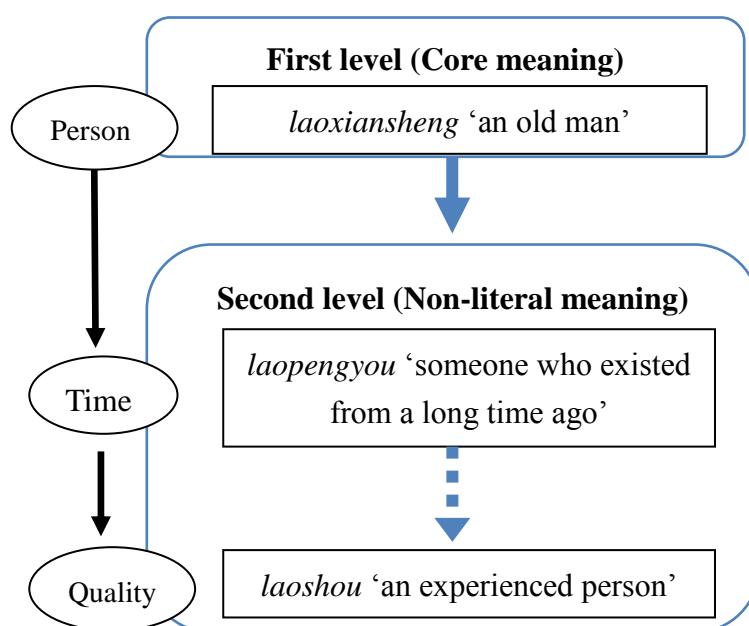


Figure 4-3 The Match between the Semantic Field of *Lao* (Ma 2002) and the Scale for the Grammaticalization Route

The results of the study are consistent with the previous findings of Gibbs (1987),

and Nippold and Rudzinski (1993) that their children more easily comprehended and explained the transparent meanings than opaque meanings. Gibbs (1987) states that when processing transparent idioms the children tended to metaphorically extend the literal meanings to other contexts and create figurative interpretations; while processing opaque idioms, the children encountered more difficulties since the obscure historical nature for the meanings of opaque idioms was not easy to recognize. In the case of *lao*, the opaque meaning ‘an experienced person’ denoting the state as the consequence of being through ‘a prolong period of time,’ which is obscure and involves historical origins. For instance, *lao jianghu* originated from the Chinese novel *Ershinian mudu zhe guaisiansiang*² (Vol. 50) in Qing Dynasty, in which one described himself as a *lao jianghu* ‘a man of long experience’ and claimed that how a man of long experience fell for your tricks. For that reason, the historical nature of the opaque meaning of *lao* was hardly recognizable for children.

With regard to the between-group comparison in the transparent meaning, the fifth graders were found to perform significantly better than the younger groups (G1 to G3) and similarly to the control group. It was found that the fifth graders gained the ability to acquire the transparent meanings² as the adults did. Although G4 performed similarly with G5, they did not achieve the adult-like performance. In addition, G2, G3, and G4 were not significantly different from one another, indicating that the younger children did not acquire the ability of the transparent meaning of *lao* until the age of eleven (i.e., G5).

However, for the opaque meanings of *lao*, the older children (G4 and G5) exhibited a better performance than the younger children (G1 to G3), indicating that the children at ten have started developing the ability to infer the non-literal meaning

² *ErshiNianMuDuZhiGuaiXianZhuang* was written by Wujianren and the original quote was *Shuzhi wo ye shige laojianghu, qi ken shang ni de dang.*

that is not closely related to the literal meaning of *lao*. This is somewhat consistent with the finding in Gibbs (1987) that five- to nine-year-olds (i.e., G3 in the study) have not fully acquired the opaque idioms. However, this was found in examining the acquisition of the opaque idioms in the without-context condition (Gibbs 1987). Although the older children performed significantly better than the younger children, the acquisition was still in the progress since the control group significantly outperformed the children. Generally speaking, the results indicated that Grade 5 has acquired the transparent meaning of *lao*; however, they still have not acquired the opaque meanings as in *lao niao* ‘an expert.’

4.3 Acquisition of the Animacy Effect of *Lao*

The third research question addressed in this study aimed to examine whether the animate feature of the NP modified by *lao* is likely to affect the interpretation of *lao*. With respect to the animacy effect on the non-literal meanings of *lao*, it is hypothesized that *lao* with an animate noun is easier to acquire than *lao* with an inanimate noun.

4.3.1 A Comparison between Animate and Inanimate NPs Modified by *Lao*

Table 4-5 shows that the overall scores for *lao*-phrases with animate and inanimate NPs achieved a significant difference ($F(1, 119) = 153.276, p < .001$), and the scores for animate NPs gained a higher score (Mean = 0.83) than those for inanimate NPs (Mean = 0.68).

Table 4-5 Subjects' Overall Performances on the Animate and Inanimate

Features				
Type	M	SD	F	<i>p</i> -value
Animate	0.83	0.18	153.276	.000*
Inanimate	0.68	0.21		

To further identify the animacy effect in each age group, Table 4-5 compares the within-group difference for the scores on the animate and inanimate noun phrases of *lao*.

Table 4-6 The *p*-values for the within-group Differences between the Animate and Inanimate NPs of *Lao*

	G1	G2	G3	G4	G5	Control
<i>F</i>	41.514	61.059	9.417	64.006	45.38	16.54
<i>p</i>	.000*	.000*	.006*	.000*	.000*	.001*

A significant difference was found between the scores for the animate and inanimate NPs of *lao* in all the groups: G1 ($F(1, 28) = 41.514, p < .001$), G2 ($F(1, 28) = 61.059, p < .001$), G3 ($F(1, 28) = 9.417, p < .05$), G4 ($F(1, 28) = 64.006, p < .001$), G5 ($F(1, 28) = 45.38, p < .001$), and the control group ($F(1, 28) = 16.54, p < .01$). Generally speaking, the differences were highly significant ($p < .001$) for all the children except G3 ($p < .01$). Moreover, the *post hoc* comparison showed that the scores for animate NPs were significantly higher than those of inanimate NPs. It was concluded that the *lao*-phrases with inanimate NPs were more difficult to interpret than those with animate NPs. Figure 4-4 presents the mean scores of each group for the animate and inanimate NPs of *lao*.

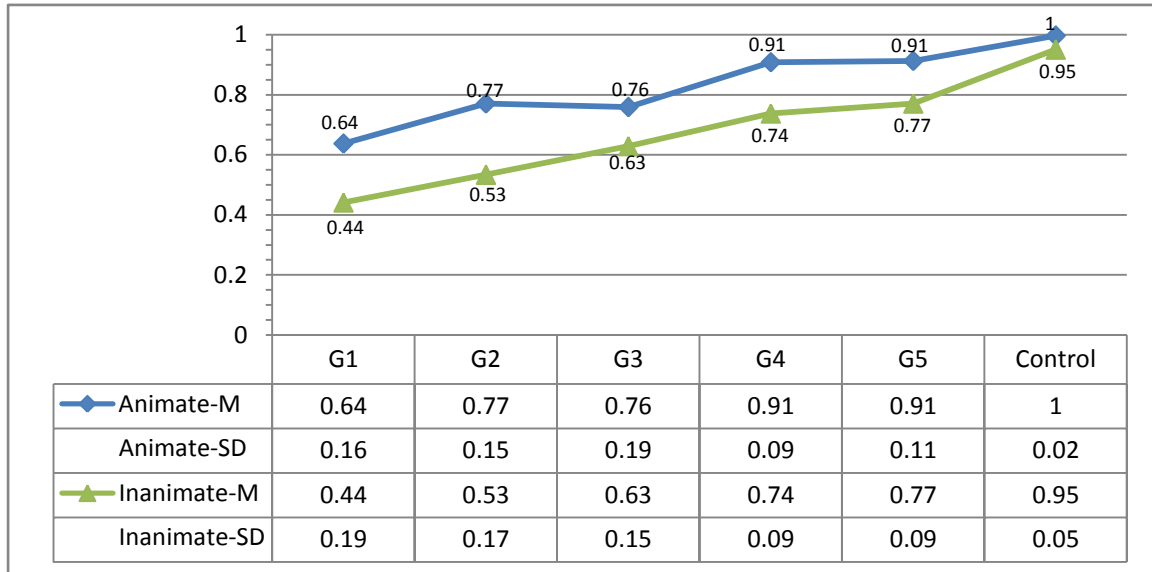


Figure 4-4 Overall Performance of Each Group on the Animate NPs and Inanimate NPs of Lao

As shown above, the scores for the animate NPs of *lao* for all the subjects were high (Mean = 0.64, 0.77, 0.76, 0.91, 0.91, 1 for G1 to G5 and the control group, respectively). On the contrary, the scores for the inanimate NPs of *lao* for all the groups were relatively low (Mean = 0.44, 0.53, 0.63, 0.74, 0.77, and 0.95 for G1 to G5 and the control group, respectively).

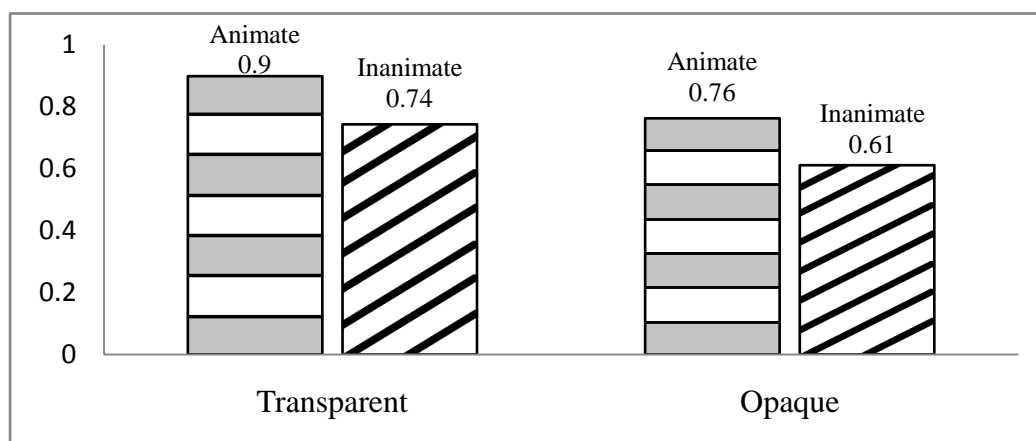


Figure 4-5 Subjects' Overall Performances of the Animacy Effect on the Transparent and Opaque Meanings of Lao

Specifically, it has been found that in the transparent meanings, *lao* with animate NPs (Mean = 0.9) was acquired significantly better than *lao* with inanimate NPs (Mean = 0.74; $F(1,119) = 62.995, p < .001$). In the opaque meanings, *lao* with animate NPs (Mean = 0.76) was acquired significantly better than *lao* with inanimate NPs (Mean = 0.61; $F(1,119) = 80.073, p < .001$).

With regard to the between-group differences in animate and inanimate NPs of *lao*, one-way ANOVA indicated that there was a significant difference among the six age groups (animate: $F(5, 114) = 20.071, p < .001$; inanimate: $F(5,114) = 36.789, p < .001$). The *post hoc* comparison demonstrated that for the animate NPs of *lao*, G3 significantly outperformed G1 ($p < .01$). The older children (G4 and G5) significantly outperformed the younger group (G1 ($p < .001$), G2 ($p < .01$), and G3 ($p < .001$)). The control group significantly outperformed G1 to G3 ($p < .001$), and G4 ($p < .05$). As for the inanimate NPs of *lao*, G2 performed significantly better than G1 ($p < .05$), G3 performed significantly better than G1, and G2 ($p < .001$, and $p < .05$), G4 significantly outperformed G1, G2, and G3 ($p < .001, p < .001, and p < .05$), and G5 significantly outperformed G1, G2, and G3 ($p < .001, p < .001, and p < .01$). However, the control group significantly outperformed all the children ($p < .001$). To conclude, G4 and G5 performed similarly on the *lao*-phrases with inanimate NPs and both of them significantly outperformed the younger groups (G1 to G3), showing that the older children had no difficulty in interpreting non-literal meanings of *lao* with inanimate NPs.

4.3.2 General Discussion

A variety of empirical studies have demonstrated that the distinction between animacy and inanimacy arises from early childhood (Schwartz 1980, Gelman and

Opfer 2002). To be specific, the age of children's understanding of biology-specific processes (i.e., growth, illness, or death) was investigated and it was found that children at the ages of 4 to 6 were able to recognize that some biological properties only apply to animate entities but not inanimate objects.

In accordance with our earlier assumption, the major finding of the present study showed that the *lao*-phrases with animate NPs were easier to acquire than those with inanimate NPs. In other words, the non-literal meaning *lao* with an inanimate NP *youtiao* 'the deep-fried dough sticks' in *lao youtiao* 'a sophisticated person' (Mean = 0.49) was more challenging than that with an animate NP *niao* 'the bird' as in *lao niao* 'an expert' (Mean = 0.6). The difficulty of the meaning of *lao* with inanimate NPs is attributed to the fact that the animacy effect is violated. According to Gelman and Opfer (2002), animate entities are distinguished from inanimate objects in that the animate entities predictably possess the biological function which is specific to living things, and yet inanimate objects fail to undergo any biology-specific processes. In the case of *lao*, the literal meaning of *lao* is 'aged,' which refers to the exclusive physical state of a living organism, meaning 'having lived for a relatively long time or attaining a specific age.' Therefore, it was predictable for the children in our study to accept *lao* modifying nouns with an animate feature since the core meaning of *lao* is originally compatible with an animate entity to denote the full maturation. On the other hand, *lao* modifying nouns with an inanimate feature leads to semantic incompatibility. The animacy effect is violated when *lao* is used to modify the state of maturation of an inanimate entity. The inanimate nouns such as *youtiao* 'the deep-fried dough sticks' are semantically incompatible with the animate feature since the dough stick is not a living organism and thus lacks for biological property. As shown in Figure 4-5 above, regardless of transparent or opaque non-literal meanings,

the mean scores for the transparent non-meaning of *lao* with an inanimate NP were generally higher than those for the opaque non-meaning with an inanimate NP. This showed that the degree of semantic compatibility was obvious between the transparent meanings with an inanimate NP was higher than that in the opaque meaning.

The results showed that younger children (G1 to G3) had more difficulties in interpreting the non-literal meaning of *lao* with inanimate NPs. The difficulty is due to the fact that the animacy effect is violated; thus, the younger children in our study failed to deduce the non-literal meaning of *lao*. For the older children (G4 and G5), they performed better on the interpretation of *lao* with inanimate NPs, implying that they have realized when the inanimate objects undergo the biology-specific process like maturation denoted by *lao*. *Lao* is plausible to be interpreted non-literally.

The finding of the present study is consistent with Hsieh's (2008) result in that Grades 1 to 3 had difficulty in interpreting the meaning of *lao* with inanimate NPs, which broke the boundaries of animacy and the interpretation of non-literal meanings and Grades 4 and 5 accepted the violation of animacy restriction. Schwartz (1980) stated that children's explanations for similes and metaphors were found to be strongly literal orientated; also, children's meta-linguistic judgments were observed from the violations of animacy restrictions. That is why the children in our study who had meta-linguistic ability were able to accept the incompatibility between the NP and *lao*. To conclude, it was found that the mean scores for inanimate NPs might be an indicator for the acquisition of non-literality (Hsieh 2008).

4.4 Task Effect

It is hypothesized that different measures would elicit different results for

children’s language development. The fourth research question addressed in the study concerns the task effect on children’s acquisition of the figurative expression *lao* in Mandarin Chinese. Section 4.4.1 reports an overall comparison between the scores for the two comprehension tasks: the Interpretation Task (hereafter referred to as IT Task) and the Multiple-choice Task (hereafter referred to as MC Task). Section 4.4.2 discusses the task effect on children’s acquisition of the non-literal meanings of *lao*.

4.4.1 Overall Findings

Table 4-7 shows that the overall scores for the IT Task and the MC Task achieved a significant difference ($F(1, 119) = 203.767, p < .001$), and the mean scores for the MC Task were higher (Mean = 0.9) than those of the IT Task (Mean = 0.68).

Table 4-7 Subjects’ Overall Performances on the IT and MC Tasks

Type	M	SD	F	<i>p</i> -value
IT Task	0.68	0.22	203.767	.000*
MC Task	0.9	0.12		

As demonstrated in Figure 4-6, all the children did a better job on the MC task than the IT task. This is apparently shown in the performances of Grades 1 and 2 (G1: $M = 0.79 > 0.44$, G2: $M = 0.84 > 0.56$).

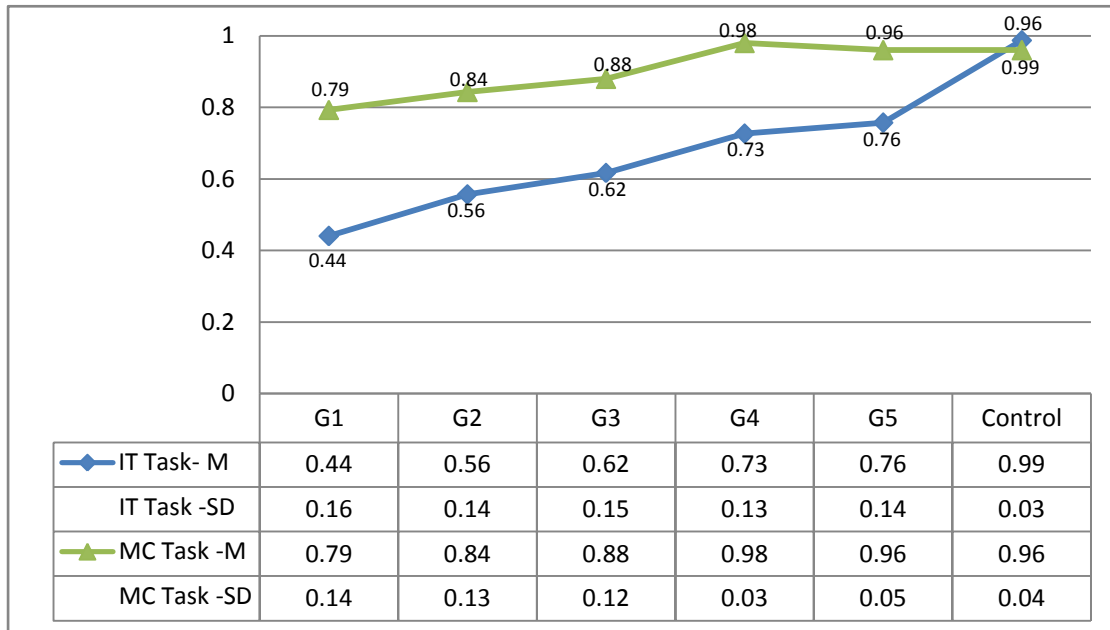


Figure 4-6 Overall Performance of Each Group on the IT Task and the MC Task

Table 4-8 further indicates the within-group differences between the two task conditions.

Table 4-8 The *p*-values for the within-group Differences between the IT Task and the MC Task

	G1	G2	G3	G4	G5	Control
<i>F</i>	129.856	134.602	79.105	67.576	39.741	5.63
<i>p</i>	.000*	.000*	.000*	.000*	.000*	.028*

All the experimental groups performed significantly better on the MC Task than on the IT Task (G1 ($F(1, 28) = 129.856, p < .001$), G2 ($F(1, 28) = 134.602, p < .001$), G3 ($F(1, 28) = 79.105, p < .001$), G4 ($F(1, 28) = 67.576, p < .001$), G5 ($F(1, 28) = 39.741, p < .001$), implying that to choose the correct meaning of *lao* implicitly from alternative answers was much easier than to interpret it explicitly. However, for the control group, no significant difference was found between the scores for the two task conditions ($F(1, 28) = 5.63, p > .05$).

Regarding the between-group comparison on the IT Task, the older children (G4 and G5) performed significantly better than the younger children (G1 to G3) and the control group significantly outperformed the experimental groups ($p < .001$), showing that the ability to explicitly interpret the word meaning would increase with the growth of age. G4 and G5 performed on the MC Task similarly to the control group ($p > .05$) and they significantly outperformed the younger children (G1 to G3).

In addition to the overall tendency, a closer look at the task effects on each issue are discussed below. Firstly, a comparison of the literal and non-literal meanings of *lao* in the two tasks are shown in Figures 4-7 and 4-8.

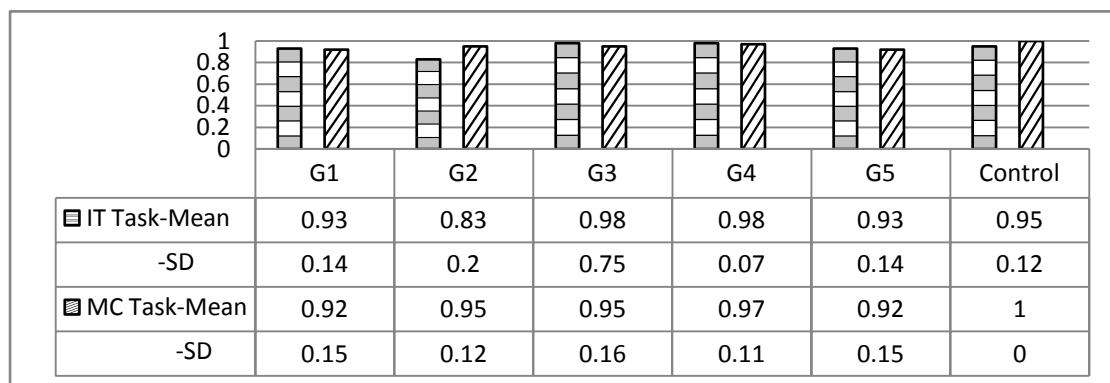


Figure 4-7 A Comparison of the Literal Meaning in the Two Task Conditions

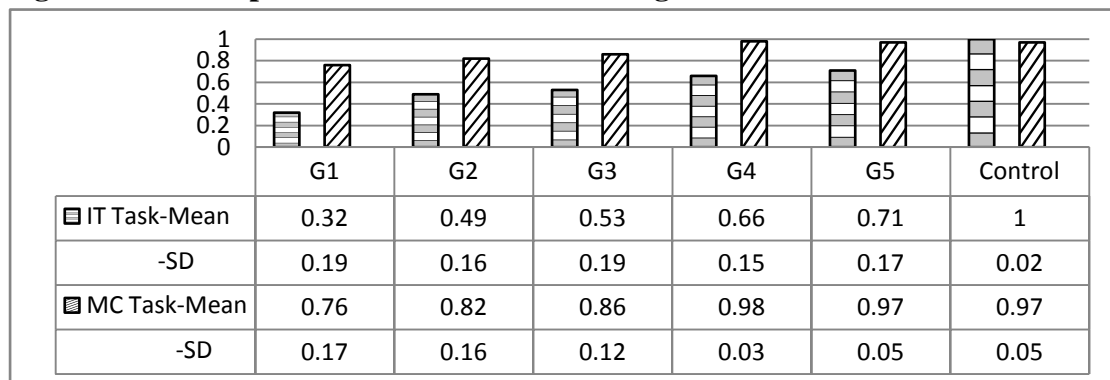


Figure 4-8 A Comparison of the Non-literal Meaning in the Two Task Conditions

The results showed that the mean scores for the literal meaning of *lao* significantly higher than that for the non-literal meanings of *lao* (PT: $p < .001$, CT: p

< .001). Regardless of the literal or non-literal meaning of *lao*, it was found that the children in our study could recognize the meanings of *lao* better than interpret them. Figure 4-8 indicates that the IT Task was especially challenging for our subjects to accomplish whereas the MC Task was fairly easy.

Turning to the task effect on the transparent and opaque meaning, we found there was a significant difference between the two non-literal meanings of *lao* on the IT Task ($F(1, 119) = 112.343, p < .001$) while no difference in the two meanings was found in the MC Task ($p > .05$). Regardless of the subjects' performances on the transparent or opaque meaning of *lao*, the MC Task was found easier than the IT Task. Specifically, the task effect was obvious when the subjects processed the opaque meaning of *lao*, showing that the MC Task was extremely easy to deal with, as shown in Figures 4-9 and 4-10.

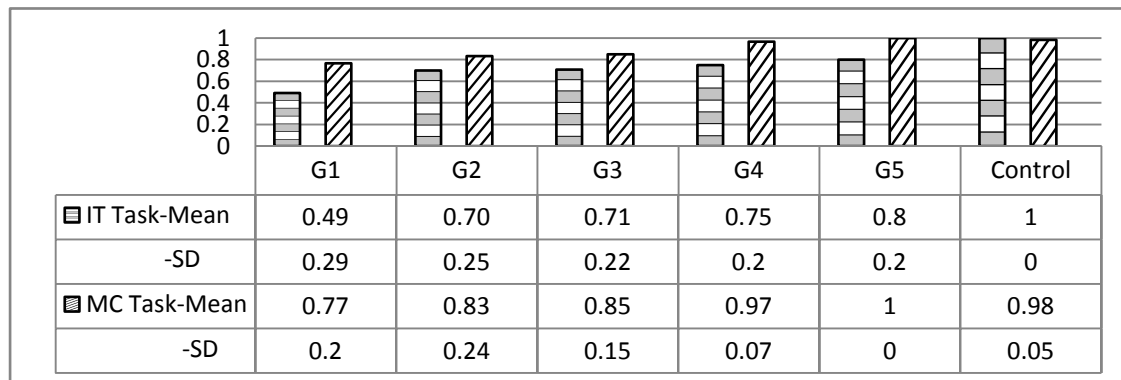


Figure 4-9 A Comparison of the Transparent Meaning in the Two Task Conditions among Groups

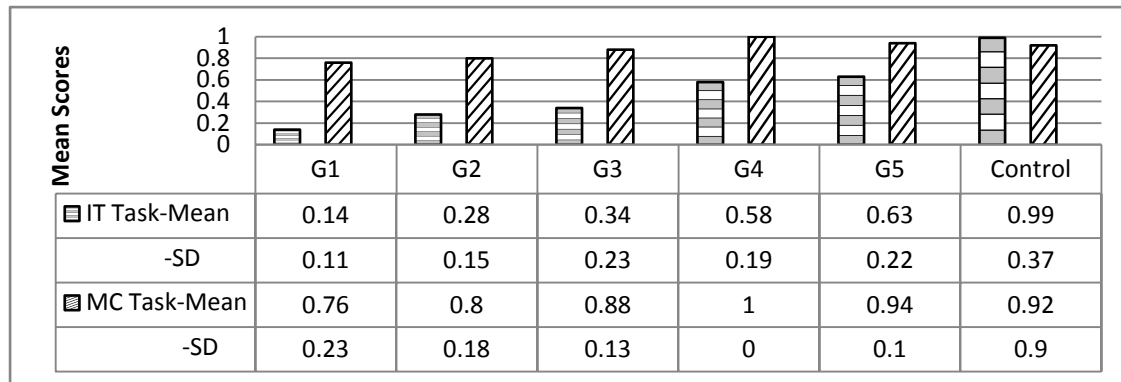


Figure 4-10 A Comparison of the Opaque Meaning in the Two Task Conditions among Groups

With regard to the task effect on *lao* with animate and inanimate NPs, a significant difference was found between the animate and inanimate NPs in the IT Task ($F(1, 119) = 128.962, p < .001$) as well as in the MC Task ($F(1, 119) = 32.831, p < .001$). As shown in Figures 4-12 and 4-13, the children's mean scores for the MC Task on the inanimate NPs were higher than those for the IT Task. The fairly low scores for the IT Task indicated that the meanings of *lao*-inanimate NPs were inherently difficult for the children in our study to interpret.

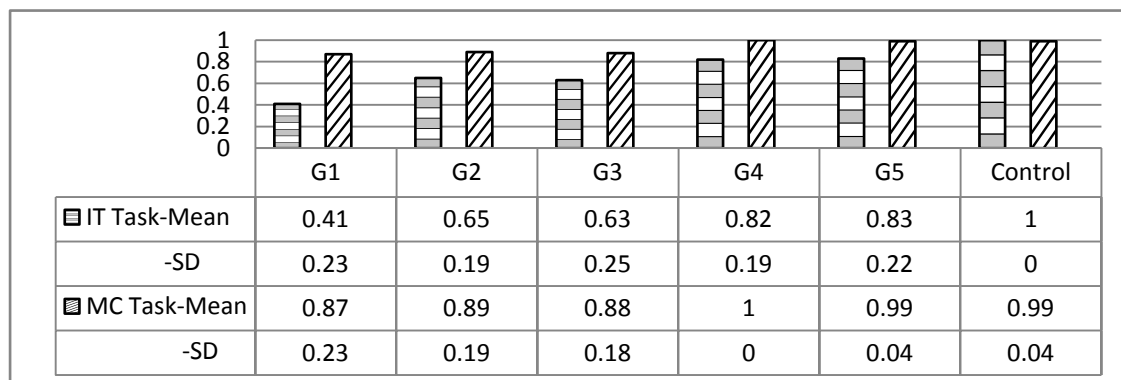


Figure 4-11 A Comparison of Animate Lao NPs in the Two Task Conditions among Groups

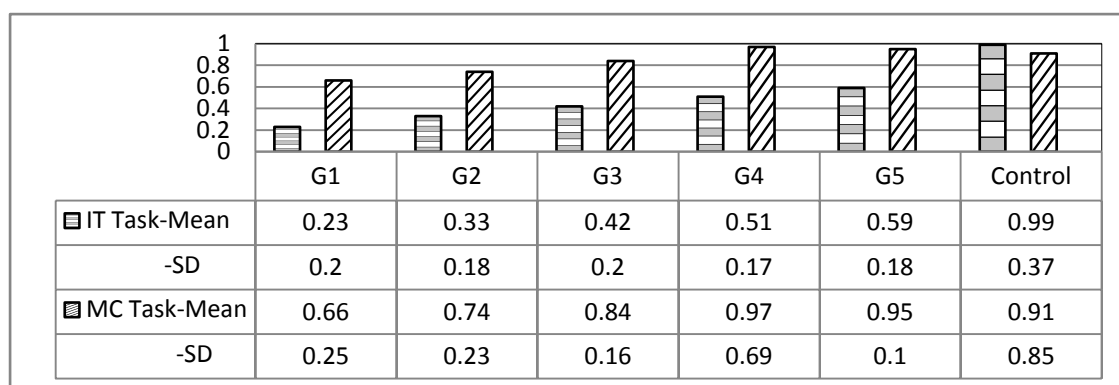


Figure 4-12 A Comparison of Inanimate *lao* NPs in the Two Task Conditions among Groups

4.4.2 General Discussion

Previous studies have claimed that a multiple-choice task is considerably easier to accomplish than an explanation task (Prinz 1983, Nippold 1989, Levorato and Cacciari 1995). In the present study, the subjects performed significantly better on the MC Task than on the IT Task, which is consistent with previous research. However, some studies considered using multiple-choice questions to measure whether children acquired the meanings of words to be “useless at best and dangerous at worst” since they may guess or use other non-linguistic strategies to choose the answer. As a matter of fact, the present study adopted an additional measure as a second assessment: an interpretation task. The IT Task in the present study focused on the interpretation of the meanings of the target item *lao* rather than elicited the production of *lao*-phrases.

Based on previous literature, the ability to recognize the correct meaning is acquired prior to the ability to explain the meaning, and to recognize the meaning is regarded as a prerequisite for the meaning interpretation (Levorato and Cacciari 1995). Therefore, the present results support this claim in that the mean scores for the MC Task were significantly higher than those for the IT Task. It was predicted that the children might know what the meaning was by choosing from alternative answers

whereas to explain how the meaning was required a higher level of cognitive process or so-called the meta-linguistic ability. Nippold (1989) stated that the interpretation task imposes enormous meta-linguistic demands on children. In addition, other linguistic skills beyond the knowledge of the word are required to interpret the word meanings (Dockrell and Messer 2004). Thus, it was more challenging for the young children in our study who still lacked the meta-linguistic awareness to interpret the meaning of *lao* (IT Task: G1: M = 0.44, G2: M = 0.56).

Overall speaking, it has been found that sharp difference of type effect occurred particularly when children comprehended (1) the non-literal meaning of *lao*, (2) the opaque meaning of *lao*, and (3) the inanimate NP with *lao*. First, the non-literal meaning of *lao* posed a great difficulty for children due to its abstract, hardly referential, and less frequent feature as a marked form in the Markedness Theory. Also, it was suggested that the historical origin as well as the remote distance from the human personal experience in the conceptualization scale presented challenges for children to acquire the opaque meaning. Moreover, the children failed to comprehend *lao* with the inanimate NPs due to the violation of the animacy constraint in which the inanimate nouns were semantically incompatible with the state of maturation denoted by *lao*. These types shared a common difficulty that they all required a heavy demand of cognitive process. The subjects would need to pay more attention and bear greater cognitive load in processing these difficult types of *lao*. As a result, even though both the IT Task and the MC Task assessed their comprehension ability, the type effect was still apparent since the difficulties were essentially arisen from aforementioned types of *lao*. Besides, the innate characteristic of the IT Task that the interpretation required a higher level of cognitive process also raised challenges for the children.

Regarding the adults' performances on two tasks, it was found that their scores

on the IT Task were generally higher than that on the MC Task (Inanimate: IT Task: $M = 0.99$; MC Task: $M = 0.91$), indicating that they possessed the meta-linguistic ability to interpret the meanings beyond the literal senses. The reason why their scores on the MC Task were lower than the IT Task might be attributed to the ambiguous nature of alternative answers. Some adults tended to choose the answers that were close but not entirely correct. For example, *lao difang* ‘a long-existing place’ on the MC Task has three options: (1) *laoren zhu de* ‘a living place for elders,’ (2) *dajia zhidao de* ‘a place that speakers know,’ (3) *henyou lishi de* ‘a place with rich histories.’ The correct answer is (2), and yet the adults in the study tended to choose (3).

With respect to the performances between different types on the two tasks, the results showed no significant difference in the MC Task between transparent and opaque non-literal meanings of *lao*, suggesting that the scores for the IT Task are more genuine and concrete as an indicator for the language acquisition. It was suggested that in addition to the depth of word knowledge and the ability to detect meanings of idioms, the full acquisition of the idioms was not found until the idioms could be explained (Karuppali and Bhat 2012). For example, although a significant level of the scores was achieved in the MC Task between literal and non-literal meanings of *lao*, the scores were not sharply different from those for the IT Task (as in Figure 4-7). To conclude, during the acquisition of figurative expressions *lao* in Chinese, the MC Task was found easier and prior to the IT Task.

4.5 Age Effect

Language development is a gradual process that extends from childhood through adolescents into adulthood (Nippold 2004). Therefore, age is regarded as an essential factor in first language acquisition, especially the expressions of figurative language

(Prinz 1983, Kempler and his colleagues 1999, Levorato and Cacciari 2002, Hsieh 2008, Hsieh and Hsu 2010). In the present study, the children's performances differed from the control group with respect to different experimental variables. Firstly, regarding the factor of non-literal meanings of *lao*, the results showed that all the experimental groups achieved a significant difference from the control group in the acquisition of non-literal meanings of *lao*. That is, the children's performances on non-literal meanings of *lao* presented a developmental pattern. This finding is consistent with the result of Levorato and Cacciari (2002) in that the ability to process figurative language correlated with age. Moreover, the results showed that G4 and G5 (i.e., 10-year-olds and 11-year-olds) have already acquired the non-literal meaning significantly better than the younger ones (G1 to G3), which is supported by Kempler and his colleagues (1999) in that children at the ages of 10 to 11 have started the approximating adult-like knowledge of figurative explanation for idioms. On the contrary, concerning the literal meaning of *lao*, although there was a significant difference between G2 and the control group, the children's acquisition of literal meaning as a whole seems to be nearly identical to the adults'.

With regard to the performance of transparent and opaque meanings of *lao*, the experimental groups were compared with the control group. The results showed that the control group significantly outperformed all the children ($p < .001$) on the opaque non-literal meaning, implying that to acquire the opaque meaning was challenging for the children. This is due to the fact that the children in our study still lacked the background knowledge of the word. For example, in the phrase *lao shou* 'an expert,' *lao* denotes someone who is experienced which is a consequence derived from the semantic feature of the core meaning 'a period of time.' In other words, comparing to the transparent meanings, the acquisition of the opaque meaning required more

cognitive load which as noted by Ackerman (1982), strongly constrains children's performance on figurative language. On the other hand, regarding the transparent meaning of *lao*, the control group performed significantly better than the experimental groups ($p < .001$) except for G5 ($p > .05$). This showed that the 11 year-olds have gained the ability to derive the non-literal meanings of *lao* in *lao pengyou* 'a long-existing friend' from the core meaning. The results indicated that the older children (10 and 11-year-olds) presented a significantly better performance ($p < .001$) in acquiring the opaque meaning than the younger children (7 to 9-years-old), implying that they have started to develop the ability to infer the figurative meaning from the core meaning although their ability has not yet been well-developed as the adults.

With respect to the performances of *lao* with animate and inanimate NPs, the control group significantly outperformed the experimental group on the inanimate NPs ($p < .001$). The difficulty for the children to process the meanings of *lao* with inanimate NPs lied in that the animacy constraint is violated. The children in our study failed to accept the semantic appropriateness for an inanimate NP modified by *lao* involving the biological function (i.e., growth, aged). The older children (10 and 11-year-olds) processed the meanings of *lao* with inanimate NPs significantly better than the younger children (7 to 9-year-olds), indicating that not until the age of 10 did the children begin to present an emerging acceptance to the violation of animacy constraint. That is, the boundaries of animacy and the expressions of metaphorical meaning is broken (Hsieh 2008). The finding is consistent with Hsieh (2008) in that G1 to G3 encountered more difficulties in acquiring the meanings of *lao* with inanimate NPs. Generally speaking, the older children (G4 and G5) performed significantly better than the younger ones on the meanings with both animate and

inanimate NPs. This showed that the older children had the sensitivity to the incompatibility between inanimate NPs with non-literal meanings of *lao*. As discussed by Schwartz (1980), children's meta-linguistic abilities can be observed from the violations of animacy constraints. Consequently, the older children were able to accept the incompatibility between inanimate NP has succeeded in the acquisition of non-literal meanings *lao*.

Finally, a summary of the children's developmental stages in the acquisition of non-literal meaning of *lao* is illustrated in Figure 4-13.

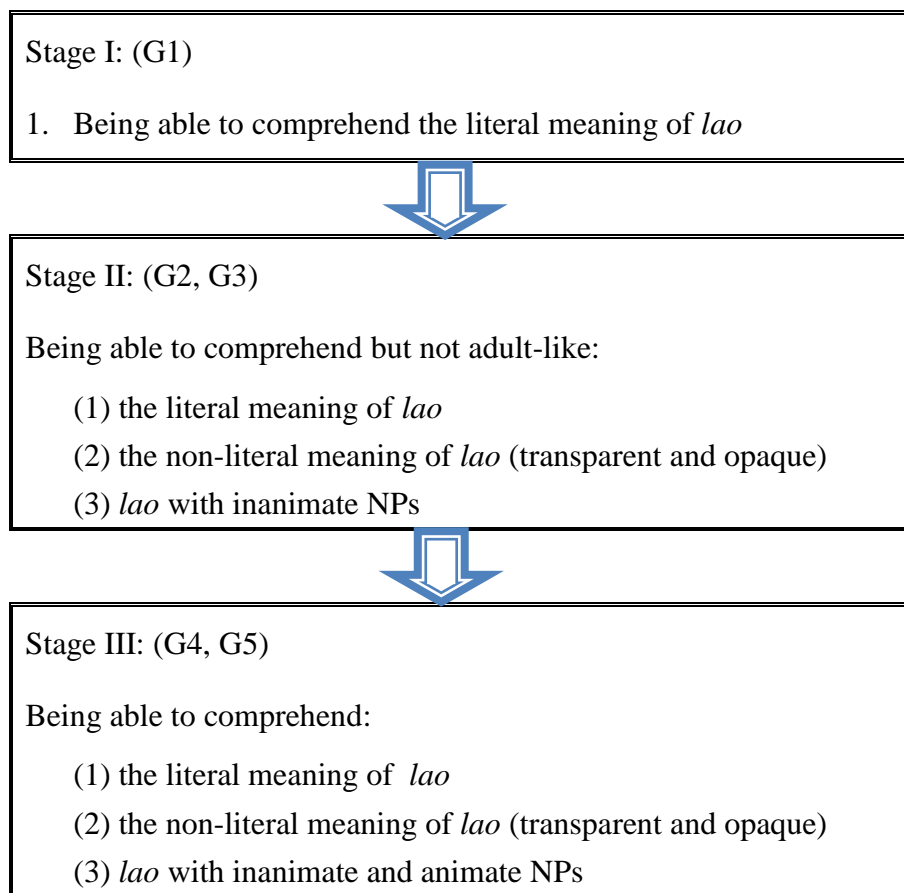


Figure 4-13 Developmental Stages for Chinese Children's Acquisition of *Lao*

Actually, the children's language processes were gradual. At Stage I, the 7-year-old children were able to comprehend the literal meaning of *lao* but not the rest

types of *lao*. This might be due to the fact that their cognitive abilities concerning the difference between what is said and what is meant still have not developed. Then, the children at Stage II (i.e., those 8 and 9-year-olds) were able to comprehend the transparent and opaque non-literal meaning of *lao*, and *lao* with inanimate NPs. At Stage III, they were able to comprehend *lao* with both animate and inanimate NPs. To conclude, although the older children (10 and 11-year-olds) did not performed similarly as the adults did on non-literal meanings of *lao*, it was found that with the age increased, their ability to acquire non-literal expressions would continue developing up to adolescents and finally to the adulthood (Hsieh 2008).

4.6 Summary of Chapter Four

Several findings of the formal study have been presented in this chapter. Firstly, it was found that non-literal meanings of *lao* posed greater challenges for the children in our study. Within the acquisition of non-literal meanings of *lao*, the opaque meaning of *lao* was fairly difficult for the children. Besides, the animacy effect was found to be influential in first language acquisition of metaphorical meanings. To conclude, the task effect and the age effect were found to be a crucial factor in the present study.

Chapter Five

Conclusion

The conclusion of the present study is presented in this chapter. Section 5.1 summarizes the major findings of the present study, and Section 5.2 states the limitations of the present study and some suggestions for further research.

5.1 Summary of the Major Findings

The present study examined the acquisition of the figurative expression *lao* in Chinese under various issues in metaphoricality, degree of transparency, animacy, task effect, and age effect.

The major findings of the present study are as follows:

First, it was found that the literal meaning of *lao* was significantly easier to comprehend than the non-literal of *lao*. The literal meaning presented a default and concrete concept close to children's general cognitive structure. In terms of the Markedness Theory, the non-literal meaning of *lao* denoted 'experienced,' which was more challenging for our children. The correct responses to the non-literal meanings increased with the growth of age.

Concerning the degree of transparency, it was shown that the transparent non-literal meaning of *lao* was easier to process due to the evidence in the conceptualization scale (Heine and his colleagues 1991) that the transparent non-literal meaning is conceptualized by a concrete concept. However, the historical nature of the opaque non-literal meaning of *lao* was more difficult for children to process.

With regard to the animacy effect, our children tended to comprehend *lao* with animate NPs better than with inanimate NPs. This was attributed to the fact that our

children failed to accept the violation of the animacy constraint. For *lao* modifying the inanimate NP, the inanimate nouns were semantically incompatible with *lao*'s core meaning that denotes the state maturation of an animate entity. Therefore, our children's meta-linguistic ability was observed from the violation of animacy constraints; in other words, the acceptance of the animacy constraint (inanimate NPs) was an indicator for the acquisition of non-literality.

Regarding the task effect, it was found that our children performed significantly better on the Multiple-choice Task than on the Interpretation Task. It was found that to recognize the word meaning was easier than to interpret the word meaning which demanded a higher level of cognitive process. Moreover, the task effect was particularly apparent when the subjects processed the difficult types of *lao*.

Finally, the age effect was found obvious in that the comprehension of non-literal meaning of *lao* improved with age. The older children (10 and 11-year-olds) in our study performed better on the non-literal meaning than the younger subjects, and performed similarly with the adults on the literal meaning. Specifically, they performed better on the opaque non-literal meaning, and successfully applied the animacy constraint to comprehend the non-literal meaning of *lao*-phrases.

5.2 Limitations of the Present Study and Suggestions for Further Research

First of all, it was found that the oldest children recruited in our study (i.e., the 11 year-olds) still did not show the adult-like performance on the comprehension of the opaque meaning of *lao* and *lao* with inanimate NPs. It indicated that the subjects should be recruited over 11 in future research in order to closely investigate the developmental pattern of children's comprehension of figurative expressions in Chinese. Furthermore, whether children at age 6 are able to comprehend figurative

expression *lao* can be examined in future research.

Second, in the present study the non-literal meanings were further categorized into transparent and opaque types based on Gibb's (1987) definition of idioms. However, the *lao*-phrases should be compared with the word frequency count sorted in the corpus in future research. For instance, the opaque meaning of *lao* in *lao jianghu* 'a man of long experience' and *lao qian* 'a cheat or a swindler' were not further differentiated in terms of word frequency in the present classification.

Third, there are factors that might be taken into consideration in future research. For example, the factors regarding the part of speech of *lao* (i.e., *lao* as an adverb or an affix), the explicit instruction children receive, and how children perform in a production task can be explored.

Last but not least, whether the grammaticalization route proposed by Heine and his colleagues (1991) and the order of children's language acquisition show a similar pattern can be examined.

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Appendix A

Test Items Used in the Interpretation Task¹

Story Scenario:



螃蟹弟弟住在海底王國裡，有一天，他決定到陸地上冒險，交新朋友。但是，他不太懂朋友說的話。

熱心又善良的你/妳，請幫幫螃蟹弟弟的忙，好嗎？

Q1:



螃蟹弟弟走在路上，遇到小猴子，小猴子說：「我帶你到最熱鬧的老街逛一逛，那裡有很多漂亮的古蹟。」請問小猴子說的「老街」是甚麼樣的街道呢？

¹ The Interpretation Task and the Multiple-choice Task used the same story scenario.

Q2:



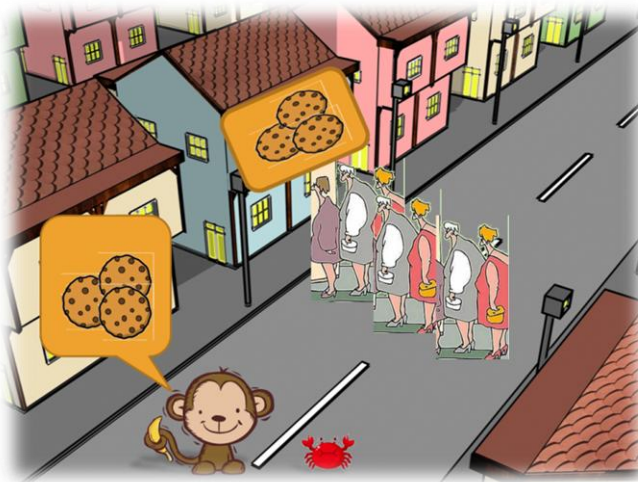
接著小猴子帶螃蟹弟弟搭捷運，小猴子小小聲地告訴螃蟹弟弟：「搭捷運時，要記得把空位讓給老先生喔。」請問小猴子說的「老先生」是什麼意思？

Q3:



到了老街後，好熱鬧！有位老伯伯對著小猴子與螃蟹弟弟揮揮手。他們走過去，老伯伯說：「小朋友，要不要算命？不用花很多錢，只要 20 元就好了喔。」小猴子偷偷跟螃蟹弟弟說：「媽媽說，很多算命的人都是老千，我們快點離開這裡。」請問小猴子說的「老千」是什麼意思？

Q4:



小猴子說：「螃蟹你看，這一窩蜂的人都在排隊買餅乾，我們也來買一包。」請問小猴子剛才說的「一窩蜂」是什麼意思？

Q5:



排隊等了好久好久，螃蟹弟弟肚子都餓了。小猴子說：「沒問題！說到美食，我可是個**老江湖**，這附近有間便宜又好吃的餐廳，我帶你去吧。」請問小猴子說的「老江湖」是什麼意思呢？

Q6:



螃蟹弟弟開心地說：「好呀，好呀，快帶我去吧！」小猴子突然停下腳步，拿出口袋裡的手機。螃蟹弟弟問：「你在做什麼？」小猴子回答：「我要用手機查查餐廳在哪裡。」螃蟹弟弟驚訝地說：「什麼？手機也可以找路？」小猴子說：「當然囉！你真是**土包子**啊。」請問小猴子說的「土包子」是什麼意思呢？

Q7:



他們去餐廳的路上，看到一個小朋友在哭，他們問他發生了甚麼事。小男生說：「嗚…我不小心把哥哥的電腦弄壞了，我不知道該怎麼辦。」小猴子說：「別哭，別哭，前面有間商店，老闆是修理電腦的**老手**，一定可以幫你修好的。」請問小猴子說的「老手」是什麼意思呢？

Q8:



終於到餐廳了，他們吃得好飽好飽。這時，小猴子接到媽媽的電話，媽媽要小猴子趕快回家。回家的路上，他們遇到了兔子先生，小猴子向螃蟹弟弟介紹：「這位是兔子先生，他是我的**老同學**。」請問小猴子說的「老同學」是怎樣的同學呢？

Q9:



螃蟹弟弟說：「你好啊，兔子先生。」兔子先生說：「螃蟹弟弟你好，初次見面，歡迎你來，讓我請你吃頓飯吧。」小猴子偷偷地告訴螃蟹弟弟：「一向是**鐵公雞**的兔子先生，今天竟然請你吃飯，真是太難得了。」請問小猴子說的「鐵公雞」是什麼意思呢？

Q10:



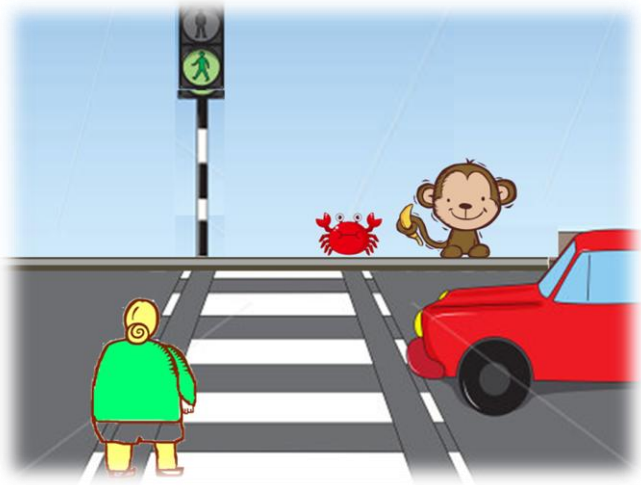
螃蟹弟弟說：「謝謝你的好意，但我現在要去小猴子家，下次再一起吃飯吧。」小猴子說：「對呀，我正要帶螃蟹弟弟回家，我的**老母親**在家裡等我們呢。」請問小猴子說的「老母親」是怎樣的媽媽呢？

Q11:



他們和兔子先生說再見後，走著走著，在路上又遇到猩猩，小猴子開心地又叫又跳，趕緊向螃蟹弟弟介紹。小猴子說：「猩猩是我的老朋友，遇到他真令人開心。」請問小猴子說的「老朋友」是指怎樣的朋友呢？

Q12:



猩猩說：「我要去上班，下次再一起玩。」他們和猩猩說再見後，站在十字路口等紅綠燈。這時，小猴子說：「我們去幫助那位老婦人過馬路吧，她提了很多東西。」請問小猴子剛才說的「老婦人」是怎麼樣的婦人呢？

Q13:



過了馬路，就到了小猴子的家，螃蟹弟弟說：「哇！好漂亮噢！和海底的房子真不一樣。」進門後，小猴子的姊姊跟螃蟹弟弟打招呼，看到一旁凌亂的鞋子，小猴子的姊姊生氣地說：「臭小猴，你怎麼老是把我的話當耳邊風，脫下的鞋子要排整齊！」請問小猴子的姊姊說的「耳邊風」是什麼意思呢？

Q14:



排完鞋子後，叩、叩、叩，大家聽說小猴子家來了一位客人，住在隔壁的張伯伯跑來敲門。張伯伯在門外說：「嘿嘿，我最喜歡螃蟹了！可不可以讓我看這隻螃蟹長得有多大？」小猴子聽見後，趕緊鎖上門，關上窗，並告訴螃蟹弟弟：「張伯伯是隻**老狐狸**，還是別讓他進來比較安全。」請問小猴子說的「老狐狸」是什麼意思呢？

Q15:



小猴子又說：「雖然張伯伯是**老鄰居**，但他很少和其他鄰居聊天。」請問小猴子說的「老鄰居」是什麼意思呢？

Q16:



螃蟹弟弟開始參觀小猴子的家，他好奇地看著客廳裡的照片：「小猴子，你爸爸是做什麼工作的？」小猴子說：「我爸爸是個**農夫**，每天都很辛苦地工作呢。」請問小猴子說的「農夫」是什麼意思呢？

Q17:



螃蟹弟弟說：「原來如此！那…小猴子，你不用工作嗎？」小猴子抓抓頭，說：「唉呀，我是公司的**老鳥**，一天沒去上班沒有關係啦。」請問小猴子說的「老鳥」是什麼意思呢？

Q18:



姐姐在旁邊聽他們聊天，忍不住地說：「小猴子呀，他一開始上班很認真，久了就變**老油條**了。」請問小猴子的姐姐說小猴子是「老油條」是什麼意思呢？

Q19:



小猴子準備吃掉今天早上買的餅乾。這時，小猴子的姐姐說：「小猴子，等一下！你應該該先問問媽媽要不要吃，這**老規矩**你怎麼總是忘記呢？」請問小猴子的姐姐說「老規矩」是怎樣的規矩呢？

Q20:



吃飽之後，螃蟹弟弟要準備回海底世界了，螃蟹弟弟說：「小猴子，很開心認識你，謝謝你帶我到處冒險，下次我還要再來。」小猴子說：「好啊，下次你來，我們就約在老地方見。」請問小猴子說的「老地方」是什麼意思呢？

Appendix B

Test Items Used in the Multiple-choice Task

Q1: 螃蟹弟弟走在路上，遇到小猴子，小猴子說：「我帶你到最熱鬧的**老街**逛一逛，那裡有很多漂亮的古蹟。」請問小猴子說的「**老街**」是甚麼樣的街道呢？

- (1) 非常熟悉
- (2) 很有歷史
- (3) 很多老人

Q2: 接著小猴子帶螃蟹弟弟搭捷運，小猴子小小聲地告訴螃蟹弟弟：「搭捷運時，要記得把空位讓給**老先生**喔。」請問小猴子說的「**老先生**」是什麼意思？

- (1) 長得像老闆的人
- (2) 一位年紀很大的先生
- (3) 欺負老人的先生

Q3: 到了老街後，好熱鬧！有位老伯伯對著小猴子與螃蟹弟弟揮揮手。他們走過去，老伯伯說：「小朋友，要不要算命？不用花很多錢，只要 20 元就好了喔。」小猴子偷偷跟螃蟹弟弟說：「媽媽說，很多算命的人都是**老千**，我們快點離開這裡。」請問小猴子說的「**老千**」是什麼意思？

- (1) 奸詐的人
- (2) 年紀很大的人
- (3) 很有錢的人

Q4: 小猴子說：「螃蟹你看，這一**窩蜂**的人都在排隊買餅乾，我們也來買一包。」請問小猴子剛才說的「**一窩蜂**」是什麼意思？

- (1) 一群人亂擠在一起
- (2) 很大的蜂窩
- (3) 鬧哄哄的蜜蜂

Q5: 排隊等了好久好久，螃蟹弟弟肚子都餓了。小猴子說：「沒問題！說到美食，我可是個**老江湖**，這附近有間便宜又好吃的餐廳，我帶你去吧。」請問小猴子說的「**老江湖**」是什麼意思呢？

- (1) 對事情很熟悉的人
- (2) 住在湖旁邊的人
- (3) 一間餐廳的名字

Q6: 螃蟹弟弟開心地說：「好呀，好呀，快帶我去吧！」小猴子突然停下腳步，拿出口袋裡的手機。螃蟹弟弟問：「你在做什麼？」小猴子回答：「我要用手機查查餐廳在哪裡。」螃蟹弟弟驚訝地說：「什麼？手機也可以找路？」小猴子說：「當然囉！你真是**土包子**啊。」請問小猴子說的「土包子」是什麼意思呢？

- (1) 愛吃包子的人
- (2) 用土做的包子
- (3) 懂得很少的人

Q7: 他們去餐廳的路上，看到一個小朋友在哭，他們問他發生了甚麼事。小男生說：「嗚…我不小心把哥哥的電腦弄壞了，我不知道該怎麼辦。」小猴子說：「別哭，別哭，前面有間商店，老闆是修理電腦的**老手**，一定可以幫你修好的。」請問小猴子說的「老手」是什麼意思呢？

- (1) 老人的手
- (2) 有經驗的人
- (3) 長得很老的人

Q8: 終於到餐廳了，他們吃得好飽好飽。這時，小猴子接到媽媽的電話，媽媽要小猴子趕快回家。回家的路上，他們遇到了兔子先生，小猴子向螃蟹弟弟介紹：「這位是兔子先生，他是我的**老同學**。」請問小猴子說的「老同學」是怎樣的同學呢？

- (1) 年紀比較大
- (2) 認識了很久
- (3) 學得比較慢

Q9: 螃蟹弟弟說：「你好啊，兔子先生。」兔子先生說：「螃蟹弟弟你好，初次見面，歡迎你來，讓我請你吃頓飯吧。」小猴子偷偷地告訴螃蟹弟弟：「一向是**鐵公雞**的兔子先生，今天竟然請你吃飯，真是太難得了。」請問小猴子說的「鐵公雞」是什麼意思呢？

- (1) 很小氣的人
- (2) 用鐵做的公雞
- (3) 很好吃的菜

Q10: 螃蟹弟弟說：「謝謝你的好意，但我現在要去小猴子家，下次再一起吃飯吧。」小猴子說：「對呀，我正要帶螃蟹弟弟回家，我的**老母親**在家裡等我們呢。」請問小猴子說的「老母親」是怎樣的媽媽呢？

- (1) 非常勤勞
- (2) 年紀很大
- (3) 很有經驗

Q11: 他們和兔子先生說再見後，走著走著，在路上又遇到猩猩，小猴子開心地又叫又跳，趕緊向螃蟹弟弟介紹。小猴子說：「猩猩是我的**老朋友**，遇到他真令人開心。」請問小猴子說的「老朋友」是指怎樣的朋友呢？

- (1) 很熱心
- (2) 年紀很大
- (3) 認識很久

Q12: 猩猩說：「我要去上班，下次再一起玩。」他們和猩猩說再見後，站在十字路口等紅綠燈。這時，小猴子說：「我們去幫助那位**老婦人**過馬路吧，她提了很多東西。」請問小猴子剛才說的「老婦人」是怎麼樣的婦人呢？

- (1) 熱心助人
- (2) 年紀很大
- (3) 很有經驗

Q13: 過了馬路，就到了小猴子的家，螃蟹弟弟說：「哇！好漂亮噢！和海底的房子真不一樣。」進門後，小猴子的姊姊跟螃蟹弟弟打招呼，看到一旁凌亂的鞋子，小猴子的姊姊生氣地說：「臭小猴，你怎麼老是把我的話當**耳邊風**，脫下的鞋子要排整齊！」請問小猴子的姊姊說的「耳邊風」是什麼意思呢？

- (1) 常常聽到很多壞話
- (2) 耳朵旁邊的風很強
- (3) 聽到的事當作沒聽到

Q14: 排完鞋子後，叩、叩、叩，大家聽說小猴子家來了一位客人，住在隔壁的張伯伯跑來敲門。張伯伯在門外說：「嘿嘿，我最喜歡螃蟹了！可不可以讓我看這隻螃蟹長得有多大？」小猴子聽見後，趕緊鎖上門，關上窗，並告訴螃蟹弟弟：「張伯伯是隻**老狐狸**，還是別讓他進來比較安全。」請問小猴子說的「老狐狸」是什麼意思呢？

- (1) 很熱心的人
- (2) 很老的狐狸
- (3) 很奸詐的人

Q15: 小猴子又說：「雖然張伯伯是**老鄰居**，但他很少和其他鄰居聊天。」請問小猴子說的「老鄰居」是什麼意思呢？

- (1) 年紀很大
- (2) 非常親切
- (3) 住了很久

Q16: 螃蟹弟弟開始參觀小猴子的家，他好奇地看著客廳裡的照片：「小猴子，你爸爸是做什麼工作的？」小猴子說：「我爸爸是個**農夫**，每天都很辛苦地工作呢。」請問小猴子說的「農夫」是什麼意思呢？

- (1) 種田的
- (2) 賣東西的
- (3) 認真上班的

Q17: 螃蟹弟弟說：「原來如此！那…小猴子，你不用工作嗎？」小猴子抓抓頭，說：「唉呀，我是公司的**老鳥**，一天沒去上班沒有關係啦。」請問小猴子說的「老鳥」是什麼意思呢？

- (1) 年紀很大的人
- (2) 喜歡上班的人
- (3) 有經驗的人

Q18: 姐姐在旁邊聽他們聊天，忍不住地說：「小猴子呀，他一開始上班很認真，久了就變**老油條**了。」請問小猴子的姐姐說小猴子是「老油條」是什麼意思呢？

- (1) 年紀很大
- (2) 有經驗、很隨便
- (3) 有經驗、很奸詐

Q19: 小猴子準備吃掉今天早上買的餅乾。這時，小猴子的姐姐說：「小猴子，等一下！你應該該先問問媽媽要不要吃，這**老規矩**你怎麼總是忘記呢？」請問小猴子的姐姐說「老規矩」是怎樣的規矩呢？

- (1) 老師建立的
- (2) 老人要遵守的
- (3) 建立很久的

Q20: 吃飽之後，螃蟹弟弟要準備回海底世界了，螃蟹弟弟說：「小猴子，很開心認識你，謝謝你帶我到處冒險，下次我還要再來。」小猴子說：「好啊，下次你來，我們就約在**老地方**見。」請問小猴子說的「老地方」是什麼意思呢？

- (1) 老人住的
- (2) 大家知道的
- (3) 很有歷史的

Appendix C

Two Tasks Used in the Pilot Study

Part A: The Word-in-Isolation Task

1. 「老街」的意思是什麼？
 - (1) 非常熟悉的街道
 - (2) 很有歷史的街道
 - (3) 很多老人的街道

2. 「老朋友」的意思是什麼？
 - (1) 認識很久的朋友
 - (2) 像老人的朋友
 - (3) 跟朋友一起變老

3. 「耳邊風」的意思是什麼？
 - (1) 經常聽到許多八卦
 - (2) 耳朵旁邊的風很強
 - (3) 聽到的事當作沒聽見

4. 「老套」的意思是什麼？
 - (1) 很老舊的方法
 - (2) 老人穿的外套
 - (3) 老人討厭的方法

5. 「老母親」的意思是什麼？
 - (1) 非常勤勞的媽媽
 - (2) 年紀很大的媽媽
 - (3) 很有經驗的媽媽

6. 「老警察」是什麼意思？
 - (1) 年紀很大的警察
 - (2) 想法很老的警察
 - (3) 很有經驗的警察

7. 「老命」的意思是什麼？
- (1) 很短的生命
 - (2) 描述自己的生命
 - (3) 老年人的生命
8. 「老闆」是對誰的稱呼？
- (1) 坐在店裡的老人
 - (2) 商店或公司的主人
 - (3) 很有經驗的老人
9. 「老爺」是對誰的稱呼？
- (1) 長得像爺爺的人
 - (2) 家中輩分大的男子
 - (3) 年紀大的爺爺
10. 「拔腿就跑」的意思是什麼？
- (1) 拔不掉鞋子所以不能跑走
 - (2) 拔掉鞋子所以腳很痛
 - (3) 用很快的速度跑走
11. 「老么」的意思是什麼？
- (1) 排行最小的孩子
 - (2) 年紀大的孩子
 - (3) 最調皮的孩子
12. 「老師」是對誰的稱呼？
- (1) 年紀很大的人
 - (2) 教導知識的人
 - (3) 幫助老人的人
13. 「鐵公雞」的意思是什麼？
- (1) 很小氣的人
 - (2) 用鐵做成的公雞
 - (3) 一道很好吃的菜

14. 「老嫗」是什麼意思？
- (1) 令人討厭的女人
 - (2) 年紀大的女人
 - (3) 有工作經驗的女人
15. 「老樹」的意思是什麼？
- (1) 老蟲子寄居的樹
 - (2) 長在老房子旁的樹
 - (3) 生長了很久的樹
16. 「老規矩」的意思是什麼？
- (1) 年紀很大的規矩
 - (2) 老年人遵守的規矩
 - (3) 舊有的規矩
17. 「老先生」的意思是什麼？
- (1) 長得像老闆的人
 - (2) 一位年紀很大的先生
 - (3) 欺負老人的先生
18. 「農民」是對誰的稱呼？
- (1) 種農作物的人
 - (2) 商店裡的主人
 - (3) 認真上班的人
19. 「老態」的意思是什麼？
- (1) 老人的態度
 - (2) 保持相同的樣子
 - (3) 人老了的樣子
20. 「老地方」的意思是什麼？
- (1) 老人住的地方
 - (2) 很熟悉的地方
 - (3) 歷史悠久的地方

Part B: The Word-in-Context Task

Q1：搭捷運時，應該優先讓位給「老先生」。

- (1) 長得像老闆的人
- (2) 一位年紀很大的先生
- (3) 欺負老人的先生

Q2：哆啦A夢一看到老鼠，嚇得「拔腿就跑」。

- (1) 拔不掉鞋子所以不能跑走
- (2) 拔掉鞋子所以腳很痛
- (3) 用很快的速度跑走

Q3：聽說那位「老闆」喜歡下棋。

- (1) 坐在店裡的老人
- (2) 商店或公司的主人
- (3) 很有經驗的老人

Q4：明天中午「老地方」見面，不見不散。

- (1) 老人住的地方
- (2) 很熟悉的地方
- (3) 歷史悠久的地方

Q5：用沿街叫賣這種「老套」來推銷，已經不流行了。

- (1) 很老舊的方法
- (2) 老人穿的外套
- (3) 老人討厭的方法

Q6：「老命」也要買到動感超人玩具。

- (1) 很短的生命
- (2) 描述自己的生命
- (3) 老年人的生命

Q7：一向是「鐵公雞」的王伯伯，竟然花了一千元招待客人。

- (1) 很小氣的人
- (2) 用鐵做成的公雞
- (3) 一道很好吃的菜

Q8：今年四十歲的張先生，已經是一位「老警察」了。

- (1) 年紀很大的警察
- (2) 想法很老的警察
- (3) 很有經驗的警察

Q9：張叔叔才剛結婚，已經略顯「老態」了。

- (1) 老人的態度
- (2) 保持相同的樣子
- (3) 人老了的樣子

Q10：我家「老爺」明天才回台灣。

- (1) 長得像爺爺的人
- (2) 家中輩分大的男子
- (3) 年紀大的爺爺

Q11：小丸子是家裡的「老么」。

- (1) 排行最小的孩子
- (2) 年紀大的孩子
- (3) 最調皮的孩子

Q12：靜香長大後想當一位音樂「老師」。

- (1) 年紀很大的人
- (2) 教導知識的人
- (3) 幫助老人的人

Q13：大雄長大後認真工作，為了養活家裡的「老母親」。

- (1) 非常勤勞的媽媽
- (2) 年紀很大的媽媽
- (3) 很有經驗的媽媽

Q14：辛苦的「農民」必須靠天吃飯。

- (1) 種農作物的人
- (2) 商店裡的主人
- (3) 認真上班的人

Q15：小丸子和小玉是十幾年的「老朋友」。

- (1) 很勤勞的朋友
- (2) 年紀大的朋友
- (3) 認識很久的朋友

Q16：有位「老嫗」走在人行道上，不小心跌倒了。

- (1) 令人討厭的女人
- (2) 年紀大的女人
- (3) 有工作經驗的女人

Q17：大雄常常把媽媽的話當「耳邊風」。

- (1) 經常聽到許多八卦
- (2) 耳朵旁邊的風很強
- (3) 聽到的事當作沒聽見

Q18：這條「老街」上有許多古蹟，充滿著文化氣息。

- (1) 非常熟悉的街道
- (2) 很有歷史的街道
- (3) 很多老人的街道

Q19：這次的考試仍照「老規矩」，只考選擇題。

- (1) 年紀很大的規矩
- (2) 老年人遵守的規矩
- (3) 舊有的規矩

Q20：公園裡的樹又高又大，是一棵「老樹」。

- (1) 老蟲子寄居的樹
- (2) 長在老房子旁的樹
- (3) 生長了很久的樹

Appendix D

Results of the Pilot Study

Table (i) The Comprehension of Literal and Metaphorical Meanings

Grade	Literal			Non-literal		
	WII	WIC	Average	WII	WIC	Average
1	50	50	50	37.5	56.25	46.88
2	68.75	87.5	78	62.5	75	68.75
3	68.75	87.5	78	87.5	75	81.5
4	75	100	87.5	68.7	93.75	81.23
5	87.5	81.25	84.5	75	93.75	84.38
Average	70	81.25	75.6	66.24	78.75	72.548

Table (ii) Subjects' Comprehension in WII and WIC Tasks

Grade	WII	WIC
1	43.8	53.2
2	65.7	81.3
3	78.2	81.3
4	71.9	96.9
5	81.3	87.6
Average	68	81

Table (iii) The Comprehension of Items modifying (In)animate Complement

Grade	Animate	Inanimate
1	53.125	43.75
2	78.125	68.75
3	84.375	75
4	84.375	84.375
5	87.5	81.25
Average	77.5	70.625

Table (iv) The Comprehension of Meanings in Relation to the Categories of *Lao*

Grade	Type 1-1	Type 1-2	Type 1	Type 2-1	Type 2-2	Type 2
1	62.5	31.25	46.88	37.5	62.5	50
2	93.75	62.5	78.13	62.5	75	68.75
3	87.5	75	81.25	68.75	87.5	78.13
4	100	75	87.5	75	87.5	81.25
5	100	81.25	90.63	68.75	78.13	78.13
Average	88.8	65	76.9	62.5	78.1	71.3

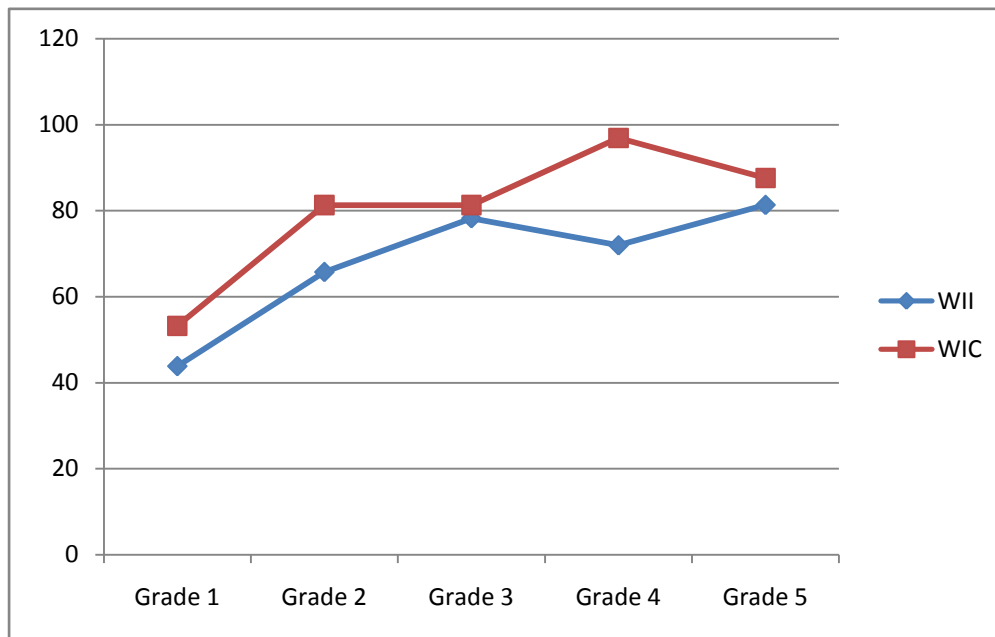


Figure (i) The Tendency of Subjects' Comprehension in the WII and WIC Tasks

Appendix E

Consent Form

親愛的家長您好:

這是一份關於語言研究的同意書，為研究兒童母語發展情況，希望貴子弟協助回答問題，本研究目的在了解兒童對於中文「老」字的隱喻理解能力。本研究將採一對一方式，在小朋友的教室進行，一切皆以不影響學生上課權益為原則。研究共包含兩部分，第一部分為問答題，第二部分為選擇題，會以預錄的故事搭配電腦內圖片，讓小朋友回答問題。

第一個測驗中，小朋友會看到由「老」字組成的詞彙之問答題，小朋友需要回答詞彙的意思。在第二個測驗，小朋友必須幫助故事主角，回答另一主角提問的問題，並將答案寫下來，第二個測驗和第一個測驗問題相同。測驗時間需約 50 分鐘。

本研究結果只供學術研究使用，任何關於小朋友的個人資訊絕不對外公開，所有答題資訊僅供本研究使用並會嚴加保密。

本研究之進行，亟需各位家長的支持，希望徵得您的同意，願意讓孩子參與研究，在此獻上最深摯的感謝。

敬祝

萬事順心

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研究生：徐佩瑜 敬上

指導教授：陳純音教授

日期：民國一百零二年三月

學生姓名：_____

同意

不同意

家長簽名：_____

若您與小朋友同意參加此研究，請協助填寫以下問題：

小朋友生日：民國 _____年 _____月