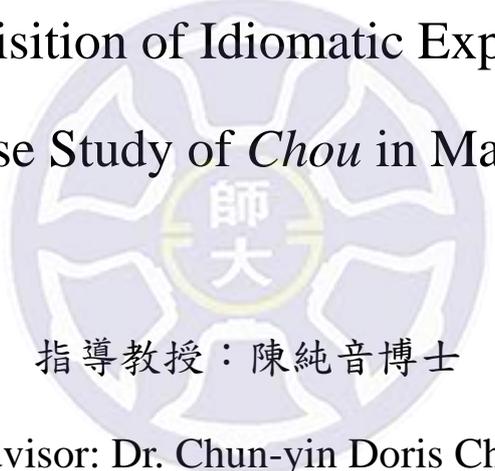


國立台灣師範大學英語學系
碩士論文
Master's Thesis
Department of English
National Taiwan Normal University

華語「臭」字相關慣用語與成語之第一語言習得

L1 Acquisition of Idiomatic Expressions:
A Case Study of *Chou* in Mandarin



指導教授：陳純音博士

Advisor: Dr. Chun-yin Doris Chen

研究生：鄭淑君

Graduate: Shu-chun Aries Cheng

中華民國一〇五年六月
June 2016

摘要

本研究旨在探討以華語為母語的學童如何詮釋華語「臭」字相關慣用語與成語。三大操縱變因包含慣用語與成語之差別、熟悉度和語境效應。本研究方法採用兩個口頭詮釋測驗，分別讓受試者在有無語境提示下詮釋「臭」字相關慣用語與成語。研究對象共分為六組，每組十五人，分別由平均年齡六歲、七歲、九歲、十二歲和十五歲學童與成人共九十位受試者所組成。

研究結果如下：首先，關於慣用語與成語兩類表現，可視為華語口語及書面語的掌握差異。五組學童組皆在慣用語之譬喻詮釋較佳，而成人組則為成語。然而，熟悉度被證實對大班、小二學童造成顯著影響。五組受試者皆在熟悉之慣用語與成語表現最佳，而成人組則在不熟悉類別仍表現優異。各組皆在提供語境測驗中展現較好的表現，所以語境效應的確能幫助六組受試者理解隱喻。最後，根據各組學童受試者與成人組之「臭」字相關慣用語與成語詮釋表現來看，可發現掌握隱喻之能力隨著年齡增加而進步。大班學童尚未具備詮釋隱喻之能力，其詮釋偏向字面意義為主。小二學童比大班表現佳，但仍較依賴字面意義。小四學童開始能詮釋隱喻。此三組兒童皆需要語境之提示達到正確詮釋隱喻。小六學童和九年級學生能在字詞獨立狀況下，成功詮釋隱喻，但此兩組表現仍未達成人組之表現。

關鍵詞：第一語言習得、慣用語、成語、隱喻、華語

ABSTRACT

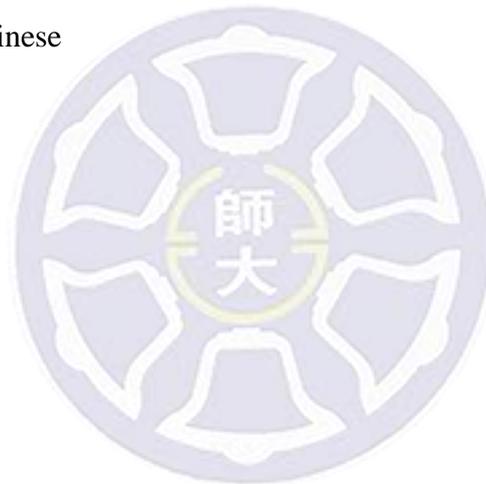
The present study investigates first language acquisition of figurative language. By examining *chou*-related idioms in Chinese, the present study aims to observe the developmental processes through which children, adolescents and adults gradually establish the requisite figurative competence necessary for the interpretation of idiomatic expressions. Four research questions regarding the acquisition of metaphoricality, the types of idioms (quadra-syllabic and non-quadra types), the familiarity effect and linguistic context are discussed in detail. In this study, all participants were asked to complete two comprehension tasks including a Word-in-Isolation and a Word-in-Context task. The total number of participants was seventy-five and they were further divided into five groups by their mean age (six, seven, nine, twelve and fifteen years of age). Fifteen adults were also recruited as the controls.

The research findings can be summarized as follows: There were six developmental stages observed in the interpretation of *chou*-related idioms. First of all, participants of the five experimental groups were found to be influenced both by the types of idioms and the familiarity effect. Children at ages 6 and 7 primarily produced literal interpretations of the tested *chou*-related idioms. With the contextual aid, these two groups made significant progress in the interpretation of familiar non-quadra type

of idioms. Then, 9-year-old children displayed the ability to metaphorically interpret familiar non-quadra and quadra-syllabic idioms; additionally, the contextual effect also remarkably improved their performance. As for the participants of ages 9 and 15, they were capable of interpreting *chou*-related idioms without the aid of the context, but their performance still lagged behind that of the adult controls. This indicates that a significant interaction between the age effect and the tested *chou*-phrases was at play.

Keywords: first language acquisition, figurative expressions, idioms, metaphor,

Mandarin Chinese



ACKNOWLEDGEMENT

To me, working on this thesis was akin to going through a memorable journey in my life. During this journey, I faced several challenges and indeed learned a lot about how to deal with them. I know that without countless people's help, I would not have been able to finish my thesis. I sincerely appreciate their assistance from the bottom of my heart.

My deepest gratitude goes first and foremost to my thesis advisor, Dr. Chun-yin Doris Chen. Ever since I undertook the linguistic graduate program in National Taiwan Normal University in 2013, I have received constant and warm encouragement from her. Her patient guidance accompanied me throughout every stage of my thesis writing. The thesis could not have reached the present form without her consistent and illuminating instruction. She provided an insightful critique after reviewing every version of my thesis draft. Her professional knowledge in the field of language acquisition guided me so that the thesis was able to meet its goals and be completed in a reasonable timeframe. Working as her research assistant for three years, I have absorbed not only new academic knowledge through conducting research but also a positive attitude toward life. I appreciated her helpful advice when I encountered difficulty and felt frustrated in the process of writing my thesis.

I would also like to express my gratitude to my committee members, Dr. Jen-i Li and Dr. Rueih-Ling Sharon Fahn. Their invaluable suggestions enlightened me and provided direction for me to revise my research. Without their passionate participation and input, it would not have been possible to craft my thesis into the shape it is in now. I am gratefully indebted to their very valuable comments on this thesis.

In addition, I would like to give special thanks to all the professors who have taught me during my time in the linguistic graduate program. Their earnest instruction

and attentive observation lead me to proceed smoothly through the master's program. I must thank all the administration staff in NTNU's English Department: Mu-Han, Peggy, Hui-Chiao, Hao-Ku, Tzu-Yi, Yu-Li and Yi-Shan in alphabetical order for all the assistance.

Further, special thanks go to Chen-Ying Lu, I-Shan Chu and Pei-Yu Wu. They kindly helped me contact the teachers presiding over my research subjects' classes. Without their assistance, I would not have been capable of recruiting all the subjects who participated in my experiments.

I would like to express my gratitude to my colleagues in NTNU's graduate program: Amy Chen, Amber Weng, Anita Fu, Elisa Cheng, Eileen Lin, Francis Chen, Kabby Chen, Ken Lin, Marshall Lin, Matt Ku, Nick Hu, Sally Chen, Treak Lu, Vicky Lin and Vivien Cheng, listed in alphabetical order. In particular, I want to give special thanks to Andrew Syue and Shawn Lin for their kindness in helping me to code all of the collected data. Also, I am grateful to my dearest partners, Lucy Chiang, Pris Ho and Shin-Lin Kong, who supported me through this challenging period. The spiritual encouragement I received from Jennifer Hsu always reminded me to continue moving on to the next level. Moreover, I wish to express my profound gratitude to Benjamin Elul. He was so generous in assisting me to revise several drafts of the chapters in my thesis. Without his help, it would have been impossible for me to complete this thesis within such a short period of time.

Last but not least, I would like to thank my family for their unceasing encouragement, support and attention. They kept pushing me to achieve greater goals in my life. Whenever I felt depressed or discouraged, they always comforted me and gave me faith. There are definitely no words that can fully express my gratitude to my family members. Thank you all for always being there and being my strongest source of support when I need help.

TABLE OF CONTENTS

CHINESE ABSTRACT.....	i
ENGLISH ABSTRACT.....	ii
ACKNOWLEDMENT.....	iv
TABLE OF CONTENTS.....	vi
LIST OF TABLES.....	viii
LIST OF FIGURES.....	ix
CHAPTER ONE INTRODUCTION.....	1
1.1 Motivation.....	1
1.2 Theoretical Background.....	4
1.3 Research Questions.....	8
1.4 Significance of the Study.....	8
1.5 Organization of the Thesis.....	10
CHAPTER TWO LITERATURE REVIEW.....	11
2.1 Previous Studies of <i>Chou</i>	11
2.1.1 Liu (2000).....	12
2.1.2 Ren (2005).....	15
2.1.3 Ma (2007).....	17
2.1.4 Qin (2008).....	20
2.1.5 Summary.....	22
2.2 The Linguistic Properties of <i>Chou</i>	23
2.2.1 The Literal Meaning of <i>Chou</i>	23
2.2.2 The Metaphorical Meaning of <i>Chou</i>	24
2.2.3 Transparent Idioms of <i>Chou</i>	25
2.2.4 Opaque Idioms of <i>Chou</i>	26
2.3 Empirical Studies of First Language Acquisition of Metaphorical Expressions.....	26
2.3.1 Levorato & Cacciari (2002).....	27
2.3.2 Cain, Towse & Knight (2009).....	32
2.3.3 Hsieh & Hsu (2010).....	37
2.3.4 Hsu (2013).....	42
2.3.5 The Comparison of Four Empirical Studies.....	45
CHAPTER THREE RESEARCH DESIGN.....	49
3.1 Participants.....	49
3.2 Methods and Materials.....	52

3.2.1	An Analytical Framework.....	54
3.2.2	Two Interpretation Tasks.....	57
3.3.2.1	Word-in-Isolation Task.....	57
3.3.2.2	Word-in-Context Task.....	58
3.3	Procedures.....	60
3.3.1	Pilot Study.....	60
3.3.2	Scoring Policy.....	63
3.4	Summary of Chapter Three.....	64
	CHAPTER FOUR RESULTS AND DISCUSSION.....	65
4.1	Acquisition of Literal and Metaphorical Interpretations.....	65
4.1.1	Overall Findings of Literal and Metaphorical Interpretations	66
4.1.2	General Discussion	70
4.2	Acquisition of Quadra-syllabic and Non-quadra-syllabic Idioms.....	73
4.2.1	Overall Findings of Quadra-syllabic and Non-quadra-syllabic Idioms.....	73
4.2.2	A Second Look at the Quadra-syllabic and Non-quadra-syllabic Idioms.....	77
4.2.3	General Discussion.....	79
4.3	Acquisition of Familiar and Unfamiliar Idioms.....	81
4.3.1	Overall Findings Familiar and Unfamiliar Idioms.....	82
4.3.2	General Discussion.....	85
4.4	Contextual Effect.....	87
4.4.1	Overall Findings of the Word-in-Isolation and Word-in-Context Tasks.....	87
4.4.2	A Second Look at the Word-in-Isolation and Word-in-Context Tasks.....	90
4.4.3	General Discussion.....	91
4.5	Age Effect.....	94
4.6	Summary of Chapter Four.....	101
	CHAPTER FIVE CONCLUSION.....	102
5.1	Summary of the Present Findings	102
5.2	Limitations of the Present Study and Suggestions for Future Research.....	104
	BIBLIOGRAPHY.....	106
	APPENDIX A THE WORD-IN-ISOLATION TASK.....	112
	APPENDIX B THE WORD-IN-CONTEXT TASK.....	113
	APPENDIX C THE WORD-IN-ISOLATION TASK IN THE PILOT STUDY.....	117
	APPENDIX D THE WORD-IN-CONTEXT TASK IN THE PILOT STUDY.....	119
	APPENDIX E CONSENT FORM.....	124

LIST OF TABLES

Table 1-1 The Five Developmental Phases in the GEM.....	6
Table 2-1 The Definitions and Examples of the Coded Categories.....	28
Table 3-1 Participants' Background Information in the Formal Study.....	50
Table 3-2 The Mean Rating of Familiarity regarding <i>Chou</i> -related Idioms.....	54
Table 3-3 Tested Items of <i>Chou</i> in the WII and WIC Tasks.....	56
Table 3-4 An Example Used in the Word-in-Isolation Task.....	57
Table 3-5 An Example Used in the Word-in-Context Task.....	59
Table 3-6 Four Types of Interpretations of <i>Chou-Lian</i> in the Formal Study.....	63
Table 4-1 Participants' Overall Frequency Counts For <i>Chou</i> -related Idioms.....	66
Table 4-2 Within-group Difference <i>p</i> -values between Literal and Metaphorical Interpretations of <i>Chou</i>	69
Table 4-3 Participants' Overall Frequency Counts for Quadra-syllabic and Non-quadra-syllabic Types.....	74
Table 4-4 Metaphorical Frequency Counts for Quadra-syllabic and Non-quadra-syllabic Types.....	75
Table 4-5 Revised Metaphorical Frequency Counts for Quadra-syllabic and Non-quadra-syllabic Types.....	78
Table 4-6 Participants' Overall Frequency Counts for Familiar and Unfamiliar Types.....	82
Table 4-7 The <i>p</i> -values for Within-group Differences for Familiar and Unfamiliar Types.....	84
Table 4-8 Participants' Overall Frequency Counts in the Word-in-Isolation and Word-in-Context Tasks.....	87
Table 4-9 Metaphorical Frequency Counts in the Word-in-Isolation and Word-in-Context Tasks.....	88
Table 4-10 A Revised Metaphorical Frequency Counts in the Word-in-Isolation and Word-in-Context Task.....	90
Table 4-11 The Five Developmental Phases in the GEM.....	95

LIST OF FIGURES

Figure 2-1 The Semantic Shift of <i>Chou</i>	13
Figure 4-1 Overall Frequency Counts for Literal and Metaphorical Interpretations of <i>Chou</i>	68
Figure 4-2 Average Frequency Counts of Each Group in Familiar and Unfamiliar Types	83
Figure 4-3 Six Developmental Stages in Chinese Acquisition of <i>Chou</i> -related Idioms.....	99



Chapter One

Introduction

1.1 Motivation

Idiomatic expressions belong to one of the categories in figurative language¹. English idioms like *kick the bucket* or *cry over the spilled milk* are frequently used in daily conversation. For such idioms, the metaphorical interpretation is not equal to the compositional meaning of the words. For example, the idiomatic meaning of the English idiom *kick the bucket* indicates the fact that someone passed away. This figurative interpretation cannot always be directly derived from the compositional meaning of the idiom. The ability to memorize the arbitrary relation between idiomatic meaning and linguistic forms requires a long time to develop from childhood to adulthood (Levorato & Cacciari 1995, 2002, 2004). Aside from English, idiomatic expressions do exist in various languages worldwide.

This thesis focuses on one specific Mandarin Chinese adjective, *chou* ‘stinky’. As can be seen in (1), *chou* is an adjective modifying the noun *pi* ‘gas,’ and it denotes the meaning of foul odor. This literal meaning of *chou* is commonly used in daily conversation.

¹ Figurative language can refer to five categories including metaphor, idioms, similes, restricted collocations and proverbs (Dobrovolskij & Piirainen 2005).

(1) Xiaoming ai fang choupi.

Xiaoming love make bad.gas

‘Xiaoming loves to fart.’

However, *choupi* ‘bad gas’ is an idiomatic meaning used to denote the idiomatic meaning of being boastful. In (2), *choupi* cannot be interpreted literally; otherwise, the whole sentence would make no sense.

(2) Ta shi ge choupi de laoban.

he is CL cocky DE boss

‘He is a cocky boss.’

Idiomatic production and comprehension are two issues which receive a lot of attention in the field of language acquisition (Swiney & Cutler 1979, Gibbs 1987, Cacciari & Levorato 1989, , Nippold 1991, Levorato & Cacciari 1992, Nippold & Rudzinski 1993, Gibbs 1994, Kempler et al. 1999). For example, in previous literature concerning first language acquisition, many researchers were particularly interested in investigating how idioms are acquired by children (Levorato & Cacciari 2002, Nippold & Duthie 2003, Levorato & Cacciari 2004, Vulchanova et al. 2009). The process of children’s idiomatic production and comprehension is indeed intriguing since several significant factors have been reported to be essential to their performance in the related studies. For example, the presence of context is an aid for language learners and facilitates the comprehension of idioms (Cacciari & Levorato 1989, Gibbs 1991,

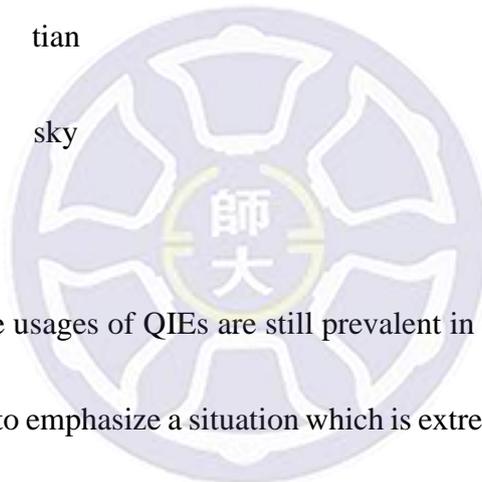
Levorato & Cacciari 1995, 1999, 2002, Cain et al. 2009). Also, linguistic convention is considered to be another significant factor (Ackerman 1982, Cacciari & Levorato 1989). It refers to the arbitrary relation between the linguistic form stored in lexicon and the meaning of the idiomatic expression.

Through the investigation of *chou*-related idiomatic expressions, the present study aims to target another issue, regarding Mandarin Chinese quadra-syllabic idiomatic expressions (henceforth QIEs), which refers to the format of four Chinese characters in an idiom.

(3) *chou* *qi* *chong* *tian*

stinky gas flow sky

‘extremely foul’



In the present time, the usages of QIEs are still prevalent in our society. Example (3) is a classical Chinese QIE used to emphasize a situation which is extremely foul. Previous literature related to QIEs (Chen 1982, Ni & Yao 1991 and 1997) mainly discusses the effects of semantic opacity and syntactic symmetry within QIEs. Semantic opacity refers to the transparency of the meaning in idioms. Based on the definition in Gibbs (1991), if ‘individual components contribute directly to the overall figurative interpretation,’ these components can represent a transparent idiom. On the contrary, opaque idioms are those ‘whose individual parts do not contribute individually to ... figurative meaning’ (Gibbs 1991:613).

In addition, most Chinese QIEs are under certain syntactic constraints and demonstrate

syntactic structures like Adjective-Noun, Verb-Object and so on. For example, Liu & Cheung (2014:5) presented the Chinese QIEs *qian-fang-bai-ji* ‘make every attempt’ to describe the syntactic constraints. *Qian-fang* and *bai-ji* have the same syntactic construction Adjective-Noun. These syntactic structures form syntactic symmetry in Chinese QIEs.

These two effects including semantic opacity and syntactic symmetry are considered to strongly affect the acquisition of QIEs (Liu & Cheung 2014). The motivation of this study is to discover the complex and intricate phenomenon in idiomatic expressions, particularly in the field of the first language acquisition.

1.2 Theoretical Background

Several studies have made great contribution to the investigation of the development of idiomatic comprehension in the field of first language acquisition. These studies have been conducted by testing native speakers of several languages such as English, Italian, French and Bulgarian (Abkarian et al. 1992, Levorato & Cacciari 1995, 1999 and 2002, Laval 2003, Levorato & Cacciari 2004). The fundamental conclusions of these studies have become the model for future research on figurative expressions.

Based on the Markedness Theory (Eckman 1977), it is assumed that unmarked forms are more easily acquired than marked forms. Regarding metaphorical expressions, a literal meaning is unmarked since it represents the simplest possible word meaning. For children or second language learners, the literal meaning can be easily grasped without any effort as long

as they have learned and memorized the characters or vocabularies (Kintsch 1998). On the other hand, a marked form refers to a metaphorical meaning. This form poses challenges when language learners encounter metaphorical expressions.

This thesis investigates the *chou*-related idiomatic expressions in the acquisition of Mandarin-speaking children. In the task design of this thesis, idiomatic expressions will be further divided into two categories: quadra-syllabic and non-quadra-syllabic. According to the Markedness Theory, QIEs should be the marked form since semantic opacity and syntactic symmetry constitute the form of QIEs. In other words, learners have to put forth extra effort to memorize Chinese QIEs.

Regarding the theoretical background of idiom comprehension in first language acquisition, Levorato & Cacciari (2002) have previously proposed a developmental model called the Global Elaboration Model (GEM), as shown in Table 1-1. The GEM mainly accounts for children acquisition of idiom comprehension and production. For children, the ability to comprehend and produce figurative expressions should be possessed during the lexical and semantic development. Furthermore, the GEM predicts that it is not until the age of eight that children begin to sense the existence of idiomatic expressions. This model has been proposed in order to explain the five developmental phases regarding how and when children process figurative expressions. In Table 1-1, the five phases in GEM can be used as indicators to observe how children process metaphorical expressions.

Table 1-1 The Five Developmental Phases in the GEM²**(Levorato and Cacciari 2002:129-130)**

<i>Prevalent Age</i>	<i>Phase</i>	<i>Description of figurative language</i>
0-7	Phase 1	A primitive type of processing is carried out in the composition of piece-by-piece elaboration of the linguistic input. Children process language literally even when it does not make sense in the linguistic context.
8-9	Phase 2	Children start searching for the clues which could lead to a non-literal interpretation of the linguistic input. An acquired sensitivity toward the contextual information leads children from eight to nine years old to activate the world knowledge necessary to recover a meaning which might differ from the literal one. During this phase they realize that a discrepancy between what is said and what is expected on the basis of context should not always be interpreted as a communicative error.
10-12	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) The internal state of speakers can also be taken into consideration.
15	Phase 4	The ability to use the conventional repertoire of figurative expressions is achieved in this stage. The developmental gap between the ability to comprehend and to produce figurative expressions, still present; however, it is progressively reduced, particularly as far as idiomatic expressions are concerned.
Adult-like	Phase 5	The adult-like figurative competence is reached. The figurative language can be used in a creative way. Based on the awareness of meta-linguistic and metasemantic, the most mature acquisition is reached.

In addition, in Levorato & Cacciari (2002), other linguistic factors like meta-linguistic awareness and context were proven to be highly correlated to the acquisition of idiom

² The discussion of the five developmental phases in Levorato & Cacciari (2002:129) and Levorato & Cacciari (2002:130) is summarized in Table 1-1.

comprehension in Italian children.

Kempler et al. (1999) claimed that children with unilateral damage aged from 10 to 11 would prove to have adult-like competence in idiom comprehension. On the other hand, Nippold (2003) investigated the idiom comprehension of the school-age children whose mother tongue is English. Based on the results of this study, primary school-aged children were shown to have a less sophisticated mental imagery of idioms than adults. In other words, the development of idiom comprehension can be viewed as a gradually formed process.

However, the research of other scholars in the field hold conflicting perspectives regarding the exact age at which children can process idiomatic expressions since various analytic methods have been adopted in these experiments. In Gibbs (1987) and Gibbs (1991), 5-year-old children were proven to have better performance in explaining transparent idioms. On the other hand, the GEM predicts that children who are younger than seven years old still do not possess the ability to interpret idiomatic expressions correctly.

Similar Mandarin Chinese studies were done in the same vein (Hsieh 2008, Hsieh & Hsu 2010, Hsu 2013). For example, Hsieh & Hsu (2010) examined three factors including the effect of familiarity, context and linguistic convention in Mandarin Chinese idiom comprehension. Hsieh (2008) and Hsu (2013) targeted the specific Chinese figurative expressions *si* and *lao* respectively in their studies. From the syntax-based perspective of Hsieh, the main focus was on the syntactic properties of *si*-related words in Chinese. However, Hsu's approach was more

semantic-oriented and presented an analysis about the animacy effect of *lao*-related words.

1.3 Research Questions

In order to investigate children's developmental phases of *chou*-related idiomatic expressions in Mandarin Chinese, the following four research questions will be addressed:

1. Can the predicted developmental phases in the Global Elaboration Model be found in the acquisition of *chou*-related idiomatic expressions?
2. Are the quadra-syllabic *chou* idioms more difficult to interpret than the non-quadra-syllabic *chou* idioms?
3. Does familiarity of the idioms affect children's interpretation of *chou*-related idiomatic expressions?
4. Do contextual factors affect children's performance on different tasks?

1.4 Significance of the Study

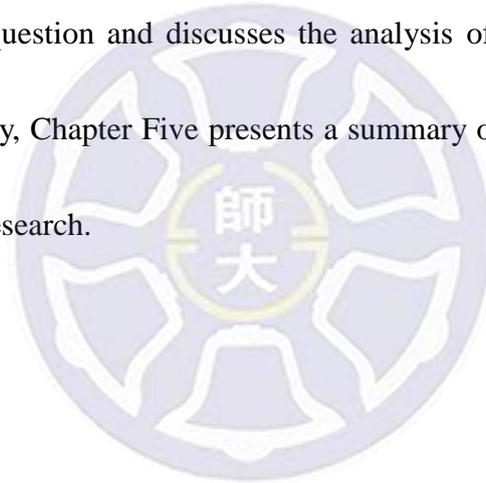
Although it seems that numerous previous studies have empirically presented results regarding children's idiomatic comprehension (Nippold 1991, Levorato & Cacciari 1992, Nippold & Rudzinski 1993, Levorato & Cacciari 1995, Kempler et al. 1999, Levorato & Cacciari 1999, 2002, 2004, Hsieh 2008, Hsieh & Hsu 2010, Hsu 2013), there are several conflicted findings which are worth reconsidering. For example, the exact age at which children can successfully interpret the meaning of idioms with the skills of semantic analysis (Gibbs 1991, Levorato & Cacciari 1995, 1999). Also, the tasks which have been adopted in prior

research may also affect the processing performance of the children.

Familiarity, context and the markedness effect have all been shown to be factors affecting idiom comprehension (Levorato & Cacciari 2002, Cain et al. 2009, Hsieh & Hsu 2010, Hsu 2013). These possible issues are all factors which need further observation; the significance of this thesis lies in the discussion of the development of Mandarin-speaking children's idiom interpretation. Although previous literature concerning this issue has been conducted, the number of idioms used in these studies has been very broad, and there are certain issues that deserve further research. Particularly, the matter of quadra-syllabic Mandarin Chinese idiomatic expressions in first language acquisition has not been systematically discussed yet. Further discussion of this topic is still necessary; for example, the scale of idioms can be narrowed to have a clearer understanding of children's performance. The present study focuses on the specific Mandarin Chinese adjectives '*chou*' and therefore only idiomatic expressions containing *chou* are included in the task items. In order to provide a systematic investigation of development in idiomatic interpretation, a wider age-range of children from kindergarten, Grade 2, Grade 4, Grade 6 and Grade 9 will be recruited and both the non-quadra-syllabic type and the quadra-syllabic type of *chou*-related idioms will be designed in tasks to observe children's interpretation.

1.5 Organization of the Thesis

This thesis is organized as follows: Chapter Two presents four previous reviews related to the specific Mandarin Chinese adjectives *chou* in chronological order. The linguistic properties of *chou* will be also discussed in detail. In addition, empirical studies cross-linguistically covering the issues of development in children's idiomatic comprehension are reviewed in order to explore the major factors affecting interpretation of the idioms. Chapter Three introduces the participants and methodology of the present study, and Chapter Four reports the results for each research question and discusses the analysis of children's interpretation of *chou*-related idioms. Finally, Chapter Five presents a summary of the major findings and the limitations of the present research.



Chapter Two

Literature Review

In Chapter Two, previous literature related to the theoretical background of *chou* and figurative language acquisition are reviewed. Section 2.1 presents four reviews regarding the theoretical background of the specific Chinese adjective *chou*. In Section 2.2, four empirical studies on idiom production and comprehension in first language acquisition are discussed. Finally, a summary of this chapter is provided in Section 2.3.

2.1 Previous Studies of *Chou*

Chou in Modern Chinese can be viewed as a noun, an adjective or even an adverb. Being frequently used as an olfactory adjective, *chou* commonly refers to the foul smell from a certain object or intense body odor. Numerous Chinese literature regarding *chou* focuses on the language change of *chou* (Tong 1983, Chang 1989, Yang 1996, Liu 2000, Jin 2007, Ma 2007, Yin & Zhao 2012) and its metaphorical scope (Ren 2005, Qin 2008, Wang 2011).

Based on previous studies, *chou* is discussed from two major perspectives including the phenomenon of semantic shift (Liu 2000, Ma 2007) and the metaphorical mappings of perception of smell (Ren 2005, Qin 2008) in human categorization. In this section, four theoretical studies of *chou* are reviewed.

2.1.1 Liu (2000)

Most *chou*-related studies started from a controversial issue observed in one of *Du Fu*¹'s poems. The meaning of *chou* in (1) was controversial because many scholars debated on whether the correct meaning of *chou* should be considered as the adjective 'fragrant' or 'stinky'.

(1) Zhu-men jiu rou chou, lu you dong-si-gu.¹

vermilion.gates wine meat smelly road exist corpses

“Meat and wine rot within the vermilion gates, corpses freeze out on the street.”

As a result, previous studies (Tong 1983, Chang 1989, Yang 1996, Liu 2000, Jin 2007, Ma 2007, Yin & Zhao 2012) have paid much attention to the process of language change. From the perspective of etymology, these studies attempt to examine original meaning of *chou* and display examples in Old Chinese and Middle Chinese Literature as evidence supporting their arguments.

Since Old Chinese² is the fundamental basis of historical Chinese linguistics, Liu (2000) organizes the process of semantic change regarding *chou* into three stages. Also, Liu's is the first study to discuss the language development and semantic extension of *chou* with authentic examples from Old Chinese and Middle Chinese Literature.

¹ Du Fu (712-770 A.D.) was the most prominent Chinese poet in the Tang dynasty and he is considered as one of the greatest poets in Middle Chinese Literature (the 3rd century B.C to the 9th century A.D).

¹ Example (1) is taken from Du Fu's poem named *zi jing fu feng xian xian yong huai wu bai zi*. Liu (2000) proposes that *chou* in (1) represents a stinky smell rather than fragrance as evident by *chou*-related poetic sentences in Du Fu's other works.

² Old Chinese started from the 8th century B.C to the 3rd century B.C.

According to *ShouWenJieZi*³, the character *chou* belongs to the category of compound ideographs. Under this category, a character is formed from two or more ideographic characters. In other words, the meaning of the character itself is derived from a combination of two or more characters. The character *chou* is the compound of the characters of ‘dog’ and ‘nose’ in Old Chinese.



Figure 2-1 The Semantic Shift of *Chou* (Liu 2000:14)⁴

Proposed in Liu (2000), Figure 2-1 describes the three stages regarding the semantic shift of *chou*. As can be seen at the first stage, *chou* is a verb which represents the core meaning of sniffing something out. Even so, a few scholars hold against this proposal, as they claim *chou* should be considered a noun rather than a verb. However, Liu (2000) states that it is highly possible that one monophonic word can stand for various meanings in Old Chinese. As a result, the verb *chou* is transformed into a noun with meaning ranging from fragrance to foul smell at the later stage.

At the second stage, *chou* is viewed as a generic term representing all kinds of odors.

³ *ShouWenJieZi* was written by the scholar Xu Shen in the Han Dynasty (around the early 2nd century). It was the first dictionary to analyze the inner structure of Chinese characters and provide the etymology of each character. The Chinese characters were listed under the categories of *bushou* ‘radicals.’

⁴ Figure 2-1, as proposed by Liu (2000) is translated from Chinese to English in this study.

Under the specific collocations, *chou* can be directly referred to as an aroma or stinky smell.

Liu (2000) points out that *chou* represents foul odors rather than fragrance in most contexts recorded during the Tang dynasty. He also emphasizes that *chou* can represent the meaning of fragrance under certain, limited contexts.

In addition, the Chinese character *xiang* ‘fragrance’ had already existed at that time. For most people, *xiang* had already substituted *chou* when referring to the meaning of fragrance. From the Han dynasty to the Wei, Jin, Northern & Southern dynasty, *chou* as a noun had only referred to the meaning of bad odors.

Liu (2000) provided several examples⁶ to prove that after this stage *chou* had become an individual adjective like *xiang*. This is the main argument for Liu’s view in Example (1) of *chou* as the adjective ‘stinky’ since *chou* and *xiang* should be a pair of antonyms in the Tang dynasty, the third stage of language development regarding *chou*.

In Modern Chinese, *chou* can be metaphorically used to express the unpleasant feelings toward something or someone else and this metaphorical meaning directly extends from the third stage. From this development, we can observe that the semantic field of *chou* gradually narrows since it only represents stinky odors in the present.

Based on the discussion in Liu (2000), the semantic development of *chou* in historical

⁶ For detail concerning the discussion of the Middle Chinese quoted poetic examples in Liu (2000), please refer to Liu (2000:14), who proposes that the most convincing evidence is from *YuPian*, a Middle Chinese dictionary written by GuYewang (519-581 A.D.) in the Southern dynasty. In *YuPian*, the Chinese character *chou* has been described as a foul smell.

Chinese linguistics was presented in detail. However, the metaphorical meaning of *chou* is not included in Liu's discussion. On top of that, the semantic extension of *chou* in Modern Chinese is another topic which requires further investigation. In (2), *chou* in Modern Chinese can even be viewed as an adverb emphasizing the degree of the action verb 'scold'.

(2) Mama chou-ma wo yi-dun.

mother badly.scold me one.CL

'My mother badly scolded me.'

2.1.2 Ren (2005)

Ren (2005) analyzes the metaphorical mappings of the Chinese five senses from the perspective of cognitive metaphor theory (Lakoff & Johnson 1980). The five senses include vision, hearing, smell, taste and touch. Ren states that humans heavily rely on the five senses in daily experiences and this statement echoes the view that "metaphor is pervasive in everyday life, not just in language but in thought and action" (Lakoff & Johnson 1980:4). Ren's aim is to investigate the cognitive law behind the semantic system of the Chinese five senses.

Based on cognitive theory (Lakoff & Johnson 1980, Johnson 1987, Lakoff 1988), Ren divides data pertaining to the Chinese five senses into the sense domain and the non-sense domain. The connection between these two domains is their metaphoricality since physical senses can express the metaphors of one's inner feelings.

Ren proposes two major conclusions concerning the Chinese five senses. First, physical

sense words are claimed to have the extended meaning of expressing one's mental state (Sweetser 1990). For example, vision and hearing are proposed to be the two senses which mainly convey the concept of thoughts. However, the other three senses, smell, taste and feeling, indicate the concept of human emotion and even the quality of observed objects.

Ren also looks at the phenomenon known as synaesthesia. In William (1976:473), synaesthesia is viewed as “one of the most common types of metaphoric transfer in all languages—the transfer of a lexeme from one sensory area to another.” In cognitive linguistics, this type of metaphoric transferred from one sense domain to another domain forms synaesthetic metaphors. Day (1996:1) defines a synaesthetic metaphor as “a certain perceptual mode [that] is initially specified (or may be assumed), but the imagery is linguistically related in terms belonging to one or more differing perceptual modes.” For example, taste terms can be metaphorically projected into the perceptual domain of smell. Example (3) presented in Ren (2005:21) describes a synaesthetic Chinese metaphor as it relate between two perceptual domains, taste and smell. The sour taste denotes the smell.

(3) Wo wen-zhe yi-gu suan-wei.

I smell-ZHE one-CL sour.odor

‘I smell a sour odor.’

(Ren 2005:21)

Ren posits that smells can directly stimulate our perception. Because of this close relationship between smell and perception, we can express emotional feelings by referring to

Ma's research can be divided into three major parts. First, the language development of *chou* is discussed. As Ma states in the introduction, the word constructs of *chou* from Old Chinese to Middle Chinese were collected in a methodical way. The semantic field development of *chou* proposed by Ma is basically identical to the proposal previously reviewed in Liu (2000).

Chou is an ideographic Chinese character. Considering the structure of this character, it is composed of the two Chinese characters *zi* “自” and *quan* “犬”. The first character “自” indicates the shape of nose and the second one “犬” refers to dogs. From the combination of these two characters, *chou* represents the meaning that a dog is a kind of animal that is quite sensitive to all kinds of smells. In other words, the character formation of *chou* is highly related to the concept of smells.

In addition, *chou* was originally used as a verb but not as an adjective as the example listed in *ShouWenJieZi* displays. In (3), quoted from *ShouWenJieZi*, *chou* is a verb and it refers to the fact that dogs have a keen sense of smell.

(6) Xiu, qin zou chou er zhi qi zhe quan ye.

smell animal move smell and know its ZHE dog PART

‘A Dog is an animal which is good at sniffing out something.’

Considering the economy of usage, it is natural that some words gradually become polysemes. *Chou* as a noun can therefore refer to the meaning of odor or smell as *xiang* does.

Xiang in Modern Chinese represents the opposite meaning of *chou*. A brief discussion of the language development of *xiang* has also been included in the first section of Ma (2007). In Ma's elaboration, these two words, *chou* and *xiang*, have been viewed as a pair of synonyms rather than antonyms from the very beginning. As nouns, they can both refer to the same meaning, that of all kinds of smells. However, Ma regards the language development of *xiang* as a key factor affecting the semantic field of *chou*. Since *xiang* gradually occupies the meaning of fragrance, *chou* can no longer represent this same meaning now held by *xiang*.

Second, according to the Semantic Field theory, the relation between superordinate and hyponym is crucial. For example, *xiang* and *chou* originally belong to the same superordinate. We can also view them as hyponyms under the same domain. Of significance is that the new meaning of *xiang* blocks the semantic field of *chou*. As a result, *chou* can later only stand for the meaning "foul" and remain as an adjective. Ma's main goal is to reveal the concept that language development itself is determined by the relation of several semantic fields.

In conclusion, Ma proposes that the semantic field of *chou* is limited by the semantic field of *xiang*. That is, the semantic field of *xiang* has extended, and this extension directly confines the semantic field of *chou*. Similar to the discussion in Liu (2000), Ma (2007) presents findings related to the semantic development of *chou* in Historical Chinese Linguistics. However, the linguistic properties of *chou* in Modern Chinese have not been covered in Ma's analysis, and they will require further review.

2.1.4 Qin (2008)

Through comparing a metaphorical scope of smells in English and Chinese, Qin (2008) looks into metaphors of smells and attempts to revise the conclusion of the previous research (Sweetser 1990, Ibarretxe-antunano 1999). Since *chou*-related research in Chinese only covers the preliminary findings, Qin aims to have a clear understanding of all aspects in English and Chinese metaphors of smell.

The most important question in Qin (2008) is whether English and Chinese have similar or even the same metaphors of smell. Even though abundant studies in both English and Chinese have observed the phenomenon of metaphors regarding smells, Qin (2008) is the first study to further compare English and Chinese metaphors of smells in a systematic way. Qin is inspired by two previous studies, Sweetser (1990) and Ibarretxe-antunano (1999) to test their proposals with Chinese data.

In order to observe similarities and differences within the two languages, Qin provides three sections of analysis divided by word class.⁷ *Chou* is discussed in the section pertaining to adjectives related to metaphors of smells. *Xiang* is also included since these two adjectives are the only two olfactory adjectives that Chinese speakers usually have in mind at first. The metaphorical scope of adjectives regarding fragrance in English and Chinese is not quite the same even though they both have metaphorical meanings which indicate wonderful feelings in

⁷ Since the target of the proposal is regarding the adjective *chou*, the discussion of Chinese olfactory nouns and verbs will not be described in this section.

heart as in English and ancient Chinese. However, in Modern Chinese, *xiang* can be used to express exquisite things or popular people as in (7) and (8).

(7) Zhe-zhong chan-pin zai shi-chang hen chi-xiang.

this-GE product in market very popular

‘This kind of product in market is very popular nowadays.’ (Qin 2008:109)

(8) Shou-yi gao-chao-de ren zai na-li dou hen chi-xiang.

handicraft excellent-DE people in place all very popular

‘Superb craftsmen ought to be very popular everywhere.’ (Qin 2008:109)

Literally, the adjective *chou* in Chinese is equivalent to stinky, stinking, smelly and foul in English. As stated in Qin (2008), the metaphors of *chou* in English and Chinese can both refer to disliked or unacceptable things in life.

(9) Wo bu-yao ni-de chou-qian.

I NEG-want your-DE stinking.money

‘I don’t want your stinking money.’ (Qin 2008:110)

In (9), *chou qian* in Chinese is identical to ‘stinking money’ in English. Although when interpreting the same category of metaphor, the choice of word in Chinese does not always correspond to that in English. However, metaphors of smell in English and Chinese denote similar concepts after comparing word choices.

In conclusion, Qin emphasizes the importance of smell metaphors since the two previous

studies, Sweetser (1990) and Ibarretxe-antunano (1999), come to different conclusions concerning smell metaphors and visual metaphors. Qin presents a discussion of the relation between smell metaphors and human categorization; nonetheless, what Qin provides is only a general picture of smell metaphors in English and Chinese. More discussion regarding the specific olfactory adjective *chou* should therefore be taken into consideration.

2.1.5 Summary

In this section, four theoretical studies of *chou* are reviewed for different purposes. Liu (2000) discusses semantic extension from Old Chinese to Middle Chinese. The aim of this study is to clarify the semantic development of *chou*. Thus, Liu's study takes a historical approach to discussing *chou*. On the other hand, Ma (2007) attempts to study the semantic field of *chou* and *xiang* with the Semantic Field Theory.

Ren (2005) looks into the metaphoricality of the five senses in Chinese and investigates the relation of the sense and non-senses domains in Modern Chinese. The argument put forth in Qin (2008) is regarding the metaphoricality of Chinese smell-related words. The metaphorical implications of *chou* are therefore discussed in both Ren (2005) and Qin (2008).

To sum up, these four studies have not provided a detailed comparison of literal and non-literal meanings of *chou*. In addition, the fixed expression of *chou* is not discussed neither. Further discussion regarding the linguistic properties of *chou* will be presented in the following section.

2.2 The Linguistic Properties of *Chou*

This section discusses the linguistic properties of *chou* since the previous studies regarding *chou* have not provided a complete picture regarding the metaphorical expressions of *chou* in Modern Chinese. As this is the case, it is essential to introduce both the literal and metaphorical meanings of *chou* in this section.

2.2.1 The Literal Meaning of *Chou*

As stated in the previous section concerning theoretical reviews, *chou* in Old Chinese, the first stage of semantic shift, is originally considered the verb ‘smell’ (Liu 2000, Ma 2007). However, at the second stage of *chou*’s semantic shift, the semantic field of *chou* extends to denote to both foul odors and fragrance; thus, at this stage, *chou* is used as a polysemous noun. It is not until the Han dynasty, the third stage of *chou*’s semantic shift, that the meaning of *chou* has been limited to the meaning of foul-smelling. From the third stage to Modern Chinese, *chou* can be regarded as either an adjective or a noun. According to the definition of *chou* in the Ministry of Education Chinese Dictionary, the word classes regarding the literal meaning of *chou* in Modern Chinese are listed as noun and adjective as seen in (10) and (11).

(10) kou *chou*

mouth bad.breath

‘halitosis’

- (11) *chou pi*
stinky fart
'stinky fart'

For example, *chou* in (10) is a noun and the meaning of (10) refers to bad breath. Tong (1983) points out that *chou* as a monosyllabic noun in Modern Chinese indicates the foul smell emanating from a certain object. In addition, Tong further states that the monosyllabic noun '*chou*' in Modern Chinese is combined with another monosyllabic noun as a compound. As can be seen from (10), *kou* 'mouth' is the place where bad breath emanates from. As the body part which stinks, represented by a monosyllabic noun, *kou* should be placed before *chou* in the compound.

On the other hand, *chou* in Modern Chinese is sometimes used as an adjective to indicate the quality of a scent (Tong 1983). Being an adjective in the compound in this case, *chou* is placed before the modified noun. *Chou* in (11) as an adjective modifies the noun 'fart' to express the stinky smell. The core meaning of *chou* denotes a foul smell.

2.2.2 The Metaphorical Meaning of *Chou*

Chou in Modern Chinese can be interpreted metaphorically, which means that the non-literal meaning of *chou* co-exists with its literal meaning. In relation to the metaphors of smell, Sweetser (1990:37) highlights that "the sense of smell has few abstract or mental connotations ... bad smell is used in English to indicate bad character or dislikeable mental

characteristics.” The given examples of English smell metaphors in Sweetser (1990) are shown in (12) and (13).

(12) He is a stinker. (Sweetser 1990:37)

(13) That idea stinks. (Sweetser 1990:37)

The English sense perception verb of bad smell, ‘stink,’ metaphorically denotes unfavorable feelings toward a person or something undesirable. The semantic change of the verb ‘stink’ is the connection between the physical domain and the emotional domain. Sweetser (1990) further claims that the appearance of metaphorical mappings between different conceptual domains is a cross-linguistic phenomenon. In Modern Chinese, the same metaphorical mapping regarding bad smell can be found in the metaphorical meaning of *chou* (Tong 1983, Liu 2000, Ma 2007, Qin 2008).

In the following section, the non-literal meaning of *chou* is discussed under two different categories, transparent and opaque types of idioms.

2.2.3 Transparent Idioms of *Chou*

As defined by Gibb (1987), the metaphorical meaning of transparent idioms is close to the literal meaning of the lexical components in idioms. In (14), the QIE *yi-chou-wan-nian* ‘leave-foul-ten.thousand-year’ entails the idiomatic meaning of leaving behind a name of infamy for generations. *Chou* in (14) has been metaphorically used to express feelings of dislike toward someone or something.

(14) yi chou wan nian

exist bad.reputation ten.thousand year

‘extremely bad reputation’

2.2.4 Opaque Idioms of *Chou*

As for opaque idioms, the meaning of this type is far from the core meaning. The correct interpretation of opaque idioms cannot be easily sensed. In (15), for instance, fixed expression has been commonly used to indicate the figurative meaning of being boastful. As a result, it is nonsensical to regard ‘*choupi*’ literally when interpreting (15).

(15) Wo bu xi-huan chou-pi-de lao-ban.

I NEG like boastful.DE boss

‘I dislike the boastful boss.’

2.3 Empirical Studies of First Language Acquisition of Metaphorical Expressions

The theoretical background of *chou* has previously been reviewed in Section 2.1. Since the linguistic properties of *chou* cover the aspect of metaphorical expressions, it is essential to look into children’s acquisition as it pertains to metaphorical ability. In this section, four empirical studies related to the first language acquisition of figurative language (i.e. Levorato & Cacciari 2002, Cain et al. 2009, Hsieh & Hsu 2010, Hsu 2013) are chronologically discussed in detail.

2.3.1 Levorato & Cacciari (2002)

The aim of Levorato & Cacciari (2002) is to investigate how Italian children, adolescents and adults create new figurative expressions since previous studies (Levorato & Cacciari 1999) had not focused on idiom comprehension in adolescents and adults. Several studies (Winner 1988, Gibbs 1994) also focus on the process of idiom comprehension but not idiom production. Two experiments were conducted to support the hypotheses posited in the GEM.

Experiment 1 was an elicitation task which examines to what extent different age groups use literal or figurative expressions. In this experiment, subjects from four several age groups were recruited from different schools in Italy: 108 nine-year-old children, 123 eleven-year olds, 112 adolescents in high school and 100 adults attending university. The stimuli in Experiment 1 were nine sets of common actions, e.g. *Dire una bugia* ‘telling a lie’ and nine sets of common emotions, e.g. *Essere felici* ‘being happy.’ Each set of target sentences was printed at the top of the page in a booklet. The subjects were asked to write down a new explanation to express the target phrase.

In addition, two different sets of instruction were used to observe the effect of the linguistic constraint ‘is like’. Under this constraint, the subjects had to follow this syntactic structure so they would write down the comparative structure ‘Target is like....’ The other method of instruction did not have this constraint so the subjects would form nominal sentences like ‘Target is ...’ Based on the design of Experiment 1, the type of target phrases (actions or

emotions) and the type of instruction (nominal or comparative) constituted four experimental conditions. For the analysis of the subjects' responses, six adults were responsible for coding the answers by first categorizing whether they were literal or figurative. Based on the statements provided in Levorato & Cacciari (2002), the definitions and examples in each coded category are presented in Table 2-2, where the type of literal expression can be further categorized as paraphrases, examples or causes.

Table 2-1 The Definitions and Examples of the Coded Categories⁸

Levorato & Cacciari (2002:133-134)

The literal expressions		
<i>The coded category</i>	<i>Definition</i>	<i>Example</i>
PARAPHRASES	The target was paraphrased, or simply recoded linguistically.	telling a lie 'saying something which is not true' (nine-year-old)
EXAMPLES	An instance was provided, or a case from the class of actions described in the target sentence.	making a mistake 'writing down <i>gato</i> instead of <i>gatto</i> ' (nine- year-old)
CAUSES/CONSEQUENCES	A cause or a consequence of the action or emotion was referred to.	being afraid 'I run away' (adolescents) 'being in the dark' 'being away from mummy' (nine-year-old)

⁸ The definition of each coded category in the literal expressions and the figurative expressions is quoted from Levorato & Cacciari (2002).

The figurative expressions		
<i>The coded category</i>	<i>Definition</i>	<i>Example</i>
SYNECDOCHES/ METONYMIES	When the part for the whole was referred to, or the opposite.	being ashamed 'having the shivers' 'having a red face' (nine-year-old)
TRANSPARENT METAPHORS	When the conceptual relation between the target and the new expression was easily inferable.	revealing a secret 'to be a speaking letter' 'to be a musical instrument' (eleven-year-old)
OPAQUE METAPHORS	When a more complex mapping from source to target is required than for the transparent metaphor.	being jealous 'being like a sour lemon' 'being like an ice-lolly' (eleven-year-old)
CONVENTIONAL IDIOMS	When the subject used existing idiomatic expressions or slight variants.	being happy 'being on top of the sky' (adolescents)

As for the figurative type, there were four categories including synecdoches/ metonymies, transparent metaphors, opaque metaphors and conventional idioms. In order to maintain the validity of the coding, the six coders discussed every case of disagreement together.

From the results of Experiment 1, Levorato & Cacciari reported three significant findings. First of all, a clear developmental trend was found from the percentages of figurative productions in the nine-year-old group, eleven-year-old group and adolescent group; however, the surprising finding was that the percentage in the adult group was lower than that of the adolescent group. The production of figurative expressions significantly increased with the age up until the adolescent group, after which it seemed the adolescent group showed similar performance to the adult group. The first result indicated that metalinguistic competence was

developed from primary school age until adolescence.

Second, a main effect was found in the interaction of the nominal and comparative types of instruction and the age in the ANOVA. Compared with the subjects' responses in the nominal construction, the subjects belonging to the primary school and adolescent groups produced more figurative expressions in the comparative construction. That is, the linguistic constraint "is like ..." in the comparative structure did indeed trigger the subjects' figurative production.

Third, semantically transparent metaphors were found to be more easily produced than semantically opaque metaphors in the two primary school groups since a significant difference was found. That is to say, the younger children still depended on the semantic properties in the given idioms and based on these properties to produce the new figurative expressions.

Experiment 2 was designed to extend the results of Experiment 1 by rating the new figurative expressions produced by the subjects. Considering the enormous scale of the collected figurative expressions, Levorato & Cacciari (2002) randomly selected nearly 900 examples from the corpus of production. Two hundred and forty teachers were recruited to rate those chosen examples. All the scorers were asked to rate comprehensibility, appropriateness and novelty of the figurative expressions and the rating was done according to a seven-point scale. For each rating, the 7-point score was considered as 'extremely comprehensible/ appropriate/ novel' and the 1-point score as 'not at all comprehensible/ appropriate/ novel.'

The results of Experiment 2 can be summarized as follows. The first was that the age of

the subjects proved to be a significant factor affecting all three scales. This was evidenced by the fact that the ratings of the expressions increased as the subjects' age did. As was expected, the adolescent group possessed better metalinguistic competence than the two primary school groups. Also, comparing the ratings between the adolescent group and the adult group, the quality of the figurative expressions which were created by the adolescence was less apt. The small age gap between the nine-year-old and eleven-year-old groups was already enough to observe a developmental difference within the two groups.

The second finding was that figurative expressions in the nominal construction scored higher among all three scales. In Experiment 1, the comparative construction triggered the production of metaphorical expressions. This result was unexpected since it was originally hypothesized that the rating of the comprehensibility of responses in the comparative construction would be higher than those in the nominal construction. Third, metaphorical expressions relating to emotions scored higher than those dealing with actions on all three scales. These metaphors proved to be more suitable for expressing the subjects' emotional states. The fourth finding was that the differences semantically transparent and opaque metaphors produced by the subjects was again observed. On the scale of appropriateness, the subjects' transparent metaphors scored higher than their opaque ones. However, on the scale of novelty, the opaque type had a higher rating than the transparent type.

Overall, Levorato & Cacciari investigated issues regarding the metalinguistic competence

of newly created figurative expressions. Experiment 1 was conducted to investigate the differences between the four age groups since the age factor was found to be significant. A developmental trend from childhood to adolescence was observed to support the GEM (Levorato & Cacciari 1995). On top of that, the comparative construction was viewed as a trigger for children to connect the source and target domains in creating figurative expressions. In Experiment 2, the rating of appropriateness in the nominal construction was found to be higher than that found in the comparative construction. However, Levorato & Cacciari did not provide an explanation for this discrepancy found in their experiments.

2.3.2 Cain, Towse & Knight (2009)

Cain, Towse & Knight (2009) investigated how semantic and contextual processing skills would contribute to differences in idiom comprehension in the field of first language acquisition. These two processing skills have been highlighted in previous literature regarding figurative language comprehension (Gibb 1987, Nippold & Martin 1989, Levorato & Cacciari 1992, Nippold & Taylor 1995, Nippold 1998). Previous studies have claimed that both semantic analysis and contextual inference facilitate idiom comprehension. However, the conflicting findings from the different designs in these related studies motivated further research in Cain, Towse & Knight (2009). As stated in Cain, Towse & Knight (2009), more work should be done for clarifying the role of semantic analysis and contextual inference in children's idiom comprehension.

As defined in Cain, Towse & Knight (2009:281), “semantic analysis of an idiomatic phrase involves retrieving alternate meaning of key words and computing a nonliteral meaning of the phrase.” Idioms can be categorized as semantically transparent idioms and opaque idioms. For semantically transparent idioms, there are cues for children to successfully derive the meaning through semantic analysis. On the other hand, semantic analysis cannot serve as a trigger for semantically transparent idioms. For example, it is not possible to analyze the components in a semantically opaque English idiom like ‘kick the bucket’ and derive the correct meaning ‘to die.’

Contextual processing skill was the second target to be investigated in Cain, Towse & Knight (2009). When interpreting a semantically opaque or unfamiliar idiom, the inference from context proved to be useful for young children. As stated in the GEM (Levorato & Cacciari 1995), children of age eleven and older could make use of context to comprehend figurative expressions. Especially when it was a semantically opaque idiom, children could actually depend on their coherence of the context to successfully comprehend the meaning of the opaque idiom.

The aim of Cain, Towse & Knight was to reconsider these two important processing skills in different age groups. Subjects ranging from seven to eleven years old were chosen because of the previous findings related to the developmental trend of the GEM reported in Levorato & Cacciari (1999). In addition, related studies discuss the exact age at which semantic analysis

can be used as a processing skill by children, although disparate findings have been reported (Gibb 1987, 1991; Nippold & Taylor 1995; Levorto & Cacciari 1999).

In Cain, Towse & Knight (2009), novel idioms were adopted to test the subjects' idiom comprehension without tapping into their memory of previously learned idioms. In previous related literature, researchers tended to use idioms which the subjects might already be familiar with. Through the use of novel idioms, Cain, Towse & Knight aimed to exclude the factor of 'prior knowledge regarding the idioms,' as this knowledge highly correlates with the age factor.

Two experiments were conducted to address four research questions extending from the previous related works. The first question was to examine the contextual effect within the same group of the subjects. In contrast to a between-group design (Levorato & Cacciari 1999), Cain, Towse & Knight aimed to observe how the influence of context regarding a single idiom would affect the same children; thus, the design of Cain et al. (2009) examined a within-group performance. The second question was to compare the performance of the two age groups in comprehending transparent novel idioms when contextual inference involved. Next, the third question was to assess the subjects' semantic analysis skills in comprehending figurative language. The last question was to determine whether comprehension differed between the adolescent and adult groups in a development period.

Experiment 1 recruited 20 seven-year-old (Mean age=7;10) children and 20 nine-year-old (Mean age=9;11) children in two village schools in northwest England to investigate whether

these two groups' comprehension varied with semantic and contextual processing skills. In addition, 19 undergraduate school students (Mean age=19;4) from Lancaster University also participated in Experiment 1. All the subjects spoke British English as their first language.

The materials were twelve familiar British English idioms and twelve translations of European idioms which were considered as the novel idioms. The type of familiar and opaque idioms were further divided into two categories, transparent and opaque, and this division was set for the investigation of semantic analyzing skills. Regarding the inference of context, all three groups first completed the tasks without context. After a minimum of two weeks, all three groups were given the tasks with context. In total, three major variables were manipulated in Experiment 1 including the transparency of the tested idioms, the novelty of the idioms and the presence of context. The use of a multiple-choice task design was to assess the children's idiom comprehension, and the answers fell into four categories, idiomatic, contextually plausible, contextually implausible and literal were designed to observe the children's interpretation of idioms.

Based on the results in Experiment 1, the effect of context was indeed observed since the main effect was found in both the younger age group and the older age group. That is, the two younger groups showed a tendency to depend on the aid of context and selected the target interpretation. As for the novel transparent type of idioms, when context was not provided, the adult group and the older group preferred the idiomatic interpretation. That is to say, both

groups were able to use semantic analyzing skills to have the correct interpretation. The significant age factor proved to be found in the analysis of novel idioms and Cain, Towse & Knight (2009:290) stated that this result ‘demonstrated that the language processing skills that aid idiom comprehension and acquisition are still not fully developed in 9- and 10-year-olds.’

Experiment 2 was designed to address two issues which had not yet been solved in the previous literature. First, three more groups were recruited for the purpose of having the clearer picture of the development phase since Experiment 1 only included 7- and 9 year-olds. Thus, subjects of ages 8, 11 and 12 were recruited. Second, the work in Levorato & Cacciari (1995) suggested that the age period from 7 to 11 was a critical period for children in which they developed skills of figurative language comprehension. Nonetheless, previous works had not considered novel idioms among the tested items.

The subjects in Experiment 2 were twenty children in Grade 3 (7- or 8-year olds), twenty children in Grade 5 (9- or 10-year olds) and twenty-two children in Grade 7 (11- or 12-year olds) and all subjects studied in the same schools in northeast England. The same procedure used in Experiment 1 was conducted in Experiment 2; additionally, the task content was the same as in Experiment 1. However, an adjustment in the multiple-choice options was made to exclude literal meanings in the task. In this way, Experiment 2 eliminated the possibility that the youngest group depended on literal choice when selecting their answers.

The results in Experiment 2 were reported as follows. The *t* tests showed that all the groups

relied on cues of context when the subjects encountered familiar and novel idioms. Also, when context was absent, the subjects in all groups showed a tendency to derive idiomatic meanings from semantic analysis. Based on this result, Cain, Towse & Knight (2009:295) suggested that ‘the performance of 7- and 8-year olds may have been underestimated in Experiment 1.’ It was reported that developmental differences in the 11- and 12-year-old group were observed so knowledge of idioms were proved to continue developing beyond the primary school years. These two groups performed well on familiar opaque idioms when the context was not provided.

2.3.3 Hsieh & Hsu (2010)

Hsieh & Hsu (2010) was the first empirical research to especially focus on the contextual effect and linguistic convention in Mandarin-speaking children’s idiom comprehension. Although there is abundant previous literature discussing first language acquisition of idiom comprehension and production, these studies investigated the native languages of English (Abkarian et al. 1992) or Italian (Levorato & Cacciari 1992, 1995, 1999, 2002, 2004) speakers. In addition, Hsieh & Hsu (2010) highlighted the fact that the characteristics of Chinese idioms are different from idioms in other languages. There are certain syntactic constraints within the structures of Chinese idioms. In (16), the syntactic structure in the Chinese idiom ‘*qingmei zhuma*’ is adjective with complement.

(16) qing mei zhu ma
green plum bamboo horse

‘childhood friends’ (Hsieh & Hsu 2010:506)

Hsieh & Hsu (2010) targeted three major effects including linguistic convention familiarity, and context since these three factors were reported to be significant in previous studies. First of all, the non-literal meaning of figurative expression comes into being when the language community agreed upon the convention (Hsieh & Hsu 2010). The idiom in (9), for instance, is used metaphorically to represent the relationship between childhood friends. This metaphorical meaning ‘childhood friends’ was derived from linguistic convention since *qing-mei-zhu-ma* originally referred to the name of a childhood game. However, there was a contradictory finding about the children’s age at which linguistic convention could affect idiom comprehension. Cacciari & Levorato (1989) suggested that the age should be 7 years old but Ackerman (1982) reported the age was 10 years old.

In previous research, contextual inference had been reported to be an influential factor in children’s idiom comprehension (Abkarian et al. 1992, Gibb 1991, Levorato & Cacciari 1995, 1999). The crucial point was at which age children can search for cues in context since there was a discrepancy in the findings which were reported in the related studies. The last issue was familiarity of idioms since previous studies (Nippold & Rudzinski 1993, Levorato & Cacciari 1992, Nippold & Taylor 1995, Nippold et al. 1996) had different opinions regarding the

familiarity effect on children idiom comprehension. The aim of Hsieh & Hsu (2010) was to investigate how and when these three linguistic factors affected children's idiom comprehension.

The first experiment was a word-card task with Mandarin-speaking children in two groups. This experiment examined how 6-year olds and 9-year olds interpreted the tested idioms. The first group was composed of 16 children (Mean age=6;1) and the second group also had 16 children (Mean age=9;6). The designed content of the task was based on plant-related Chinese idioms since Hsieh & Hsu (2010:507) stressed that “plant names are popular vehicles in languages.” That is, plant-related idiomatic expressions serve as a necessary role in children's perception and comprehension. The control group in Experiment 1 was composed of 16 adults whose age was between 23 to 35.

Regarding the materials in Experiment 1, 27 elementary school teachers and 19 kindergarten teachers were chosen as raters to ensure the familiarity of each idiom. Based on a four-point scale (1 point being very unfamiliar; 4 points being very familiar), they were asked to rate a list of thirty idioms chosen from the Academia Sinica Balanced Corpus of Mandarin Chinese. Seven familiar idioms and seven unfamiliar idioms were selected as the tested idioms in Experiment 1. The subjects were presented with one word card with a printed idiom each time and asked to explain the meaning of the target idiom on the word card. The experimenter would read aloud each tested idiom first and then the child subjects had to respond with their

interpretation of the idiom. All responses were recorded for the purpose of data coding.

According to the results in the first experiment, both age and familiarity were reported to significantly affect the subjects' responses. Regarding the age effect, the adult group expectedly had the best performance among all the subjects and the youngest group had more incorrect answers than the 9-year-olds. As for familiarity, all three groups responded with more correct answers in the familiar idiomatic type than in the unfamiliar idiomatic type.

The design of the second experiment followed the same design in Laval (2003), also being a comprehension task combined with a meta-pragmatic task. The comprehension task required the subjects to choose the pictures which were the literal or idiomatic meanings of the figurative expressions. In addition, the subjects also needed to explain the tested idioms and their verbal explanations were recorded for the analysis of meta-pragmatic part. The outcome of the meta-pragmatic part was then used to compare with the results of the French children in Laval (2003).

Based on the findings of the picture selection task in Experiment 2, all groups displayed a tendency to choose the literal picture in the literal context. However, if the non-literal context was provided, the 9-year-old group tended to give more idiomatic answers. The youngest group also depended on the aid of context to select the idiomatic interpretation, indicating that idiomatic context was indeed a significant factor for the child groups even as young as six years old. In addition, two-way significant interaction was also found in familiarity and age. The six-year-old group had the lowest percentage of idiomatic responses in both the familiar and

unfamiliar conditions. This result was significantly different in the adult and the 9-year-old groups.

As for the meta-pragmatic analysis, the recorded answers were categorized into four categories: explanation related to linguistic convention, literal meaning, context, and other factors. Based on a Chi-square test, the age factor was found to be significantly different in these four categories of explanations. For the linguistic convention, the adult group had the most explanation related to this category and the six-year-old group had the fewest. The adult group possessed the ability to relate linguistic convention to the idioms but the youngest group mostly relied on the context. Overall, Hsieh & Hsu (2010:519) proposed that “the effect of meta-pragmatic knowledge is apparent after age 6 and was clearly established by age 9.”

2.3.4 Hsu (2013)

Hsu (2013) targeted the specific figurative Chinese adjective *lao* ‘old’. *Lao* in Chinese can be interpreted literally or non-literally. In (10), for instance, the literal meaning of *lao* is old; however, (17) can be metaphorically interpreted as an experienced police officer. By examining children’s interpretation of *lao*-related expressions, Hsu aimed to discuss five effects: the difficulty of metaphoricality, the degree of transparency, animacy effect, task effect, and age.

(17) *lao jingcha*

old police.officer

‘an old police officer’

There were five groups taken as experimental groups and in total 100 primary school children from Taichung were selected for the experiments. Twenty adults made up the control group, and they were aged from 23 to 26. Following the GEM in Levorato & Cacciari (1995), the age of the subjects ranged from 7 years old to 11 years old. Two tasks were employed in this experiment. So as to understand the children’s acquisition of figurative expressions, the subjects had to answer an interpretation task and a multiple choice task respectively in order. A pilot study was conducted to ensure the validity of the tested items and the word knowledge designed in the task. In total, fifteen students from Grade 1 to Grade 5 were chosen to participate. Based on the recording of the interpretation task in Experiment 1, the verbal responses from the subjects were rated.

According to the results of Hsu (2013), there was a significant difference between age and metaphoricality. The literal meaning of *lao* were indeed easier to acquire among the primary school children groups and the adult group. To account for this finding, Hsu (2013:60) provided the explanation that ‘children’s general cognitive structure reflects the property of intellectual concreteness and realism.’ That is, children are inclined to interpret the literal meaning of *lao* with concrete properties such as wrinkles or gray hair. Unsurprisingly, the adult group had the

best performance on interpreting the literal and non-literal sense of *lao*. In addition, the Markedness Theory (Jakobson 1971, Eckman 1977, Goodluck 1991) is supported by the evidence that the literal meaning (the unmarked form) is easier to acquire than the non-literal meaning (the marked form). There is a developmental trend that follows after analyzing the performance on interpreting the non-literal meaning in all age groups. The results of this comparison regarding the between-group's performance support the five developmental phases in the GEM (Levorato & Cacciari 1995). Relying on the literal meaning, Phase 1 (7-year-old; Grade 1) interpreted the idiomatic expressions piece-by-piece. Children in Phase 2 (8- & 9-year-old; Grade 2 & Grade 3) had the sensitivity to search for contextual aids and the ability to interpret non-literally. As for children in Phase 3 (10-, 11- & 12-year-old; Grade 4 & Grade 5), they could sense the discrepancy between what was said and what was intended.

Under the category of opaque idioms, Hsu (2013) further classified this category into two types, the transparent non-literal type and opaque non-literal type. Regarding these two different types, the overall score displayed a significant difference. All the subjects performed well on the transparent non-literal idioms since the opaque non-literal type was indeed more challenging to comprehend. For the between-group comparison, the performance of Grade 5 proved to be adult-like when encountering the transparent idioms of *lao*. Grade 4 and Grade 5 also significantly outperformed the younger groups on opaque idioms and Hsu (2013:79) stated that “[a]lthough 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.” That is, Grade 5 did not possess the same level of metaphoricality as the adults.

Regarding the animacy effect of *lao*, the children’s performance was better when comprehending the *lao*-phases with an animate noun. The overall score of the animacy effect was significantly different. Hsieh (2013) noted that “[t]his was attributed to the fact that our 90 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 denoted the state maturation of an animate entity. *Lao* combined with the non-animate nouns represents a non-literal meaning. The child subjects indeed needed to have the required meta-linguistic ability to comprehend this type. Thus, it would be more challenging for them.

The overall score displayed a significant difference between the interpretation task and the multiple choice task for the children’s group. All the primary school subjects showed better performance when doing the multiple choice task but no significant difference was found in the control group. Task effect was particularly significant for all groups when comprehending the non-literal type of *lao*.

2.3.5 The Comparison of Four Empirical Studies

In sum, each empirical study of idiomatic expressions reviewed in this section has its own contribution in the field of first language acquisition. With the results of these studies, several factors regarding developmental phases of children's metaphorical ability were investigated.

<i>Empirical Studies</i>	<i>Main factors involved</i>	<i>Task Design</i>
Levorato & Cacciari (2002)	<ol style="list-style-type: none"> 1. Age 2. Idiom type (action vs. emotion) 3. Linguistic instruction 'is like' 	<ol style="list-style-type: none"> 1. Subjects: two children groups (Mean age= 9;6, 11;3) one adolescent group (Mean age=18;5) 2. Tested materials: 9 common actions and 9 common emotions 3. Adopted tasks: a production task and a judgment task
Cain et al. (2009)	<ol style="list-style-type: none"> 1. Age 2. Idiom type (transparent vs. opaque) 3. Semantic processing skill 4. Context processing skill 	<ol style="list-style-type: none"> 1. Subjects: three children groups (Year 3, Year 5, Year 7) one adolescent group (Mean age= 19;4) 2. Tested materials: 12 common British English idioms 12 translations of European idioms (novel type of idioms) 3. Adopted tasks: a multiple choice task a picture-selection task
Hsieh & Hsu (2010)	<ol style="list-style-type: none"> 1. Age 2. Familiarity 3. Context 4. Linguistic convention 	<ol style="list-style-type: none"> 1. Subject: Two children groups (Mean ages= 6;1, 9;6) adults (Age range= 23-35) 2. Tested Materials: 14 plant name Chinese idioms 3. Adopted tasks: a word-card task a story picture selection task a meta-pragmatic task

Hsu (2013)	<ol style="list-style-type: none"> 1. Age 2. Idiom transparency 3. Animacy effect 4. Task effect (context) 5. The difficulty of metaphoricality 	<ol style="list-style-type: none"> 1. Subjects: five children groups (Mean age= 7,8,9,10,11) one adult group (Mean age= 25) 2. Materials: Chinese <i>lao</i>-related expressions 3. Adopted tasks: an interpretation task a Word-in-Context task
------------	--	---

First of all, age was an influential factor since previous studies reported several outcomes (Levorato & Cacciari 2002, Cain et al. 2009, Hsieh & Hsu 2010, Hsu 2013). Levorato & Cacciari (2002) observed a developmental trend from 9-year olds to 11-year olds. Hsu (2013) supported the GEM in Levorato & Cacciari (2002) and presented a similar outcome: children from ages 7 to 11 gradually developed the ability of idiom comprehension. In addition, Hsu (2013:63) specifically pointed out that 10 years old was the “cutting-point for better acquisition of figurative expressions,” since they possess the requisite meta-linguistic knowledge to go beyond the literal meaning. Hsieh & Hsu (2010) reported that six-year-old children would be able to produce idiomatic answers under an idiomatic context. In Cain et al. (2009), children as young as 7 or 8 years old were able to use clues of context and semantic analysis to comprehend idioms.

Second, the issue regarding transparency of idioms was investigated in Levorato & Cacciari (2002), Hsieh & Hsu (2010) and Hsu (2013). There was consistency between the results in these three studies. Semantically transparent idioms were easier to acquire than the opaque types. In addition, contextual inference was proven to be a significant factor in

children's acquisition of idiom comprehension (Cain et al. 2009, Hsieh & Hsu 2010, Hsu 2013).

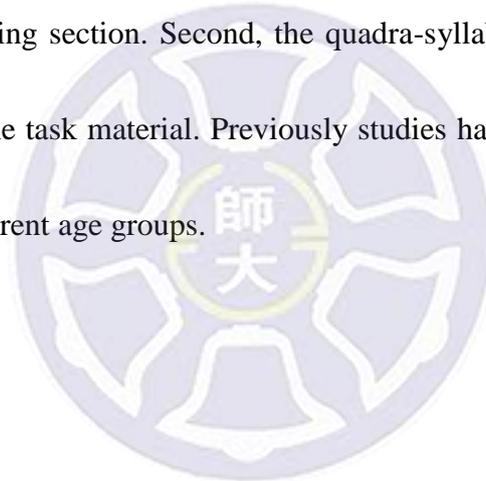
Based on these findings, children from ages 6 to 12 were able to sense the existence of context.

On the other hand, Levorato and Cacciari (2002) verified that the word usage 'like' would trigger the production of metaphoricality among all groups. Hsieh & Hsu (2010) observed the issue regarding the familiarity and the linguistic convention of idioms. Affected by familiarity, the 6-year-old children in Hsieh & Hsu (2010) had more correct answers when the context was not provided. As for the linguistic convention, children aged 6 years of age would be affected, but this phenomenon was not significant until the age of 9. Hsu (2013) investigated the animacy effect in Chinese idioms. Groups with younger subjects (7-, 8-, 9-year-olds) were found to have difficulty interpreting the non-literal meaning of *lao* with inanimate NPs.

Different measures were adopted in each study to deal with the limitations of an empirical analysis; thus, the design of each study was different. The types of adopted tasks, for instance, varied a great deal. Certain studies conducted a production task (Levorato & Cacciari 2002) and others employed a comprehension task (Cain et al. 2009, Hsieh & Hsu 2010). Both types of tasks were adopted in some other experiments (Hsu 2013). In addition, the materials in the tasks were also diverse since Levorato & Cacciari (2002) and Cain et al. (2009) focused on metaphorical expressions, whereas Hsieh & Hsu (2010) specifically looked into plant-related Chinese idioms and Hsu (2013) targeted the *lao*-related expressions in Chinese. Based on the different approaches in previous literature, various findings were presented. In further

experiments related to the developmental phases in children's acquisition of figurative expressions, children in all grades of primary school should be included.

The innovation of the present proposal can be categorized in two parts. Firstly, humans depend on the five senses to perceive the world. Numerous metaphorical expressions related to sense are extensively used to express one's mental state. Not to mention, *chou* is a major olfactory adjective in Modern Chinese. This issue has not been investigated in the previous literature of the first language acquisition. The details of the linguistic properties of *chou* will be discussed in the following section. Second, the quadra-syllabic idiomatic expressions of *chou* will be included in the task material. Previously studies have not further examined this aspect as it pertains to different age groups.



Chapter Three

Research Design

This chapter mainly introduces the experimental design and the expected findings of the present study. Section 3.1 elaborates on the background information of the participants of the study. In Section 3.2, the methodology and the tested items of the two interpretation tasks are presented. In this section, the analytical framework of the *chou*-related metaphorical expressions in Modern Chinese is also included. Following this, Section 3.3 provides examples of both the Word-in-Isolation task and the Word-in-Context task. Along with details of the pilot study, the procedures and the scoring policy of the formal study are reported in Section 3.4. Finally, a brief summary of this chapter is provided in Section 3.5.

3.1 Participants

The aim of this research was to observe developmental patterns as they pertain to Chinese idiom interpretation in the field of first language acquisition. The age of the participants in the present study ranged from six to fifteen; therefore, the participants were recruited from kindergarten, elementary school and junior high school.

Based on the prediction of the Global Elaboration Model (GEM) in Levorato & Cacciari (2002), the age of children in Phase 1 was up to seven years old. In this phase, children only rely on the literal meaning of idioms. However, after entering Phase 2, eight-year-old and nine-year-old children would pay attention to the linguistic factor ‘context’ and begin to comprehend

non-literal idiomatic interpretations. In addition, children from ten years to twelve years of age are considered as being in Phase 3 of the GEM. Previous literature (Levorato & Cacciari 2002, Hsieh 2008, Hsu 2013) indicated that at the age of ten, children start to comprehend idioms in a manner similar to adults. As a result, it was necessary to recruit subjects from grades two, four and six of elementary school in order to observe the development of idiom interpretation in children. Native Mandarin-speaking adults were also recruited as control subjects in order to compare the differences in performance between childhood and adulthood. On top of that, the grade 9 participants were included to have a more thorough comparison with each phase in the GEM. On the other hand, the kindergarten participants were added in the present study to observe five-year-old children's performance as Gibbs (1987) pointed out that children at this age were capable of interpreting transparent idioms.

Table 3-1 Participants' Background Information in the Formal Study

<i>Group</i>		<i>Mean age</i>	<i>Number</i>
Kindergarten	G1	5;7	15
Grade 2	G2	7;7	15
Grade 4	G3	9;8	15
Grade 6	G4	11;6	15
Grade 9	G5	15;6	15
Adult Controls		24;6	15

As shown in Table 3-1, there were six experimental groups in the present study, and the number of participants in each group was fifteen. The participants in each group were recruited from public schools in Taipei. The youngest group (G1) of participants in this study were from the *Gu-Ting* Kindergarten and the other three groups of elementary school students were

selected from the *Gu-Ting* Elementary school. As for Group 5 (G5), they were from *Xin-Zhuang* Junior High School. All participants in the study receive instruction in Mandarin Chinese. Additionally, twenty graduate students from National Taiwan Normal University of ages 23 to 25 were recruited as the adult controls. Since this study is designed for first language acquisition research, Mandarin Chinese is the mother tongue of all participants.

3.2 Methods and Materials

The present study is targeted at several linguistic factors including age, the type of idioms, familiarity, and context. Two interpretation tasks are designed so as to observe the effects of these four variables. In previous literature regarding the acquisition of figurative language, many scholars have adopted different approaches to investigate the development of comprehension of figurative language in children, adolescents and adults (Levorato & Cacciari 2002, Cain et al. 2009, Hsieh & Hsu 2010, Hsu 2013).

In Chapter Two, four main studies have been reviewed to have a clearer picture of prior research in the field. Though these authors focused on idiom acquisition, each study employed different approaches. Levorato & Cacciari (2002) chose a production task in the experiment. The participants were asked to explain certain phrases related to actions or emotions. After this production task, those new explanations were further categorized into literal and figurative types. In fact, the production task in Levorato & Cacciari (2002) should actually be considered as a comprehension task since the subjects were required to interpret the tested phrase rather

than produce them in speech.

On the other hand, Cain et al. (2009) and Hsieh & Hsu (2010) both employed picture selection tasks to test children's comprehension. For example, the tested Chinese idioms in Hsieh & Hsu (2010) were related to plants like *qing-mei-zhu-ma* 'green plum bamboo horse.' It was more feasible to create pictures which can represent the literal interpretation of these plant-related idioms. Nevertheless, the goal of the present study is to observe how subjects interpret *chou*-related idiomatic expressions. Thus, it would be difficult to depict literal meanings of *chou*-related idioms by through the use of pictures.

Based on the results of prior research in the field, a multiple choice task has been proven to influence the subjects' performance in describing transparent and opaque idioms (Levorato & Cacciari 1999). In the same vein, Cain et al. (2009), Hsieh & Hsu (2010) and Hsu (2013) have designed multiple choice tasks into their experiments. However, the use of a multiple choice design would impose limitations. For example, each participant would be forced to select one of the choices and it was highly possible that his or her intended interpretation was not listed among the choices. In addition, part of *chou*-related phrases in the design of the present study were quadra-syllabic idiomatic expressions which were regarded as semantically opaque. In other words, the metaphorical meanings of these idioms are heavily based in Chinese cultural tropes. For this reason, participants would find it easily disregard the literal meaning options as false. Therefore, it is not appropriate to adopt the multiple choice design in

the present study.

The present study employs two types of interpretation tasks, namely a Word-in-Isolation type and a Word-in-Context type. Through directly asking the participants to explain the meaning of the tested *chou*-related idioms in Mandarin Chinese, the present study can compare and analyze how different age groups interpret idiomatic expressions. This approach has been adopted in other studies regarding idiom comprehension (Mueller & Gibbs 1987, Gibbs 1991, Nippold & Rudzinski 1993, Levorato & Cacciari 2002, Hsieh 2008, Hsieh & Hsu 2010, Hsu 2013).

3.2.1 An Analytical Framework

This section presents the analytical framework of the present study. A list of twenty six *chou*-related idioms was first chosen from three Chinese corpuses including the *Academia Sinica Balanced Corpus of Modern Chinese*, *Modern Chinese Word-focused Extensive Reading Corpus* and *Pre-modern Word-focused Extensive Reading Corpus*. After collecting all *chou*-related idioms in these three corpuses, the *Ministry of Education Online Mandarin Chinese Dictionary* was the second criterion used to ensure that all selected idioms are present in a standard lexicon. Considering familiarity of idioms as a significant factor affecting the participants' interpretation of idioms (Nippold & Rudzinski 1993, Nippold & Taylor 1995, Nippold et al. 1996, 2001, Laval 2003, Hsieh & Hsu 2010), four elementary school teachers were asked to rate the familiarity of these twenty six *chou*-related idioms.

Table 3-2 The Mean Rating of Familiarity regarding *Chou*-related Idioms

<i>Type</i>	<i>Chou-related idioms</i>	<i>Mean rating</i>
Familiar	<i>chou-pi</i> “boastful”	5.25
	<i>chou-qi-chong-tian</i> “stink to high heaven”	5.25
	<i>chou-lian</i> “unhappy”	5.00
	<i>chou-ma</i> “scold angrily”	4.75
	<i>chou-bu-ke-wen</i> “unbearable”	4.50
	<i>chou-ming-yuan-yang</i> “notorious”	4.50
Unfamiliar	<i>tong-chou</i> “filthy rich”	3.00
	<i>ru-chou-wei-gan</i> “childish”	3.00
	<i>chou-qian</i> “stinking money”	2.75
	<i>chou-jia-zi</i> “stinking pretension”	2.75
	<i>bu-zhi-xiang-chou</i> “not know whether a thing is good or bad”	2.75
	<i>bo-e-yi-chou</i> “go down in history as a byword for infamy”	2.00

Table 3-2 provides the mean score of familiarity regarding twelve items tested in the present study. Based on a six-point scale (1= extremely unfamiliar; 2= very unfamiliar; 3= unfamiliar; 4= familiar; 5= very familiar; 6= extremely familiar), four teachers from the recruited participants’ classes were asked to assess the familiarity of twenty-six *chou*-related idiomatic expressions. After rating, twelve idioms were selected from twenty six *chou*-related

idioms. In Table 3-2, a mean score over 4.5 can be considered to be familiar. Consequently, idioms having a mean rating lower than 3.0 are categorized as unfamiliar.

As for idiomatic expressions in Chinese, they primarily belong to two types including quadra-syllabic and non-quadra types. So called quadra-syllabic idioms, a syntactic form particular to Chinese composed of four Chinese characters, are taught to children from elementary school onward. Figurative meanings of this type of idioms are closely related to the linguistic convention which requires knowledge of Chinese history and culture. With these characteristics in mind, the present study seeks to investigate the differences in idiom development between quadra-syllabic and non-quadra idiomatic types.

In the following Table 3-3, there were in total of sixteen test items including four fillers items in both the Word-in-Isolation condition (WII) and the Word-in-Context condition (WIC). The order of these tested *chou*-related idiomatic expressions in both conditions was randomly selected and displayed in two rightmost columns in Table 3-3.

Table 3-3 Tested Items of *Chou* in the WII and WIC Task

<i>Type</i>		<i>Tested items</i>	<i>WII</i>	<i>WIC</i>
Familiar	non-quadra -syllabic	<i>chou-pi</i> “boastful”	6	6
		<i>chou-lian</i> “unhappy”	3	1
		<i>chou-ma</i> “scold angrily”	4	2
	quadra - syllabic	<i>chou-qi-chong-tian</i> “stink to high heaven”	5	4
		<i>chou-bu-ke-wen</i> “unbearable”	1	5
		<i>chou-ming-yuan-yang</i> “notorious”	8	11
Unfamiliar	non-quadra -syllabic	<i>tong-chou-wei</i> “filthy rich”	16	14
		<i>chou-qian</i> “stinking money”	13	13
		<i>chou-jia-zi</i> “stinking pretension”	10	8
	quadra -syllabic	<i>ru-chou-wei-gan</i> “childish”	14	7
		<i>bu-zhi-xiang-chou</i> “not know whether a thing is good or bad”	11	12
		<i>bo-e-yi-chou</i> “go down in history as a byword for infamy”	12	10
	Fillers		<i>xiang-qi-si-yi</i> “aroma”	2
		<i>chi-xiang-he-la</i> “to live well”	9	15
		<i>qiang-tou-xiang</i> “to be first”	15	9
		<i>xiang-huo-ding-sheng</i> “attracting many pilgrims”	7	16

3.2.2 Two Interpretation Tasks

As stated in the previous section, the aim of the present study was to investigate participants' developmental performance as pertaining to their interpretation of *chou*-related idiomatic expressions. An interpretation task design was chosen for all tested items. So as to have a clear understanding of participants' interpretation of the figurative expressions' literal and metaphorical meanings, Word-in-Isolation and Word-in-Context tasks are included in the present study. In the following section, a detailed description of these two tasks is included.

3.2.2.1 Word-in-Isolation Task

In the Word-in-Isolation task, all the tested *chou*-related phrases were designed without contextual information. Table 3-4 presents an example in which the question *chou-lian* “unhappy” belonged to Type 1-1. Type 1-1 was comprised of frequently used non-quadrasyllabic *chou*-related idioms. The present study assumed that this type should be the easiest type of idioms for the participants to interpret.

Table 3-4 An Example Used in the Word-in-Isolation Task

 <p>3. 臭臉 (xiù liǎn)</p>	<p>The audio description provided to subjects:</p> <p>“<i>xiao peng you, qing wen chou lian shi she me yi si ne?</i>”</p> <p>Can you tell me the meaning of <i>chou-lian</i>?”</p>
---	--

3.2.2.2 Word-in-Context Task

For the Word-in-Context task, a story line was designed to arouse the interests of the participants. Famous cartoon characters including Spongebob, Patrick, Sandy and Mr. Krab were presented in the PowerPoint slides. In contrast to the format used in the Word-in-Isolation task, more detailed descriptions of the questions were provided to the participants in audio form. Also, Flash-animated pictures were used as an aid for the participants in interpreting the correct meanings.

In Table 3-5, the first slide introduces the background of the story to the participants. The main idea of the prerecorded audio description explains the condition that Spongebob and Patrick live under the sea for a long time so it may be hard for them to understand Sandy's word choice. The second slide describes a situation in which Spongebob and Patrick were late for an appointment with Sandy. The tested item *chou-lian* was embedded in the audio description of the question. In the end, the third slide shows the question, asking the participants to directly produce the interpretation of *chou-lian*.

Table 3-5 An Example Used in the Word-in-Context Task

	<p>The audio description provided to the participants:</p> <p>“Gewei xiaopengyou, jintian yao dai nimen yiqi gen haimianbaobao he paidaxing yiqi chulai wan. Yinwei pingchang tamen dou shenghuo zai haidishijie de biqibao, suoyi butaidong women shuode hua. Keyi baituo nimen bangbang haimianbaobao he paidaxing ma?”</p> <p>Hi, everyone, today we will accompany Spongebob and Patrick. Because they live in Bikini Bottom under the sea, they may have difficulty understanding what we say. Please kindly help them.</p>
	<p>“Tamen gen shandi yuehao zaoshang shidian jianmian. danshi haimianbaobao he paidaxing que chidao le haojiu. Shandi shuo wo dengle namejiu, benlai kandao nimen lai xiangbai choulian de.”</p> <p>They have an appointment with Sandy at ten o’clock in the morning but they are actually late. When Sandy meets them, she says “I’ve been waiting for a long time. I should be angry with you two.” Please kindly explain the meaning of <i>chou-lian</i> to them.</p>
	<p>“xiao peng you, qing wen chou lian shi she me yi si ne?”</p> <p>Can you tell me the meaning of <i>chou-lian</i>?</p>

3.3 Procedures

3.3.1 Pilot Study

In this section, the procedures of the pilot study are elaborated in detail. The pilot study was completed first to ensure the quality and validity of the task design which would be implemented later in the formal study. The pilot study was conducted in November of 2015 and experimental groups were recruited from *Wan-Fang* Public Elementary School in Taipei. The participants in the pilot study ranged from Grade 1 to Grade 6.

To prevent the possibility of carry-over effects, all participants were asked to complete the Word-in-Isolation task (see in Appendix A) first and then to continue to finish the Word-in-Context task (see in Appendix B). Before the first task began, full instructions were given to the participants and they were not allowed to discuss the answers with their classmates during the trials. Also, the instructor accompanied the participants while they were completing the trials. When the instructor noticed that the participants had difficulty understanding the descriptions of certain questions, she would ask the participants whether it was necessary to replay the slides again. During the experiments, the instructor made sure that all the participants in a single group had clearly watched and listened to the description in each slide before moving on to the next slide.

The findings of the pilot study can be summarized as follows: for the first research question concerning the performance in each phase, Phase 1 is composed of Grade 1 and Grade

2, while Grade 3 and Grade 4 belong to Phase 2. Grade 5 and Grade 6 then make up Phase 3. In the pilot study, Phase 2 and Phase 3 outperformed Phase 1 in both two tasks. Phase 1 had the lowest mean score (Mean=0.45) in idiomatic interpretation. The mean percentage (Mean=0.70) of the Word-in-Isolation trial in Phase 2 was very close to the mean percentage (Mean=0.72) of the Word-in-Isolation trial in Phase 3. This outcome supports the conditions proposed by the GEM within Phase 2 and Phase 3 as the participants in both phases displayed a sensitivity towards idiomatic expressions. They had the ability to distinguish between an idiomatic expression's literal and metaphorical meaning.

In addition, signs of the age effect can be found through a comparison of performance between Phase 1 and Phase 3. Phase 3 (Mean in the Word-in-Isolation task= 0.71; Mean in the Word-in-Context task= 0.91) outperformed Phase 1 (Mean in the Word-in-Isolation trial= 0.45; Mean in the Word-in-Context trial= 0.75) on both tasks. This indicated that there was indeed development evident in primary school children's idiom interpretation. Based on the between-group comparison of the participants' performance, these results supported the predicted developmental phases in the GEM (Levorato & Cacciari 2002).

Regarding the familiarity of idioms, it can be seen that the mean percentage of familiar idioms was higher than unfamiliar idioms. For example, the mean score in the Grade 3 group regarding the familiar type was 0.88. However, the mean score in the unfamiliar type was 0.50. The same phenomenon can be found in other groups other than the Grade 3 group. This result

supports claims made in prior literature that familiarity affects children's idiom interpretation (Nippold & Rudzinski 1993, Levorato & Cacciari 1992, Nippold & Taylor 1995, Nippold et al. 1996, Hsieh & Hsu 2010). The familiarity of idiomatic expressions is a crucial factor for the children. In the pilot study, the participants did indeed have difficulty in interpreting unfamiliar idioms. The most difficult type of idiom in the task for the participants were those that were of both the unfamiliar type and the quadra-syllabic type. The Phase 1 group in particular had the lowest mean score when encountering quadra-syllabic idioms.

For the final research question, comparing the mean percentages in the Word-in-Isolation task with those in the Word-in-Context task provides evidence for the hypothesis which postulates that context aids the elementary students in every grade. As can be seen, each group performed better on the Word-in-Context task. Furthermore, the Phase 1 group displayed the most improvement when moving from the Word-in-Isolation task to the Word-in-Context task (Mean in the Word-in-Isolation task= 0.45; Mean in the Word-in-Context task= 0.75). Out of all of the groups, the Phase 3 group displayed the best performance in the Word-in-Context task, with their percentage reaching over 0.90.

After analyzing the data from the pilot study, several inadequacies were found. First of all, the description of the options in the task misled participants' interpretations of the idioms. For example, Mr. Krab was described as a mean boss running a hamburger shop in the storyline. The correct answer for question 13 *chou-xian-wei* in the Word-in-Context task should be the

third option *mei-you-li-mao-de-you-qian-ren*, a rich man who is impolite. However, the subjects are affected by the description Mr. Krab's personality so they prefer the first option *ai-sheng-qi-de-ren*, 'one who easily gets mad.' In addition, more subjects for each of the six groups in the pilot study should be recruited. This would yield more solid results explaining the performance of the participants since the gap of the mean percentage between Phase 2 and Phase 3 was not found to be obvious.

3.3.2 Scoring Policy

Both tasks in the present study are composed of interpretation questions. The purpose of these two tasks is to compare the interpretation of idiomatic expressions of students in each grade. In both tasks, the participants' responses are classified into four categories including the literal, metaphorical, related and other types by three raters. The answers of the filler questions are excluded in the analysis. The following Table 3-6 provides examples of representative answers for each type of interpretation:

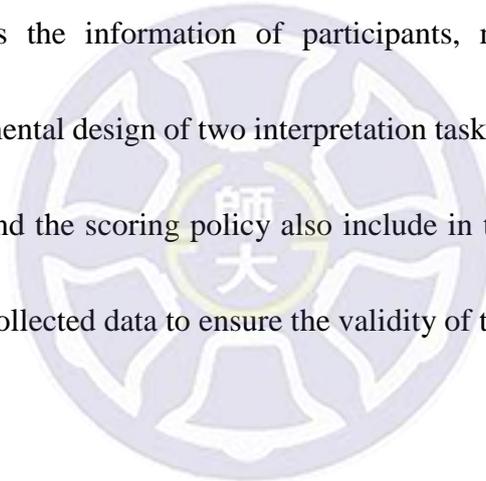
Table 3-6 Four Types of Interpretations of *Chou-Lian* in the Formal Study

<i>Type</i>	<i>Interpretation</i>
Literal	"An odorous face"
Metaphorical	"An unhappy face"
Related	"An angry face"
Other	"I don't know"

One response in each category is considered as one frequency count. The frequency count within the four different categories is calculated for further statistical analysis. In addition to this, the frequency count of each type of idiom in the experimental design represents the participants' interpretational preferences for *chou*-related idioms. Based on the frequency counts, we can study various factors that affect their interpretation, including the type of idiom, familiarity, context, and the age effect.

3.4 Summary of Chapter Three

This chapter presents the information of participants, methodology, the analytical framework and the experimental design of two interpretation tasks in the present research. The results of the pilot study and the scoring policy also include in this chapter. Three raters are responsible of coding the collected data to ensure the validity of the rating.



Chapter Four

Results and Discussion

The present chapter mainly focuses on the results of each of the research questions previously raised in Chapter One. Four different aspects involved in the acquisition of figurative expressions including the acquisition of metaphoricality, the acquisition of quadra-syllabic idioms, the familiarity effect and the contextual effect are investigated. We begin with an analysis of the participants' performance on literal and metaphorical interpretations of *chou*-related idioms in Section 4.1. Section 4.2 then presents a comparison regarding types of interpretations between quadra-syllabic and non-quadra-syllabic idioms.

Section 4.3 elaborates on the familiarity effect of *chou*-related figurative expressions. Next, Section 4.4 compares the participants' performance on two different interpretation tasks, the Word-in-Isolation task and the Word-in-Context task. Section 4.5 discusses the connection between different groups' performance and the five developmental phases in the GEM; a discussion is also included concerning the age effect as it pertains to the participants' idiom interpretation. Finally, a brief summary of this chapter is presented in Section 4.6.

4.1 Acquisition of Literal and Metaphorical Interpretations

Through investigating the performance differences in those responses which have been categorized into literal and metaphorical interpretations, Section 4.1.1 makes a comparison between the literal and metaphorical interpretations of *chou*-related idioms. Moreover, a

general discussion regarding the participants' within- and between- group performance can be considered as substantiating proof for the Markedness Differential Hypothesis (Eckman 1977). With respect to this hypothesis, a literal interpretation is considered as an unmarked form which is assumed to be more easily acquired by children (Eckman 1977). In contrast, a metaphorical interpretation should be viewed as a marked form. Thus, it is assumed that children would encounter difficulties when they interpret these figurative expressions since the meanings of such expressions are not equal to their literal forms.

4.1.1 Overall Findings of Literal and Metaphorical Interpretations

After the collecting data on the Word-in-Isolation and Word-in-Context tasks, a total of 2160 responses for tested *chou*-related idioms were obtained. Next, all the interpretations were classified into four categories including literal, metaphorical, related and other by three raters. The total frequency counts for these four different types are displayed in Table 4-1:

Table 4-1 Participants' Overall Frequency Counts for *Chou*-related Idioms

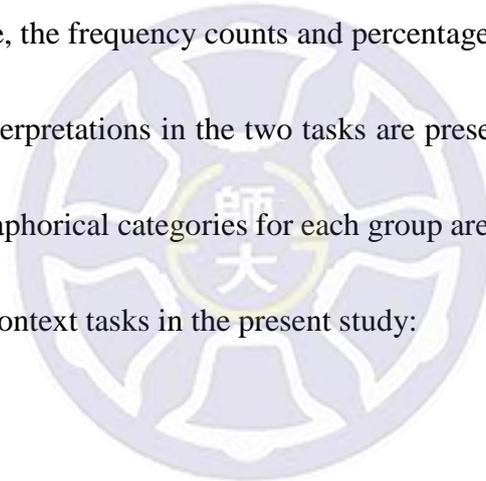
<i>Type</i>	<i>Frequency</i>	χ^2	<i>df</i>	<i>p-value</i>
Literal	555	1102.789	3	.000*
Metaphorical	1162			
Related	169			
Other	274			

Through application of the χ^2 test, the *p*-value for the overall frequency counts in the literal, metaphorical, related and other categories was found to be significantly different ($\chi^2 = 1102.789, p = .000$). This indicates that the participants in all groups have shown markedly

different tendencies when interpreting figurative language. In Table 4-1, the highest frequency count is seen in the metaphorical category and the lowest one in the related category. Overall, the participants' responses were mainly classified into the literal and metaphorical categories.

The present section is concerned with observing the acquisition of metaphoricality through the participants' literal and metaphorical interpretations. Hence, the categories of related and other interpretations were not included in Figure 4-1, but the discussion of these two categories will be included in the general discussion in each research question if needed.

In the following figure, the frequency counts and percentages¹ among six age groups for literal and metaphorical interpretations in the two tasks are presented. In addition, the counts listed in the literal and metaphorical categories for each group are the summation of the Word-in-Isolation and Word-in-Context tasks in the present study:



¹ The percentage for the literal and metaphorical categories listed in Figure 4-1 is not equal to the mean score within the two tasks since the percentage is divided by the total frequency counts within the two tasks. The percentage in each category accounts for the proportion which the participants tended to interpret literally or metaphorically.

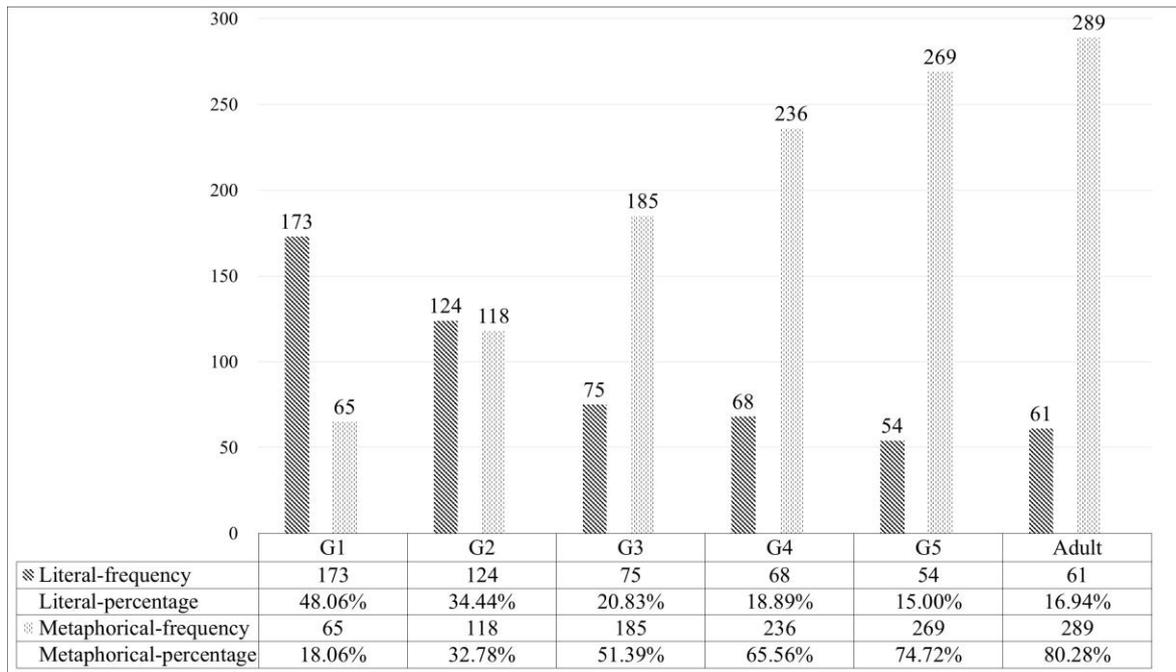


Figure 4-1 Overall Frequency Counts for Literal and Metaphorical Interpretations of *Chou*

First of all, the χ^2 test showed that there was a significant difference between the literal and metaphorical categories among these six groups ($\chi^2 = 303.520, p = .000$). Based on the overall frequency counts in the two tasks, G1 (the kindergarten group) and G2 (the second grade group) indeed favored literal over metaphorical interpretations (G1: n in Literal = 173 > n in Metaphorical = 65; G2: n in Literal = 124 > n in Metaphorical = 118). However, the other five groups displayed a reverse trend and metaphorical interpretations were more frequent than literal interpretations in these five groups (G3: n in Metaphorical = 185 > n in Literal = 75; G4: n in Metaphorical = 236 > n in Literal = 68; G5: n in Metaphorical = 269 > n in Literal = 54; Adult: n in Metaphorical = 289 > n in Literal = 61). From the bar chart in Figure 4-1, a steadily upward trend in the frequency counts of metaphorical interpretations as age increases is evident. Thus, we can state that the ability to respond with metaphorical interpretations gradually

develops as a participant's age grows.

Table 4-2 presents the within-group differences of the literal and metaphorical type among the six groups:

Table 4-2 Within-group Difference p -values between Literal and Metaphorical

Interpretations of *Chou*

<i>Group</i>	G1	G2	G3	G4	G5	Adult
χ^2	49.008	.149	46.538	92.842	143.111	148.526
<i>p-value</i>	.000*	.700	.000*	.000*	.000*	.000*

As can be seen from Table 4-2, there were significant within-group differences between these two types among five of the six groups (G1: $\chi^2 = 49.008$, $p = .000$; G3: $\chi^2 = 46.538$, $p = .000$; G4: $\chi^2 = 92.842$, $p = .000$; G5: $\chi^2 = 143.111$, $p = .000$; Adult: $\chi^2 = 148.526$, $p = .000$). However, in G2 (the 7-year-old group), there was no significant difference between the literal and the metaphorical type (G2: $\chi^2 = .149$, $p > .05$). The frequency counts for the literal interpretation were more than those for the metaphorical interpretation (G2: n in Metaphorical = 124 > n in Literal = 118), but this discrepancy in the frequency of interpretations was not significant enough.

Regarding the between-group comparison of metaphorical interpretations, G1 (the preschooler group), which is the youngest group, undoubtedly had the least occurrences of this type among all the six age groups. Thus, the five groups from G2 to the native controls produced significantly more metaphorical meanings than G1 ($p = .000$). In the same pattern,

G3, G4, G5 and the control group all performed significantly better than G2 ($p = .000$, $p < .05$, $p = .000$, $p = .000$). G3 also displayed a significant between-group difference with G4, G5 and the native control group ($p < .05$, $p = .000$, $p = .000$). G4 responded with significantly fewer metaphorical interpretations of *chou* than the control group ($p < .05$). However, no significant between-group difference was found between G4 and G5 ($p > .05$) or between G5 and the control group ($p > .05$).

4.1.2 General Discussion

The χ^2 test showed the following significant findings: among all six groups, there was a marked difference regarding the overall frequency counts in the literal, metaphorical, related and others categories ($\chi^2 = 1094.030$, $p = .000$). The result also indicated that the type of interpretation was indeed significant enough to be considered as the between-group factor in G1, G3, G4, G5 and the adult controls.

The overall findings concerning the acquisition of metaphoricality in the present study make it abundantly clear that the three experimental groups from G3 to G5 and the adult group produced more metaphorical interpretations than literal ones. Compared to the findings concerning the acquisition of metaphoricality in Hsieh (2008) and Hsu (2013), a distinctive contrast between the patterns was noted. In Hsieh (2008) and Hsu (2013), the participants in all experimental groups and the control group have significantly better performance on the type of literal interpretation but not on the type of metaphorical interpretation. Hsieh (2008) and

Hsu (2013) both claimed that the overall findings evidently supported the Markedness theory since the literal meaning (the unmarked form) is more easily acquired than the metaphorical meaning (the marked form). In Hsieh (2008), the participants from Grade 1 to Grade 3 performed significantly better on the literal *si* phrases than on the metaphorical ones. In the same vein, Hsu (2013) had similar findings which showed that younger children under the age of ten were more familiar with the literal meanings of *lao* than its metaphorical meanings. Therefore, it is assumed that metaphorical meanings are more difficult to comprehend than literal meanings, supporting the Markedness theory (Jakobson 1971, Eckman 1977).

The participants' performance in the present study seem to disprove some of the previous findings put forth in Hsieh (2008) and Hsu (2013), since the frequency counts in the present study are relatively higher in the metaphorical category than in the literal category. This result does not indicate that our second graders (i.e G2) are capable of comprehending the non-literal meaning of *chou* since this group has comparable frequency counts in both literal and metaphorical interpretation. Such inconsistencies might result from differences from past studies within the experimental designs. Hsieh (2008) and Hsu (2013) adopted phrases which are plausibly interpreted both as literal and metaphorical meanings, but are mostly not regarded as idiomatic expressions. For example in Hsu (2013), the test item *lao-peng-you* can be literally interpreted as 'a friend who's age is very old' or metaphorically as 'one who has been a friend for a long time.' Unlike the experiments in Hsieh (2008) and Hsu (2013), tested items

concerning *chou*-related phrases in the present study are all idiomatic expressions. The uniqueness of idiomatic expressions lies in their non-compositional meanings and fixed lexical forms. Most idiomatic expressions are recorded in dictionaries because their idiomatic meanings are highly related to cultural background. For the chosen *chou*-related idioms in the present study, it is comparably harder for the participants to elicit literal meanings for these idiomatic expressions.

In particular, these quadra-syllabic Chinese idioms originated from the ancient Chinese lexicon. Many of the characters found in quadra-syllabic idioms are more prevalent in ancient Chinese and are conversely seldom found in modern Chinese. The idiomatic meaning of quadra-syllabic Chinese idioms is highly related to Chinese historical stories and culture and it is difficult to infer the idiomatic meaning from its literal form (Li & Cheung 2014). Thus, most quadra-syllabic idioms do not have a plausible literal meaning, unlike non-quadra-syllabic idioms.

There were three more variables introduced to the tasks in the present study, including the type of idioms, familiarity and context in such a way as to assess the participants' interpretation of *chou*-related idiomatic expressions. Three separate analyses were further done via the use of the χ^2 test so as to observe how age, the type of idioms, the familiarity and the context interact in L1 acquisition of metaphoricality. These variables have been reported to significantly affect participants' performance and will be further elaborated in Sections 4.2, 4.3 and 4.4

respectively.

4.2 Acquisition of Quadra-syllabic and Non-quadra-syllabic Idioms

The second research question undertaken in this study focuses on the interpretational differences between quadra-syllabic and non-quadra-syllabic idiomatic expressions since Chinese quadra-syllabic idioms are considered to be a unique syntactic construction in Chinese linguistics (Zhong, Luo & Yan 2009, Tsou 2012). The present research includes six quadra-syllabic and six non-quadra-syllabic *chou*-related idioms in the task design. The main purpose is to investigate whether our participants at various age levels have difficulty in interpreting quadra-syllabic idioms because the figurative meaning of this type is typically more sophisticated than in the non-quadra-syllabic type.

Section 4.2.1 first presents the comparisons made between quadra-syllabic and non-quadra-syllabic idioms within the two tasks. Section 4.2.2 then provides a general discussion of the overall findings and previous related literature.

4.2.1 Overall Findings of Quadra-syllabic and Non-quadra-syllabic Idioms

As displayed in Table 4-3, the frequency counts for the four interpretations collected from all groups in the Word-in-Isolation and the Word-in-Context tasks were further categorized into quadra-syllabic and non-quadra-syllabic types. Significantly, the application of the χ^2 test revealed a significant difference between these two types ($\chi^2 = 82.977$, $p = .000$):

Table 4-3 Participants' Overall Frequency Counts for Quadra-syllabic and Non-quadra-syllabic Types

<i>Category</i> \ <i>Type</i>	<i>Frequency counts</i>		χ^2	<i>df</i>	<i>p-value</i>
	<i>Quadra-syllabic</i>	<i>Non-quadra-syllabic</i>			
Literal	350	205	82.977	3	.000*
Metaphorical	478	684			
Related	94	75			
Other	158	116			

In Table 4-3, the frequency counts for metaphorical interpretations of non-quadra-syllabic idioms (n = 684) were more than those for in the quadra-syllabic type (n = 478). On the whole, when the participants encountered non-quadra-syllabic *chou*-related idioms, they were more likely to metaphorically interpret these idiomatic expressions. In other words, non-quadra-syllabic idioms were found to be easier for participants to interpret than quadra-syllabic idioms.

Next, Table 4-4 illustrates the overall interpretational frequency counts of quadra-syllabic and non-quadra-syllabic idioms among the six groups in the two tasks and also presents the χ^2 test results concerning the within-group differences of metaphorical frequency in both types of idioms:

Table 4-4 Metaphorical Frequency Counts for Quadra-syllabic and Non-quadra-syllabic Types

Group	Frequency counts				χ^2	df	p-value
	Quadra-syllabic		Non-quadra-syllabic				
	Literal	Metaphorical	Literal	Metaphorical			
G1	84	17	89	48	14.785	1	.000*
G2	84	21	40	97	48.949	1	.000*
G3	50	82	25	103	2.384	1	.123
G4	47	103	21	133	3.814	1	.051
G5	35	128	19	141	.628	1	.428
Adult	50	127	11	162	4.239	1	.040*

Concerning the interpretational differences between quadra-syllabic and non-quadra-syllabic types of idioms, the frequency counts for the metaphorical category in the non-quadra-syllabic type was more than the count for the quadra-syllabic type across all groups (G1: n in Non-qua= 48 > n in Qua = 17; G2: n in Non-qua= 97 > n in Qua = 21; G3: n in Non-qua= 103 > n in Qua = 82; G4: n in Non-qua= 133 > n in Qua = 103; G5: n in Non-qua= 141 > n in Qua = 128; Adult: n in Non-qua= 162 > n in Qua = 127). More metaphorical responses were found in interpreting non-quadra-syllabic *chou*-related idioms. In addition, the frequency count for this category showed a pattern of growth as the age of the tested group increased. This result once again provides evidence of the older groups indeed mastering the interpretation of idiomatic expressions. Table 4-4 also displays the *p*-values concerning a within-group difference in quadra-syllabic and non-quadra-syllabic types of idioms from G1 to the control group.

Holistically, all six groups produced more metaphorical interpretations for the non-quadra-syllabic type than for the quadra-syllabic type. The quadra-syllabic type of *chou*-related idioms was more difficult to interpret for all age levels and the participants tended to seek literal or related meanings in order to interpret idioms of this type. Nonetheless, based on the *p*-values listed in Table 4-4, there were significant within-group effects on the production of the metaphorical meaning in moving between the quadra-syllabic and non-quadra-syllabic type in G1, G2 and the native controls (G1: $p = .000$; G2: $p = .000$; Adult: $p < .05$). As for G3, G4 and G5, these three groups produced even frequency counts for the metaphorical interpretations in the quadra-syllabic and non-quadra-syllabic types (G3: $p > .05$; G4: $p > .05$; G5: $p > .05$).

On the other hand, when looking at the quadra-syllabic type, we found a significant between-group difference in the production of the metaphorical meanings among the two types of idioms between G1 and the other five groups ($p = .000$). The comparison of metaphorical frequency counts between G2 and the four older groups was also significantly different ($p = .000$). Compared with G5 ($p < .05$) and the control group ($p < .05$), G3 produces significantly fewer non-literal interpretations. Yet, there was no statistical significance found in the results between G3 and G4, ($p > .05$) between G4 and G5 ($p > .05$) and between G5 and the control group ($p > .05$).

As for the metaphorical frequency in the non-quadra-syllabic type of idioms, the native controls and G5 significantly outperformed G1 ($p = .000$), G2 ($p = .000$), and G3 ($p = .000$). G5

and G4 ($p < .05$) had similar frequency counts for the metaphorical category; thus there was no significant between-group difference. The same pattern was found between G5 and the native controls ($p < .05$). In addition, there was no significant difference between G4 and G2 ($p < .05$), or between G4 and G3 ($p < .05$).

4.2.2 A Second Look at the Quadra-syllabic and Non-quadra-syllabic Idioms

As reported in Table 4-4, there was a significant within-group difference concerning the type of idiom in the control group. Since the control group has better metalinguistic skills than the experimental groups for the purpose of interpreting idiomatic expressions of both types, such results are unexpected. In light of this, it was deemed necessary that a second trial be undertaken to ascertain what factors might be involved in the adult group's result. After reexamining the collected responses, we found that the adult controls tended to interpret the task's semantically transparent idioms literally more than they would metaphorically. This can be seen in the control group's responses, elaborated below.

For *chou-bu-ke-wen* 'unbearably odorous,' the literal response takes the form of describing the nature of the odor, while the metaphorical response describes the state of the speaker. Thus, interpretations along the lines of 'very stinky' were counted as literal interpretations, but if the participants produced responses such as 'a smell that causes discomfort,' their responses were instead counted as a metaphorical interpretation. According to the responses produced by the control group, the participants vastly favored

interpreting this transparent idiom as ‘a foul stench,’ ‘a strong odor’ or other related phrases only describing the scent but not related to how the scent made them feel. Most of the adults interpreted semantically transparent idioms literally. Therefore, we excluded the frequency count for semantically transparent idioms including *chou-bu-ke-wen* ‘unbearably odorous,’ *chou-qi-chong-tian* ‘stink to high heaven,’ *chou-pi* ‘boastful’ and *chou-lian* ‘displeased,’ and created a revised version of Table 4-4, which can better reflect the performance of the control group, as shown in Table 4-5:

Table 4-5 Revised Metaphorical Frequency Counts for Quadra-syllabic and Non-quadra-syllabic Types

Group	Frequency counts				χ^2	df	p-value
	Quadra-syllabic		Non-quadra-syllabic				
	Literal	Metaphorical	Literal	Metaphorical			
G1	42	10	71	21	3.903	1	.048*
G2	36	19	40	38	6.333	1	.012*
G3	12	63	30	54	.692	1	.405
G4	10	81	23	75	.231	1	.631
G5	9	97	22	83	1.809	1	.297
Adult	9	110	20	93	1.424	1	.233

As can be seen above, with the exclusion of the semantically transparent idioms, G1 and G2 performances still had higher metaphorical frequency counts for the non-quadra-syllabic type than for the quadra-syllabic (G1: n in Non-qua= 21 > n in Qua = 10; G2: n in Non-qua= 38 > n in Qua = 19). G1 and G2 again displayed significant within-group differences, that is to say, the quadra-syllabic *chou*-related idioms were significantly more difficult for preschoolers

and second grade students ($p < .05$). However, there was no significant within-group difference found in G3's, G4's, G5's and the control group's performances ($p > .05$).

4.2.3 General Discussion

Based on the outcome of the χ^2 test, there was a significant correlation between the frequency of the four categories of interpretation and the two idiom types. All five experimental groups and the control group had higher metaphorical frequency counts for the non-quadra-syllabic type than for the quadra-syllabic type. Nonetheless, three groups including G1, G2 and the adult group displayed a significant within-group difference in their metaphorical frequency counts for these two types of idioms.

In terms of quadra-syllabic and non-quadra-syllabic idiomatic expressions, a distinctive characteristic of both types is the relationship between spoken Chinese and written Chinese. Previous studies have identified differences and features between spoken and written language (Halliday 1989, 1993); however, many researchers consider the distinction as a continuum rather than a dichotomy (Tannen 1982).

Non-quadra-syllabic idioms are widely spoken in daily life; thus, this type of idiom is more prevalent and should be viewed as a part of spoken Chinese. On the other hand, the quadra-syllabic type is more sophisticated than non-quadra-syllabic type, so it is regarded as written Chinese. That is because every quadra-syllabic idiom follows a rule of four classic Chinese characters, and its idiomatic meaning is derived from a particular story with its roots

in the cultural background of ancient China (Liu & Cheung 2014).

Laval (2003:724) also stated that “the literal meaning and the non-literal meaning (or idiomatic meaning) are linked by a linguistic convention that is specific to the language and/or culture.” Without the awareness of the linguistic convention, it is difficult to correctly interpret the idiomatic meaning of quadra-syllabic Chinese idioms. In addition, Tsou (2012:1) points out that ‘a mark of erudition in verbal communication is the use of idiomatic language employing metaphors and figurative speech.’ In modern Chinese, the usage of quadra-syllabic Chinese idioms in public speech indicates that the speaker is well-educated and knowledgeable. In formal writing as well, people tend to employ quadra-syllabic idioms rather than non-quadra-syllabic idioms.

Overall, the five experimental groups and the control group showed a tendency to perform better when interpreting the non-quadra-syllabic type of *chou*-related idioms. From this result, we can see that spoken Chinese is easier to interpret than written Chinese. In children’s language development, the spoken form is acquired earlier than the written form (Roberts 1992).

In G1 and G2, the total number of the literal frequency counts for the quadra-syllabic type and the non-quadra-syllabic type was relatively higher than for the other four groups. One possible reason is because of the difference between spoken Chinese and written Chinese as illustrated above. Another possible reason for such discrepancy as in G1 and G2 is the

instruction effect. Previous literature treats the idiom as a unique linguistic form and one that is especially in need of systematic instruction (Abkarian, Jones & West 1992, Nippold, Moran & Schwarz 2001). Preschoolers and the second graders do not receive instruction in quadra-syllabic idioms in their Chinese classes at this age. As a result, these participants were not familiar with the quadra-syllabic type of idiomatic expressions, but the older groups and the adult control had already learned this type of idiom. Therefore, they significantly outperformed G1 and G2 in this area.

4.3 Acquisition of Familiar and Unfamiliar Idioms

Familiarity is considered to be a significant linguistic factor in first language acquisition of idiomatic expressions (Levorato & Cacciari 1992, Nippold & Rudzinski 1993, Nippold & Taylor 1995, Nippold et al. 1996, 2001, Laval 2003, Hsieh & Hsu 2008). Nevertheless, there is some controversy in previous literature concerning the exact age at which familiarity affects children's comprehension. Thus, the third research question posed investigates whether familiarity of idiomatic expressions affects participants' interpretations across different age levels and therefore which age group is most influenced by this factor. To this end, six familiar idioms with a mean rating of 4.88 and six unfamiliar ones with a mean rating of 2.79 were designed into the two tasks of the present study.

Section 4.3.1 presents the overall findings of the participants' performances across the familiar and unfamiliar conditions. Then, Section 4.3.2 further expounds on the performance

between these two conditions among all six groups.

4.3.1 Overall Findings of Familiar and Unfamiliar Idioms

Table 4-6 reveals that there was an interaction between familiarity and four types of interpretations and that this interaction was significant ($\chi^2 = 132.462, p = .000$):

Table 4-6 Participants' Overall Frequency Counts for Familiar and Unfamiliar Types

<i>Category</i>	<i>Type</i>	<i>Frequency counts</i>		χ^2	<i>df</i>	<i>p-value</i>
		<i>Familiar</i>	<i>Unfamiliar</i>			
Literal		314	241	132.462	3	.000*
Metaphorical		652	510			
Related		49	120			
Other		65	209			

From Table 4-6, the number of the participants' metaphorical interpretations of the unfamiliar type (n= 510) was less than those of the familiar type (n= 652). Moreover, the frequency of related interpretations (n= 65) and other interpretations (n= 209) were more than the number of those two interpretations found for the familiar type. This preliminary result shows that familiarity made a significant difference in the participants' interpretations. The following section further investigates each group's performance.

Figure 4-2 summarizes the frequency of familiar and unfamiliar types regarding *chou*-related idioms in six different age levels:

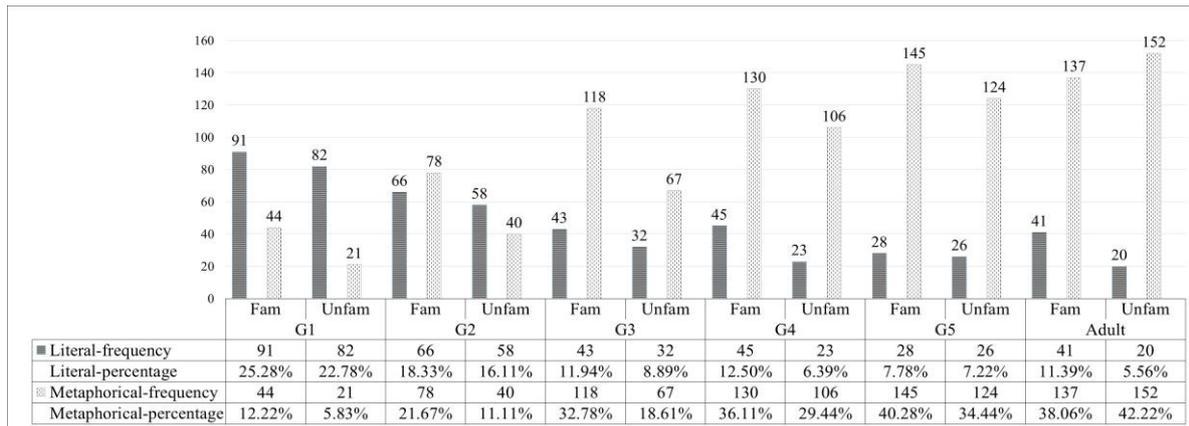


Figure 4-2 Average Frequency Counts of Each Group for Familiar and Unfamiliar Types

Overall, G1 was the only group that displayed a smaller frequency count for metaphorical (n in Fam+Unfam = 65) rather than literal (n in Fam+Unfam = 173) interpretations when under the familiar and unfamiliar conditions. G2's metaphorical counts (n in Fam+Unfam = 118) for the familiar and unfamiliar types were comparable to its literal counts (n in Fam+Unfam = 124). However, G3, G4, G5 and the adult group displayed the opposite pattern and their metaphorical interpretations were more frequent than literal ones.

Considering the familiarity effect in each group, the groups from G1 to G5 responded with more metaphorical interpretations in the familiar condition (G1: n in Fam = 44 > n in Unfam = 21; G2: n in Fam = 78 > n in Unfam = 40; G3: n in Fam = 118 > n in Unfam = 67; G4: n in Fam = 130 > n in Unfam = 106; G5: n in Fam = 145 > n in Unfam = 124).

On the other hand, the frequency counts for the metaphorical category in the unfamiliar condition were more than those seen in the familiar condition in the native control group (Adult: n in Unfam = 152 > n in Fam = 137). After comparing the total counts in these two

conditions in each group, let us turn to the p -values of within-group differences within the familiar and unfamiliar conditions, as shown in Table 4-7:

Table 4-7 The p -values for Within-group Differences in Familiar and Unfamiliar Types

<i>Group</i>	G1	G2	G3	G4	G5	Adult
χ^2	8.138	12.237	14.059	2.441	1.639	.779
<i>p-value</i>	.004*	.000*	.000*	.118	.200	.378

As can be seen from Table 4-7, there were significant within-group differences regarding the metaphorical interpretations in the familiar and unfamiliar condition among the three younger age groups from G1 to G3 (G1: $\chi^2 = 8.138$, $p < .05$; G2: $\chi^2 = 12.237$, $p = .000$; G3: $\chi^2 = 14.059$, $p = .000$). However, such significant within-group differences were not found in the older groups from G4 to the native control group (G4: $\chi^2 = 2.441$, $p > .05$; G5: $\chi^2 = 1.639$, $p > .05$; Adult: $\chi^2 = .779$, $p > .05$).

Concerning the between-group differences of metaphorical interpretations under the familiar condition, G2, G3, G4, G5 and the native control group all replied with significantly more metaphorical interpretations than G1 ($p = .000$, $p = .000$, $p = .000$, $p = .000$). Similarly, G3, G4, G5 and the native control group significantly outperformed G2 ($p < .05$, $p < .05$, $p = .000$, $p = .000$). There were no significant between-group differences among the three older groups including G4, G5 and the native control group. These three groups all tended to reply with the metaphorical interpretations under the familiar condition.

Under the unfamiliar condition, the five older groups from G2 to the adult group responded

with significantly more metaphorical meanings than G1 ($p = .000, p = .000, p = .000, p = .000$). There were also substantial between-group differences found between G2 and G4 ($p = .000$), between G2 and G5 ($p = .000$) and between G3 and G4 ($p < .05$). G2 and G3 had similar counts; thus, there was no significant between-group difference between these two groups ($p > .05$). The same situation was found between G4 and G5 ($p > .05$), and between G5 and the native control group ($p > .05$). The native control group produced a significantly greater number of metaphorical responses than G1, G2, G3 and G4 ($p = .000, p = .000, p = .000, p < .05$).

The χ^2 tests in Table 4-7 show that there was a significant interaction between the production of the four types of interpretations and familiarity ($p=.000$). For each group's performance, the metaphorical frequency counts in the familiar condition in G1, G2, G3, G4 and G5 were higher than in the unfamiliar condition. Additionally, a significant within-group difference was found in the kindergarten group (G1) and the two younger children groups (G2 and G3). We can see that there was an interaction between age and familiarity in the participants' metaphorical interpretations. The adult group was the only group which displayed a lower metaphorical frequency in the familiar condition than in the unfamiliar condition, although there was no significant within-group difference.

4.3.2 General Discussion

The related research on familiarity has reported different findings concerning children's idiom comprehension (Levorato & Cacciari 1992, Nippold & Rudzinski 1993, Levorato &

Cacciari 1995, Nippold & Taylor 1995, Nippold et al 1996, 2001, Laval 2003, Nippold & Taylor 2002, Hsieh & Hsu 2010). Considering the interaction of age and familiarity, the findings in the present study were inconsistent with those in Nippold & Rudzinski (1993), Nippold & Taylor (1995), Nippold et al. (1996) and (2001). In these studies, familiarity was considered to have a significant effect on idiom comprehension and it gradually affected participants aged from 10 to 17 years of age to a greater extent. Based on the results in the present study, the familiarity effect was observed to significantly interact with the participants in the groups from G1 (6 years old) to G3 (9 years old), but not those in G3 (9 years old) to G5 (15 years old).

On the other hand, the present study did align with the results in Laval (2003) and Hsieh & Hsu (2010). In Hsieh & Hsu (2010), the role of familiarity was found to affect idiom comprehension at age six when the linguistic context was not present. In the present study, the familiarity effect was indeed observed to have a significant effect on the youngest group (G1), whose mean age was also six years old. Aside from this, Laval (2003) and Hsieh & Hsu (2010) both stated that familiarity affected 9-year-old children the most when compared with 6-year-old children and adults. This was seen in the present study, where there was a comparably large gap in the metaphorical frequency counts in the familiar and unfamiliar conditions in G3. That is to say, our 9-year-old children were indeed remarkably affected by familiarity.

4.4 Contextual Effect

The fourth factor under consideration is whether participants in each age group are influenced by the contextual effect. A comparison of the Word-in-Isolation and Word-in-Context tasks has previously been implemented in related studies on idiom comprehension (Gibbs 1991, Nippold & Rudzinski 1993, Hsieh & Hsu 2008, Hsieh 2008, Hsu 2013). Section 4.4.1 first presents a thorough analysis of the two tasks. Section 4.4.2 then provides a general discussion of the examples found in each group and the supporting literature.

4.4.1 Overall Findings of the Word-in-Isolation and Word-in-Context Tasks

Table 4-8 summarizes the overall frequency counts regarding the four types of interpretations as they relate to both tasks. According to the χ^2 test, there was a significant two-way interaction between the type of interpretation and the contextual effect ($\chi^2 = 125.461, p = .000$).

Table 4-8 Participants' Overall Frequency Counts in the Word-in-Isolation and Word-in-Context Tasks

<i>Category</i> \ <i>Type</i>	<i>Frequency</i>		χ^2	<i>df</i>	<i>p-value</i>
	<i>Word-in-Isolation</i>	<i>Word-in-Context</i>			
Literal	334	221	125.461	3	.000*
Metaphorical	469	693			
Related	77	92			
Other	200	74			

After comparing the overall frequency counts for the four categories in the two tasks, let us take a look at each each group’s literal and metaphorical frequencies, as shown in Table 4-9:

Table 4-9 Metaphorical Frequency Counts in the Word-in-Isolation and Word-in-Context Tasks

Group	Frequency counts				χ^2	df	p-value
	Word-in-Isolation		Word-in-Context				
	Literal	Metaphorical	Literal	Metaphorical			
G1	93	10	80	55	31.154	1	.000*
G2	79	25	45	93	39.186	1	.000*
G3	43	76	32	109	5.886	1	.015*
G4	43	105	25	131	2.864	1	.091
G5	41	118	13	151	4.048	1	.044*
Adult	35	135	26	154	1.249	1	.264

It was found that all six groups produced more metaphorical meanings of *chou* in the Word-in-Context task than in the Word-in-Isolation task (G1: n in WIC= 55 > n in WII= 10; G2: n in WIC= 93 > n in WII =25; G3: n in WIC= 109 > n in WII= 76; G4: n in WIC= 131 > n in WII= 105; G5: n in WIC= 151 > n in WII= 118 ; Adult: n in WIC= 154 > n in WII= 135). This indicates that all age levels displayed better performance with the aid of the idiomatic context. It is worth noting that G2 had a higher frequency of metaphorical interpretations in the Word-in-Context design than G3. In addition, G2 made the most remarkable progress in giving metaphorical interpretations after the idiomatic context was added in the second task.

Next, the six groups’ within-group p-values in the two tasks are also listed in Table 4-9. Significant within-group differences in the frequency of metaphorical interpretations were

observed in G1 ($p = .000$), G2 ($p = .000$), G3 ($p < .05$) and G5 ($p < .05$). This result shows that these four groups certainly produced more metaphorical explanations of *chou* in the Word-in-Context task. Additionally, there was no within-group difference in G4 ($p > .05$) and the native control group ($p > .05$). Judging from the metaphorical frequency counts in the two designs, we can tell that it was harder to elicit metaphorical interpretations in the first task among G1 (the preschooler group), G2 and G3 (the younger children groups). With respect to the six groups' between-group comparisons of metaphorical frequency counts in the Word-in-Context design, the other five groups from G2 to the control group responded with substantially more metaphorical interpretations than G1 ($p = .000$). Significant between-group effects were also found between G2 and the control group ($p < .05$), between G3 and G5 ($p < .05$), and between G3 and the control group ($p < .05$). However, G2 performed similarly to G3, G4 and G5 ($p > .05$). Identically, similar performances were found in G3 and G4 ($p > .05$), G4 and G5 ($p > .05$), G4 and the adult group ($p > .05$) and G5 and the adult group ($p > .05$).

As for the between-group interpretational differences in the Word-in-Isolation design, G1 had the fewest metaphorical frequency counts among the six groups and the five other groups again significantly outperformed G1 ($p = .000$). The adult group also had significantly more metaphorical explanations than G2 ($p < .05$) and G3 ($p < .05$). G5 significantly outperformed G3 in this regard ($p < .05$). G3, G4 (the older children groups) and G5 (the adolescent group) significantly outperformed G2 ($p > .05$). However, there was no significant between-group

difference between G3 and G4 ($p > .05$), between G4 and G5 ($p > .05$) and between G5 and the adult group ($p > .05$).

4.4.2 A Second Look at the Word-in-Isolation and Word-in-Context Tasks

Considering the inconsistency in the within-group difference listed in Table 4-9, we found there was a within-group significant difference in G1, G2, G3 and G5, and yet no significant difference in G4 was observed. Thus, a further examination of the data is required. As discussed in the previous issue concerning the type of idiom, transparency of *chou*-related idioms was found to have a significant impact on the χ^2 results. After we removed the frequency counts of semantically transparent idioms, we could have a revised look at the data, as drafted in Table 4-10 below:

Table 4-10 A Revised Metaphorical Frequency Counts in the Word-in-Isolation and Word-in-Context Tasks

Group	Frequency counts				χ^2	df	p-value
	Word-in-Isolation		Word-in-Context				
	Literal	Metaphorical	Literal	Metaphorical			
G1	54	4	49	36	25.600	1	.000*
G2	46	11	16	63	36.541	1	.000*
G3	24	44	9	77	9.000	1	.003*
G4	20	69	4	93	3.556	1	.059
G5	23	79	2	104	3.415	1	.065
Adult	15	97	5	115	1.528	1	.216

In accordance with the results of the χ^2 test, all experimental groups and the adult control group indeed made progress in responding with more metaphorical interpretations in the Word-

in-Context task than in the Word-in-Isolation task (G1: n in WIC= 36 > n in WII= 4; G2: n in WIC= 63 > n in WII =11; G3: n in WIC= 77 > n in WII= 44; G4: n in WIC= 93 > n in WII= 69; G5: n in WIC= 104 > n in WII= 79; Adult: n in WIC= 115 > n in WII= 97). There was a significant within-group difference in G1, G2 and G3, indicating there was a marked improvement in their metaphorical frequency when aided by the contextual effect.

4.4.3 General Discussion

According to the results of the χ^2 test, there was a significant interaction between the four interpretational categories and the two different approaches ($p=.000$). As a result, the metaphorical frequency counts in the Word-in-Context task were significantly more than those obtained in the Word-in-Isolation task. The frequency counts for the other category (the participants responding with 'I don't know') in the Word-in-Isolation task also decreased (n in WII= 200 > n in WIC= 74). From Table 4-10, we can find that all six groups had more metaphorical interpretations in the Word-in-Context task than the Word-in-Isolation task, supporting the fact that context plays an essential role in idiom comprehension.

The contextual effect has been extensively discussed in previous literature in order to investigate how children, adolescents and adults comprehend idiomatic expressions (Ackerman 1982, Gibbs 1987, Nippold & Martin 1989, Levorato & Cacciari 1992, 1995, 1999, 2002, Laval 2003, Hsieh 2008, Cain et al. 2009, Hsieh & Hsu 2010, Hsu 2013). Nevertheless, various approaches have been employed to measure participants' idiom comprehension.

For example, in Levorato & Cacciari (1995), both a multiple choice task design (as a form of context) and a paraphrase task design were adopted to observe the complexity of two different approaches. As reported in the previous literature (Ackerman 1982, Prinz 1983), a multiple choice task design could facilitate correct interpretations from participants since this design helped them to recognize idiomatic interpretations with greater accuracy. However, Levorato & Cacciari found that these facilitating factors, contrary to prior research, did not result in a significant effect on participants' comprehension; in other words, both task designs were of equal difficulty for participants, and neither led to a significantly greater amount of correct interpretations. As long as the participants were provided with substantial informational context, in the paraphrase task, they were capable of producing correct interpretations.

Multiple choice task design was implemented in the pilot study, but the options were found to mislead our participants' interpretations. In addition, the present study included quadra-syllabic idioms as a part of the task design. Most quadra-syllabic idioms in Chinese are semantically opaque idiomatic expressions and it is relatively difficult to design a literal meaning into the options since the storyline is embedded in the Word-in-Context task. Thus, the present study attempts to adopt interpretation tasks in the design of both experimental tasks. In this way, possible facilitating factors in multiple choice tasks can be avoided and it becomes easier to directly assess each participant's idiom comprehension.

In light of the above, the present study only employs interpretation tasks and not multiple

choice tasks as the major measure. Although previous literature has emphasized the fact that younger children lack the necessary metalinguistic awareness to properly interpret metaphorical meanings (Hsu 2013), according to Hsieh & Hsu (2010) however, children whose mean age was six years old were able to adequately complete an interpretation task. For the preschoolers (who were of age six) in the present study, if we further look at this group's frequency in the other category within both tasks, their performance improved and the frequency counts for this category in the interpretation task sharply diminished after a contextual factor was added into the task by means of the Word-in-Context design (G1: n in others in Word-in-Isolation = 68 > n in others in Word-in-Context = 25). In addition to this, based on the collected data, G1 was capable of explaining the idiomatic meaning of transparent *chou*-idioms once context was a factor. Take for example the transparent quadra-syllabic *chou*-related idiom *chou-qi-chong-tian* 'a scent stinking to high heaven.' Contrary to frequent responses to the other category seen under the Word-in-Isolation design, in the Word-in-Context task, most children in G1 were able to produce the correct metaphorical interpretation "the smell in the bathroom is too disgusting and nobody in the restaurant can stand such a foul odor."

Similar findings were found in Gibbs (1987). In Gibbs' study, the kindergarteners and first graders had the ability to map the meanings of transparent idioms to their metaphorical domain. Gibbs further stated that "children more easily understood metaphorically transparent idioms

because they metaphorically extend their literal meanings to other contexts to create their idiomatic interpretations” (Gibbs 1987:581). G1 in the present study was able to metaphorically extend the literal meaning of *chou* to express one’s inner feeling towards unpleasant smells. This result therefore demonstrates the relation between semantic transparency and context. Leverato (1999:63) also found that “context plays an important role, particularly in the early phases of idiom acquisition, with an effect which adds to that of semantic transparency.”

4.5 Age Effect

First of all, the interaction of age and the types of interpretations (literal vs. metaphorical) were significantly different among the six groups and there were significant within- and between-group differences found in the χ^2 results. According to between-group comparisons of performances, the findings of the present study support the universal principle in Eckman's (1977) Markedness Differential Hypothesis, which states that relative degree of difficulty correlates with the concept of the markedness. The marked form in one language is relatively more difficult than the unmarked form. In the present study, the literal meaning is regarded as the unmarked form whereas the metaphorical meaning should be the marked one.

The Markedness Hypothesis describes the order of language development. Children should have better interpretation of literal meanings first. As they grow older, they gradually correctly interpret idiomatic meanings of figurative expressions. This results from the fact that children’s development of Figurative Competence (Pollio and Pollio 1974) takes time to form.

This competence is composed of a series of abilities² proposed in Levorato & Cacciari (1995).

In addition, the Global Elaboration Model in Table 4-11 first raised in Levorato & Cacciari (2002) proposes the five developmental phases that are crucial in the acquisition of figurative language:

Table 4-11 The Five Developmental Phases in the GEM³
(Levorato and Cacciari 2002:129-130) (same as Table 1-1)

<i>Prevalent Age</i>	<i>Phase</i>	<i>Description of figurative language</i>
0-7	Phase 1	A primitive type of processing is carried out in the composition of piece-by-piece elaboration of the linguistic input. Children process language literally even when it does not make sense in the linguistic context.
8-9	Phase 2	Children start searching for the clues which could lead to a non-literal interpretation of the linguistic input. An acquired sensitivity toward the contextual information leads children from eight to nine years old to activate the world knowledge necessary to recover a meaning which might differ from the literal one. During this phase they realize that a discrepancy between what is said and what is expected on the basis of context should not always be interpreted as a communicative error.
10-12	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). The internal state of speakers can also be taken into consideration.
15	Phase 4	The ability to use the conventional repertoire of figurative expressions is achieved in this stage. The developmental gap between the ability to comprehend and to produce figurative expressions, still present; however, it is progressively reduced, particularly as far as idiomatic expressions are concerned.

² These include “the ability to understand the dominant, peripheral and the additional related meanings of a word,...the ability to go beyond a purely literal-referential strategy,...the ability to use contextual information,...[and] the awareness that there are strongly held conventions according to which what is said and what is meant do not always coincide” (Levorato & Cacciari 1995: 263-264).

³ The discussion of the five developmental phases in Levorato & Cacciari (2002:129) and Levorato & Cacciari (2002:130) is summarized again in Table 1-1.

Adult-like	Phase 5	The adult-like figurative competence is reached. The figurative language can be used in a creative way. Based on the awareness of meta-linguistic and metasemantic, the most mature acquisition is reached.
------------	------------	---

From the distribution of metaphorical frequency among the six groups, we can begin to analyze how the five developmental patterns in the GEM come into play (Levorato and Cacciari 2002). Phase 1 corresponds to G1 and G2. As expected, as the group with the highest percentage of literal interpretations (48.06%), G1 was more inclined to interpret idiomatic expressions in their literal forms. Preschoolers and second graders in this phase mainly depended on the literal meaning when attempting to interpret idiomatic phrases. For example, G1 would interpret the tested idiom *chou-lian* ‘in an unhappy mood’ as his/her face smelling badly. Intuitionally, they correlated the core meaning of *chou* as the only clue to interpret the *chou*-related idioms designed into the tasks. In addition, it is also essential to pay attention to G1’s percentage (25.83%) for the other category (‘I don’t know’). The frequency count for this category ranked second among the four categories. Besides the literal meaning, it is highly possible that the preschool children in G1 responded with ‘I don’t know.’

As for G2, this group significantly outperformed G1. They had the most comparable frequency counts between literal (n = 124) and metaphorical (n = 118) types within the two tasks. Based on the metaphorical frequency in G2, it seems that the second graders already had the ability to comprehend *chou*-related idioms. However, this was not the case; the collected data shows that G2 displayed progressive improvement that was limited to the Word-in-Context

task, so most of the metaphorical responses were from this task design only. As proposed in Levorato & Cacciari (1995), an experimental participant gradually developing Figurative Competence would be able to comprehend figurative expressions by means of a sufficient context, and this was supported by G2's marked improvement in the Word-in-Context task.

Phase 2 in the GEM, composed of children aged eight to nine, was represented by G3 in the present study. Previous empirical research has pointed out that by the age of 10, children begin to go beyond a phrase's literal meaning and are able to comprehend its idiomatic meaning (Prinz 1983, Gibbs 1987, Kempler et al. 1999, Levorato & Cacciari 2002, Nippold 2004, Hsieh 2008, Vulchanova, Vulchanov & Stankova 2011, Hsu 2013). G3 in the present study displayed this same trend, as they were more likely to comprehend non-literal meanings of *chou*-related idiomatic expressions as evidenced by the group's relatively higher frequency of metaphorical responses ($n = 76$) than G1 ($n = 10$) and G2 ($n = 25$) in the Word-in-Isolation task. Based on the GEM, children around this age notice the discrepancy between what is said and what is expected (Levorato & Cacciari 1995).

G4 (the sixth-grader group) then, seems to fit neatly into Phase 3. Children at Phase 3 will take a speaker's mood or situation into account when attempting to interpret an idiomatic phrase. For example, regarding G4's interpretation of *chou-ma* 'badly scold' in the Word-in-Context task, some of its participants would interpret it as 'scolding someone to the point that they felt they had wronged the speaker.' In this way, the participants display the ability to

take the speaker's internal state into consideration. Also, G4 performed significantly better than G1, G2 and G3 ($p = .000$, $p = .000$, $p < .05$). In fact, the group's performance was comparable to G5's, but the frequency count for metaphorical interpretations in G4 was still less than in the older group.

As the mean age of the participants in G5 was 15 years old, this group was considered to be at Phase 4. Children at this phase are capable of using the conventional meaning of another, related idiomatic expression to interpret *chou*-related idioms in this study. For instance, regarding the interpretation of *ru-chou-wei-gan* 'wet behind the ears,' one of G5's participants produced a separate quadra-syllabic idiom, *she-shi-wei-shen* 'naïve and inexperienced,' to interpret the original idiomatic expression. The use of this second idiomatic expression to describe the first stood as a clear sign of this group's ability to make use of their conventional repertoire of figurative expressions when interpreting new idiomatic expressions, a key feature of the GEM's Phase 4. Similar to G4, G5 significantly outperformed G1, G2 and G3 ($p = .000$, $p = .000$, $p = .000$). G5's performance was close to the control group's; nonetheless, there was still a developmental gap to be observed since the adult controls' overall metaphorical frequency count ($n = 289$) was more than G5's ($n = 269$).

Compared to the five experimental groups' metaphorical frequency counts, it is undoubtedly clear that the adult control group performed the best. They indeed achieved the ability to creatively and accurately interpret *chou*-related idioms. In particular, they were very

detailed in their responses, for instance providing at least three synonyms such as *jiao-ao*, *chui-niu*, or *shen-qi* describing *chou-pi* ‘boastful’ in their interpretations of that phrase, or when interpreting *ru-chou-wei-gan*, providing two separate idioms in *mei-jian-guo-shi-mian-er-da-fang-jue-ci* ‘spouting a stream of nonsense with no real-world experience to support it.’

In general, the six groups’ interpretations of *chou*-related idiomatic expressions basically support the GEM. In Figure 4-3, a six developmental model is proposed in the acquisition of *chou*-related idiomatic expressions:

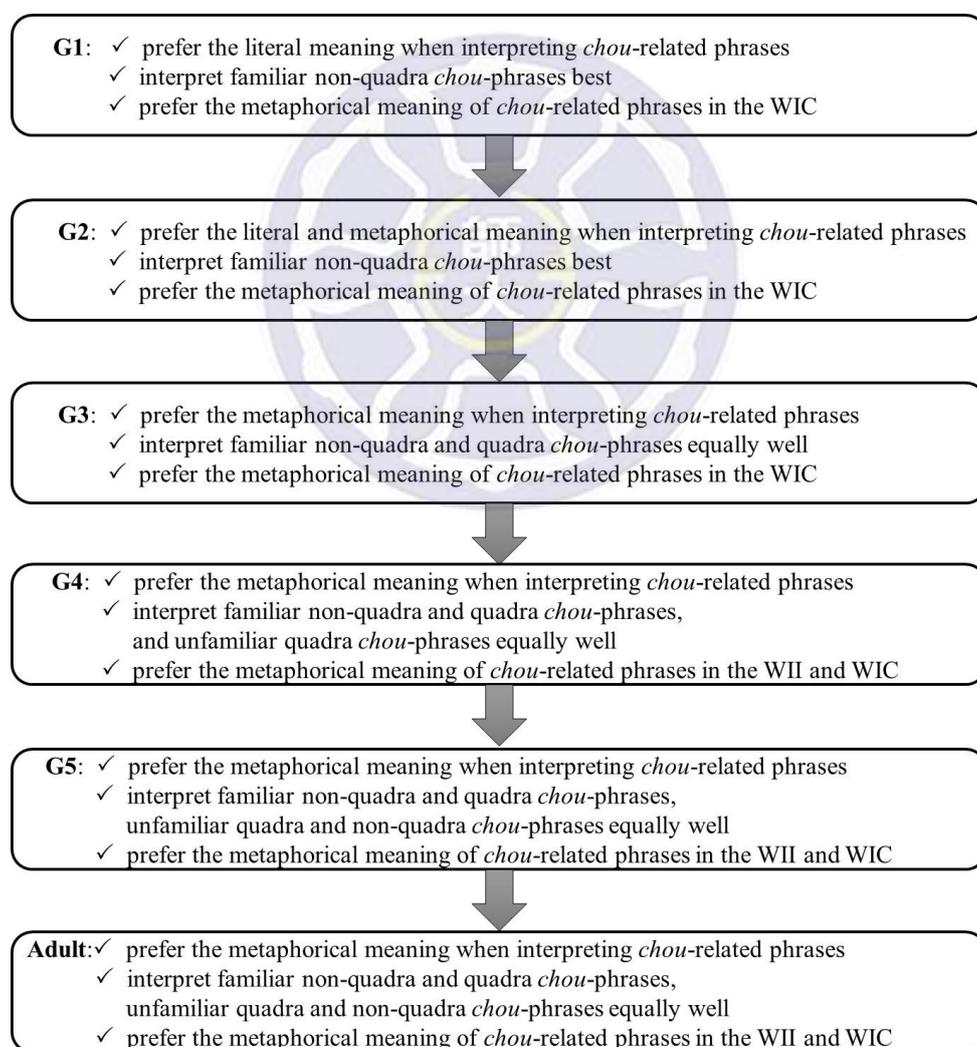


Figure 4-3 Six Developmental Stages in Chinese Acquisition of *Chou*-related Idioms

The present study has designed both types of idioms (quadra- and non-quadra- syllabic idioms), familiarity, and context into the experimental tasks. Based on the experimental results, it was found that there was developmental progress in the acquisition of *chou*-related idiomatic expressions. The youngest group (G1), which was considered to be at Stage 1, only depended on the literal meaning of *chou* when interpreting the idiomatic expressions. The familiarity and contextual effects also came into play at this stage. That is to say, the preschoolers in this group performed better on familiar non-quadra-syllabic idioms with the aid of context. At Stage 2, the second graders (G2) started to both literally and metaphorically interpret *chou*-related idioms. As in Stage 1, G2 was found to be influenced by familiarity and context and they tended to metaphorically interpret familiar non-quadra-syllabic idioms. However, G2 significantly outperformed G1 on the matter of metaphorical interpretation.

As for Stage 3, the fourth graders preferred to metaphorically interpret *chou*-related idiomatic expressions and familiarity again played a role affecting their comprehension. It was found that they performed better on familiar idioms than on unfamiliar idioms. In addition, the contextual effect was also evident here, as they did show remarkable improvement on the Word-in-Context task. Next, at Stage 4, the six graders were able to metaphorically interpret *chou*-related idioms in the Word-in-Isolation task. In contrast to the earlier three stages, the children at Stage 4 did not show signs of being influenced by the familiarity or contextual effects. They showed the ability to metaphorically interpret familiar non-quadra- and quadra-

syllabic idiomatic expressions and unfamiliar quadra-syllabic idioms. Concerning Stage 5, the ninth graders (G5) had the capacity to metaphorically interpret *chou*-related idioms even without the contextual effect in play. It also seemed that they were not affected by the familiarity of idioms, so they could therefore interpret familiar non-quadra- and quadra-syllabic phrases, as well as unfamiliar quadra- and non-quadra- syllabic phrases equally well. The same situation presents itself at Stage 6, where the adult control displayed even better interpretation of *chou*-related idiomatic expressions in the above contexts. The characteristics of this stage were similar to those of Stage 5, and differed only in that the participants displayed an overall better grasp of metaphorical interpretation.

4.6 Summary of Chapter Four

The major results of the present study are reported in this chapter. To begin with the discussion concerning Chinese children's acquisition of metaphoricality, the overall finding displayed a developmental pattern to follow. Through the examination between the type of idioms and familiarity, it was found that a familiar non-quadra-syllabic type of *chou*-related idiom was the easiest for the participants in the present study. Then, an unfamiliar non-quadra-syllabic type turned out to be the most difficult among all six groups. Additionally, the contextual effect was proved to be influential for children whose age was under 10 years old.

Chapter Five

Conclusion

The findings of the Chinese acquisition of *chou*-related idioms are presented in this chapter. Section 5.1 mainly summarizes the major findings corresponding to each research question in the present study. Following this, Section 5.2 discusses the limitations of this study and provides suggestions for future research.

5.1 Summary of the Present Findings

The present study investigates the developmental processes involved in the interpretation of *chou*-related idiomatic expressions. Several variables were designed into the analysis including the type of idiom (quadra-syllabic vs. non-quadra-syllabic), familiarity and the context. The major findings are summarized below:

So as to look into the acquisition of metaphoricality, the collected data were sorted into four categories including literal, metaphorical, related, and other types. According to the frequency counts in each group, it was apparent that five experimental groups and the adult controls had different preferences for their interpretation of *chou*-related idiomatic expressions. The results showed that it was indeed more difficult for the participants to metaphorically interpret these *chou*-related idiomatic expressions since the metaphorical frequency counts increased concurrent with the participants' ages.

The *chou*-related idioms were classified into two types: quadra-syllabic and non-quadra-

syllabic. Non-quadra-syllabic *chou*-related idioms were found to be easier to interpret than quadra-syllabic idioms for all age groups. This was because non-quadra-syllabic idioms were considered as closer to spoken Chinese; however, quadra-syllabic idioms were more complicated as this type of idiom most commonly appears in formal, written Chinese and rarely in colloquial Chinese. It was also necessary for the participants to correlate the linguistic convention, which represents cultural backgrounds in certain language, with the idiomatic meaning of the quadra-syllabic idiom in question in order to produce correct interpretations.

Regarding the familiarity of figurative expressions, the results of the present study showed that the five experimental groups had higher metaphorical frequency on the familiar *chou*-related idiom type. On the contrary, the adult controls performed equally well on the unfamiliar type. Familiarity was found to dramatically influence the performance of children of six, seven, and nine years of age, corresponding to G1, G2, and G3 in the present study.

The contextual effect also proved to remarkably affect our participants' interpretation of *chou*-related idioms, since the participants in all six groups performed better on the Word-in-Context task rather than on the Word-in-Isolation task. In particular, the groups composed of children of ages six, seven, and nine were significantly aided by the linguistic context.

Finally, based on the performance of all groups, a six-stage developmental model can be proposed to explain the Chinese acquisition of *chou*-related idioms. As a result, we can observe the interaction between the age effect and the variables in question (the type of idioms,

familiarity, and context). The preschoolers and second graders mainly exhibited the literal interpretation; both the familiarity and contextual effects came into play in their interpretation of *chou*-related idioms. The fourth graders began to demonstrate the ability to produce metaphorical interpretations and they were again significantly affected by the familiarity and contextual effects. The sixth graders had the competence to metaphorically interpret familiar non-quadra- and quadra-syllabic and unfamiliar quadra-syllabic idioms without the contextual aid. As for the ninth graders, they were able to metaphorically comprehend all types of *chou*-related idiomatic expressions designed in the present study, but their performance had still not reached the adult controls' level.

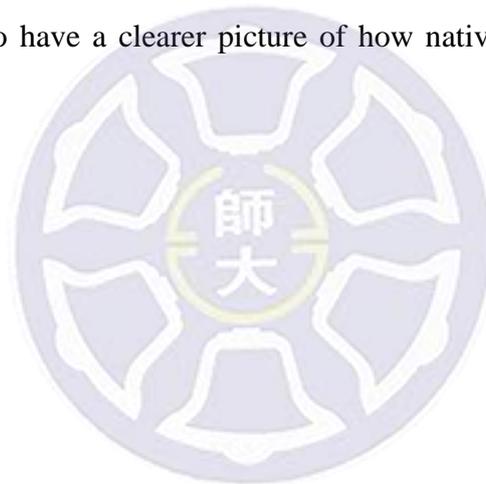
5.2 Limitations of the Present Study and Suggestions for Future Research

Regarding the limitations of the present study, there are three issues which should be taken into consideration in future studies. One of these is that the present study adopted idiomatic expressions in Chinese including the quadra-syllabic type and the non-quadra-syllabic type to investigate the participant's interpretation. Consequently, they preferred to metaphorically interpret *chou*-related idioms more frequently since the meanings of these selected idioms have been conventionalized. Future research can therefore include literal *chou*-related phrases, like *chou-wa-zi* 'stinky socks' in the experimental design. Such comparisons between literal and idiomatic *chou*-related expressions can then be further investigated.

A second issue presents itself by this study only focusing on one single Chinese adjective

'*chou*'. The non-literal meaning of *chou* entails unpleasant feelings toward people and things; therefore, *chou* in modern Chinese is metaphorically related to this negative emotion. Future studies can include idioms of its antonym *xiang* 'fragrant' into the experiment in order to have a comprehensive understanding of Chinese sensory adjectives. In addition, Chinese idioms in other sensory domains can be considered as potential topics for further research.

Finally, the present research adopted two comprehension tasks in order to assess participants' comprehension of figurative expressions. The design of a production task can be taken into account so as to have a clearer picture of how native Chinese speakers produce idiomatic expressions.



BIBLIOGRAPHY

- Ackerman, B. P. 1982. On comprehending idioms: Do children get the picture? *Journal of Experimental Child Psychology* 33:439-454.
- Abkarian, G.G., Jones, A., & West, G. 1992. Young children's idiom comprehension: Trying to get the picture. *Journal of Speech and Hearing Research* 35:580-587.
- Chafe, Wallace, and Deborah Tannen. 1987. The relation between written and spoken language. *Annual Review of Anthropology* 16:383-407.
- Cacciari, Cristina, and Maria Chiara Levorato. 1989. How children understand idioms in discourse. *Journal of Child Language* 16.02:387-405.
- Cain, Kate, Andrea S. Towse, and Rachael S. Knight. 2009. The development of idiom comprehension: An investigation of semantic and contextual processing skills. *Journal of Experimental Child Psychology* 102.3:280-298.
- Chen, W. B. 1982. *English idioms and Chinese Chengyu*. Beijing, China: Foreign Language Teaching and Research Press.
- Chang, Shao-qi. 1989. Shi yong xi tong fang fa yan jiu he yu ci yi yan bian de yi ge chang shi. *Yan Tai Shi Fan Xue Yuan Xue Bao* 1:18-25.
- Day, Sean. 1996. Synaesthesia and synaesthetic metaphors. Retrieved June 2, 2016 from <http://psyche.cs.monash.edu.au/v2/psyche-2-32-day.html>
- Dobrovolskiĭ, Dmitriĭ Olegovich, and Elisabeth Piirainen. 2005. Figurative language: Cross-cultural and cross-linguistic perspectives. Vol. 13. Elsevier.
- Eckman, Fred R. 1977. Markedness and the contrastive analysis hypothesis. *Language learning* 27.2:315-330.
- Gibbs, Raymond W. 1987. Linguistic factors in children's understanding of idioms. *Journal of Child Language* 14.03:569-586.

- Gibbs, Raymond W. 1991. Semantic analyzability in children's understanding of idioms. *Journal of Speech, Language, and Hearing Research* 34.3:613-620.
- Gibbs, Raymond W. 1994. *The poetics of mind: Figurative thought, language, and understanding*. Cambridge University Press.
- Halliday, Michael AK. 1989. Some Grammatical Problems in Scientific English. Paper presented at a Meeting of the Society of Pakistani English Language Teachers, Karachi, Pakistan.
- Halliday, Michael AK. 1993. Towards a language-based theory of learning. *Linguistics and education* 5.2:93-116.
- Hsieh, Ching-Yu, and Chun-Chieh Hsu. 2010. Idiom comprehension in Mandarin-speaking children. *Journal of Psycholinguistic Research* 39:505-522.
- Hsieh, Meng-hsuan. 2008. L1 Acquisition of Metaphorical Expression: A Case Study of *Si* in Mandarin Chinese. MA thesis, National Taiwan Normal University.
- Hsu, Pei-yu. 2013. L1 Acquisition of *Lao* in Mandarin Chinese. MA thesis, National Taiwan Normal University.
- Ibarretxe-antunano, Iraide. 1999. Polysemy and metaphor in perception verbs: A crosslinguistic study. Doctoral dissertation. University of Edinburgh.
- Jakobson, Roman. Shifters. 1957. Verbal categories and the Russian verb. Harvard University, Department of Slavic Languages and Literatures, Russian Language Project.
- Johnson, Mark. 1987. *The Body in the mind: The bodily basis of meaning, reason and Imagination*. University of Chicago Press.
- Jin, Xiao-ping. 2007. On *chou* as a Non-Enantiosemic Word in Chinese. *Journal of Zhejiang Normal University* 32.5:100-102.
- Kempler, Daniel, et al. 1999. Idiom comprehension in children and adults with unilateral brain damage. *Developmental Neuropsychology* 15.3:327-349.

- Kintsch, Walter. 1998. *Comprehension: A paradigm for cognition*. Cambridge university press.
- Lakoff, George, and Mark Johnson. 1980. The metaphorical structure of the human conceptual system. *Cognitive science* 4.2:195-208.
- Lakoff, George. 1988. Cognitive semantics. *Meaning and Mental Representations* ed. by Eco, Umberto, Marco Santambrogio, and Patrizia Violi, 119-154. Indiana University Press.
- Laval, Virginie. 2003. Idiom comprehension and metapragmatic knowledge in French children. *Journal of Pragmatics* 35.5:723-739.
- Levorato, M. Chiara, and Cristina Cacciari. 1992. Children's comprehension and production of idioms: the role of context and familiarity. *Journal of Child Language* 19:415-33.
- Levorato, M. Chiara, and Cristina Cacciari. 1995. The effects of different tasks on the comprehension and production of idioms in children. *Journal of Experimental Child Psychology* 60:261-83.
- Levorato, M. Chiara, and Cristina Cacciari. 1999. Idiom comprehension in children: Are the effects of semantic analyzability and context separable? *European Journal of Cognitive Psychology* 11:51-66.
- Levorato, M. Chiara, and Cristina Cacciari. 2002. The creation of new figurative expressions: psycholinguistic evidence in Italian children, adolescents and adults. *Journal of Child Language* 29:127-50.
- Levorato, Maria Chiara, Barbara Nesi, and Cristina Cacciari. 2004. Reading comprehension and understanding idiomatic expressions: A developmental study. *Brain and Language* 91.3:303-314.
- Li, Liu, and Cheung Hin Tat. 2014. Acquisition of Chinese quadra-syllabic idiomatic expressions: Effects of semantic opacity and structural symmetry. *First Language* 34.4:336-353.
- Liu, Jing-chun. 2000. Qian yi chou zi ci yi de yan sheng yu fa zhan. *Journal of Liaoning Teachers College* 2:13-15.

- Ma, Guang-dong. 2007. Shi yong yu yi chang li lun fen xi chou yi suo xiao. *Yu Yan Ying Yong Yan Jiu*. 56-57.
- Williams, Joseph M. 1976. Syntactic adjectives: A possible law of semantic change *Language* 52.2: 461-478.
- Ni, B. Y., & Yao, P. C. 1991. *Chengyujiuzhang*. Hangzhou, China: Zhejiang Education Press.
- Ni, B. Y., & Yao, P. C. 1997. *Chengyubianxicidian*. Beijing, China: The Commercial Press.
- Nippold, Marilyn A. 1991. Evaluating and enhancing idiom comprehension in language-disordered students. *Language, Speech, and Hearing Services in Schools* 22.3:100-106.
- Nippold, Marilyn A., and Michelle Rudzinski. 1993. Familiarity and transparency in idiom explanation: a developmental study of children and adolescents. *Journal of Speech and Hearing Research* 36:728-37.
- Nippold, Marilyn A., and Catherine L. Taylor. 1995. Idiom understanding in youth: Further examination of familiarity and transparency. *Journal of Speech and Hearing Research* 38:426-43.
- Nippold, Marilyn A., and Faridah Serajul Haq. 1996. Proverb Comprehension in Youth: The Role of Concreteness and Familiarity. *Journal of Speech, Language, and Hearing Research* 39.1:166-176.
- Nippold, Marilyn A., Catherine Moran, and Ilsa E. Schwarz. 2001. Idiom Understanding in Preadolescents: Synergy in Action. *American Journal of Speech-Language Pathology* 10.2: 169-179.
- Nippold, Marilyn A., and Catherine L. Taylor. 2002. Judgements of idiom familiarity and transparency: A comparison of children and adolescents. *Journal of Speech Language and Hearing Research* 45:384-91.
- Nippold, Marilyn A., and Jill K. Duthie. 2003. Mental Imagery and Idiom Comprehension: A Comparison of School-Age Children and Adults. *Journal of Speech, Language, and Hearing Research* 46.4:788-799.

- Nippold, Marilyn A. 2004. Research on later language development. In Berman, 1-8. Prinz, Philip M. 1983. The development of idiomatic meaning in children. *Language and Speech* 26:263-72.
- Prinz, Philip M. 1983. The development of idiomatic meaning in children. *Language and Speech* 26.3: 263-272.
- Qin, Xiu-gui. 2008. Metaphors of smell and their metaphorical scope in English and Chinese. *Foreign Language Teaching and Research* 40.2:107-112.
- Ren, Ye. 2005. The Study on Metaphor of Chinese Words in the Five Senses Domain. MA Thesis, Xin Jiang Normal University.
- Swinney, David A., and Anne Cutler. 1979. The access and processing of idiomatic expressions. *Journal of Verbal Learning and Verbal Behavior* 18.5:523-534.
- Sweetser, Eve. 1991. *From etymology to pragmatics: Metaphorical and cultural aspects of semantic structure*. Vol. 54. Cambridge University Press.
- Tannen, Deborah. 1982. Oral and literate strategies in spoken and written narratives. *Language* 58.1:1-21.
- Tsou, B. K. 2012. Idiomaticity and classical traditions in some East Asian languages. Paper presented at the 26th Pacific Asia Conference on Language, Information, and Computation. Retrieved from <http://aclweb.org/anthology/Y/Y12/Y12-1003.pdf>
- Tong, Zhi-he. 1983. Xiang he chou de ci yi yan bian ji qi wei ci de ci yi xi tong de fa zhan. *Journal of Hongzhou University* 13.2:99-107.
- Vulchanova, Mila, Valentin Vulchanov, and Margarita Stankova. 2011. Idiom comprehension in the first language: a developmental study. *Vigo International Journal of Applied Linguistics* 8:206-234.
- Wang, Jia-lu. 2011. Zhong Gu Han Yu Ren Ti Gan Guan Gan Zhi Lei Xing Rong Ci Yu Yi Chang Yan Jiu. MA Thesis, Ning Po University.
- Yang, Run-lu. 1996. Tan chou de yin yi bian hua. *Yu Wen Jian She* 8:22-24.

Yin, Dai-chong and Zhao zi. 2012. Zhu men jiu rou chou zhi chou zi shi yi zheng yi ji bian zheng. *Yu Wen Jiao Xue Yan Jiu* 1:39-41

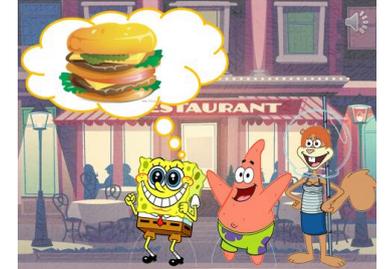
Zhong, Y. P., Luo, J. P., & Yan, X. L. 2009. On the relationship between features and comprehension of Chinese idioms. *Journal of Hunan University of Science & Technology*, 12, 121–124.

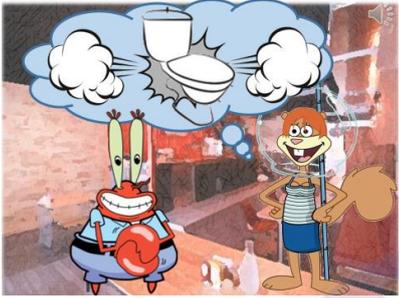


Appendix A The Word-in-Isolation Task

<p>1. 臭_ㄉ不_ㄉ可_ㄉ聞_ㄉ</p>	<p>2. 香_ㄉ氣_ㄉ四_ㄉ溢_ㄉ</p>
<p>3. 臭_ㄉ臉_ㄉ</p>	<p>4. 臭_ㄉ罵_ㄉ</p>
<p>5. 臭_ㄉ氣_ㄉ沖_ㄉ天_ㄉ</p>	<p>6. 臭_ㄉ屁_ㄉ</p>
<p>7. 香_ㄉ火_ㄉ鼎_ㄉ盛_ㄉ</p>	<p>8. 臭_ㄉ名_ㄉ遠_ㄉ揚_ㄉ</p>
<p>9. 吃_ㄉ香_ㄉ喝_ㄉ辣_ㄉ</p>	<p>10. 臭_ㄉ架_ㄉ子_ㄉ</p>
<p>11. 不_ㄉ知_ㄉ香_ㄉ臭_ㄉ</p>	<p>12. 播_ㄉ惡_ㄉ遺_ㄉ臭_ㄉ</p>
<p>13. 臭_ㄉ錢_ㄉ</p>	<p>14. 乳_ㄉ臭_ㄉ未_ㄉ乾_ㄉ</p>
<p>15. 搶_ㄉ頭_ㄉ香_ㄉ</p>	<p>16. 銅_ㄉ臭_ㄉ味_ㄉ</p>

Appendix B The Word-in-Context Task

 An illustration of SpongeBob SquarePants and Patrick Star on a red and yellow sailboat. They are both smiling and holding suitcases, suggesting they are going on a trip. The background shows a bright sun, a blue sky with a white cloud, and blue waves.	<p>各位小朋友，今天要帶你們跟海綿寶寶和派大星一起出來玩。</p> <p>因為平常他們都生活在海底世界的比奇堡，不太懂我們人類說的話。</p> <p>可以拜託你們解釋給海綿寶寶和派大星聽嗎？</p>
<p>Q1</p>  An illustration of SpongeBob, Patrick, and Sandy Cheeks on a beach. Sandy is holding a red alarm clock. A thought bubble above her shows the alarm clock with angry faces, indicating they are late. The background shows a palm tree and the ocean.	<p>1. 海綿寶寶和派大星跟珊迪約好早上 10 點在海灘見面。但是他們卻遲到了兩個小時。珊迪對他們說：「你們也遲到太久了吧！我很不高興，看到你們真想擺臭臉。」</p> <p>請問珊迪說得臭臉是什麼意思呢？</p>
<p>Q2</p>  An illustration of SpongeBob, Patrick, and Sandy Cheeks on a beach. Sandy is holding a thought bubble that shows a bright sun with angry faces, indicating it is very hot. The background shows a palm tree and the ocean.	<p>2. 在大太陽下等了好久，珊迪覺得很熱又不舒服。忍不住臭罵了一頓遲到好久的海綿寶寶和派大星。</p> <p>請問這時候珊迪說的臭罵是什麼意思呢？</p>
<p>Q3</p>  An illustration of SpongeBob, Patrick, and Sandy Cheeks in front of a restaurant. A thought bubble above them shows a large, appetizing hamburger. The restaurant has a sign that says "RESTAURANT".	<p>3. 接著，他們決定去吃午餐。走著走著，來到螃蟹老闆開的香氣四溢漢堡店。漢堡的香味讓他們肚子咕嚕咕嚕叫。</p> <p>小朋友請問香氣四溢是什麼意思呢？</p>

<p>Q4</p> 	<p>4. 吃到一半的時候，珊迪和派大星一起去了廁所。一打開廁所的時候，珊迪馬上說：「這廁所真是臭氣沖天啊。讓人受不了！」</p> <p>小朋友請問「臭氣沖天」是什麼意思呢？</p>
<p>Q5</p> 	<p>5. 上完廁所後，珊迪馬上跟老闆說：「你們餐廳的廁所真是臭不可聞。需要好好地打掃一番。不然客人不會想來的。」</p> <p>小朋友請問珊迪說臭不可聞是什麼意思呢？</p>
<p>Q6</p> 	<p>6. 臭屁的螃蟹老闆不想聽珊迪的話，他說：「怎麼可能，客人最喜歡我的餐廳了。」</p> <p>小朋友請問臭屁是什麼意思？</p>
<p>Q7</p> 	<p>7. 後來，螃蟹老闆生氣地對著海綿寶寶、派大星和珊迪說：「你們這群乳臭未乾的小朋友。我不歡迎你們再來我的餐廳！」</p> <p>小朋友請問螃蟹老闆說的乳臭未乾是什麼意思？</p>
<p>Q8</p> 	<p>8. 珊迪也很生氣地對螃蟹老闆說：「我們不喜歡擺臭架子的老闆。對客人講話那麼沒有禮貌。你應該好好地打掃你們餐廳的環境。」</p> <p>小朋友請問珊迪說的擺臭架子是什麼意思呢？</p>

Q9



9. 螃蟹老闆接著說:「遇到你們這樣討厭的客人,我一定會搶頭香把你們趕走。」

小朋友請問螃蟹老闆說的搶頭香是什麼意思呢?

Q10



10. 珊迪認真地回答:「螃蟹老闆,你不應該對客人這麼兇。否則播惡遺臭,所有客人都不敢來你的店吃漢堡。」

小朋友請問珊迪說的播惡遺臭是什麼意思呢?

Q11



11. 螃蟹老闆接著又說:「你們真是不知香臭,我的漢堡店明明是全世界最棒的。你們還說我的店不夠好。」

小朋友請問螃蟹老闆說的不知香臭是什麼意思呢?

Q12



12. 珊迪很不開心地說:「如果你繼續用這樣的態度招呼客人,不久你這家店就會臭名遠揚。生意一定會變得很差。」

小朋友請問珊迪說的臭名遠揚是什麼意思呢?

Q13



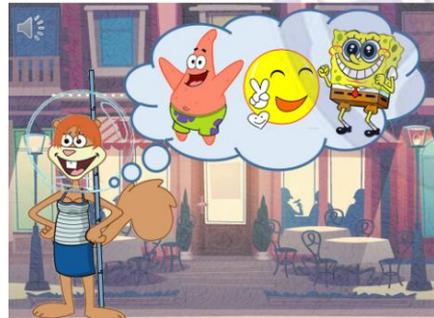
13 這時候，派大星偷偷地對海綿寶寶說：「螃蟹老闆可能是一個喜歡臭錢的人，他不懂要好好招呼客人。」小朋友請問派大星說的請問臭錢是什麼意思呢？

Q14



14. 珊迪越說越生氣，最後對著螃蟹老闆說：「你真是一個充滿銅臭味的老闆。只知道要賺錢，不懂得要招呼客人。」小朋友請問珊迪說的銅臭味是什麼意思呢？

Q15



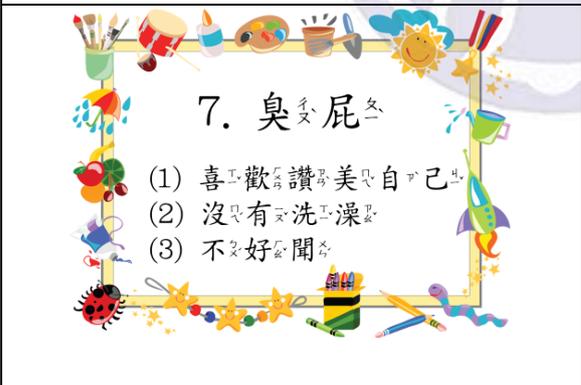
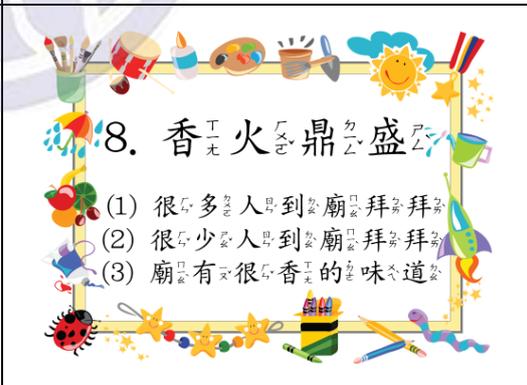
15. 珊迪跟螃蟹老闆講完後，趕緊帶著海綿寶寶和派大星離開漢堡餐廳，並對他們道歉說：「本來應該請你們兩個好好地吃香喝辣，沒想到遇到這樣的老闆。」小朋友請問珊迪說的吃香喝辣是什麼意思呢？

Q16



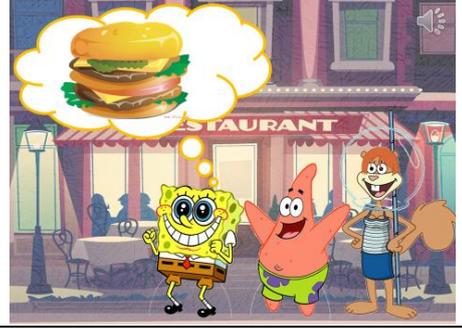
16. 最後，珊迪建議說：「走吧！我們去一家香火鼎盛的廟拜拜，把身上的壞運氣通通都趕走。」小朋友請問珊迪說的香火鼎盛是什麼意思？

Appendix C The Word-in-Isolation Task in the Pilot Study

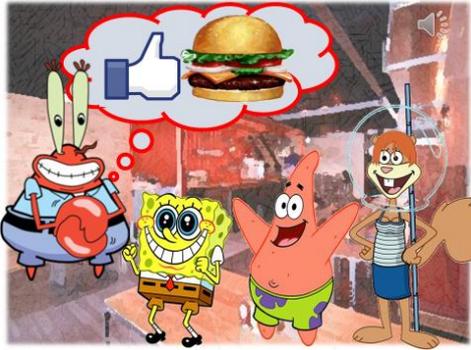
 <p>1. 臭_ㄅ不_ㄉ可_ㄟ聞_ㄉ</p> <p>(1) 感_ㄟ覺_ㄟ不_ㄉ到_ㄉ的_ㄟ (2) 不_ㄉ舒_ㄟ服_ㄟ的_ㄟ (3) 很_ㄟ舒_ㄟ服_ㄟ的_ㄟ</p>	 <p>2. 香_ㄟ氣_ㄟ四_ㄟ溢_ㄟ</p> <p>(1) 很_ㄟ好_ㄟ吃_ㄟ的_ㄟ (2) 令_ㄟ人_ㄟ不_ㄉ舒_ㄟ服_ㄟ的_ㄟ (3) 聞_ㄟ不_ㄉ出_ㄟ來_ㄟ的_ㄟ</p>
 <p>3. 臭_ㄅ臉_ㄟ</p> <p>(1) 髒_ㄟ的_ㄟ (2) 不_ㄉ開_ㄟ心_ㄟ的_ㄟ (3) 很_ㄟ開_ㄟ心_ㄟ的_ㄟ</p>	 <p>4. 臭_ㄅ味_ㄟ相_ㄟ投_ㄟ</p> <p>(1) 身_ㄟ上_ㄟ有_ㄉ不_ㄉ好_ㄟ的_ㄟ味_ㄟ道_ㄟ (2) 有_ㄟ一_ㄟ樣_ㄟ的_ㄟ興_ㄟ趣_ㄟ (3) 都_ㄟ不_ㄉ喜_ㄟ歡_ㄟ洗_ㄟ澡_ㄟ</p>
 <p>5. 臭_ㄅ罵_ㄟ</p> <p>(1) 對_ㄟ小_ㄟ孩_ㄟ兒_ㄟ (2) 很_ㄟ兇_ㄟ地_ㄟ (3) 噴_ㄟ口_ㄟ水_ㄟ地_ㄟ</p>	 <p>6. 臭_ㄅ氣_ㄟ沖_ㄟ天_ㄟ</p> <p>(1) 很_ㄟ不_ㄉ好_ㄟ聞_ㄟ的_ㄟ (2) 動_ㄟ物_ㄟ味_ㄟ道_ㄟ的_ㄟ (3) 很_ㄟ好_ㄟ聞_ㄟ的_ㄟ</p>
 <p>7. 臭_ㄅ屁_ㄟ</p> <p>(1) 喜_ㄟ歡_ㄟ讚_ㄟ美_ㄟ自_ㄟ己_ㄟ (2) 沒_ㄟ有_ㄟ洗_ㄟ澡_ㄟ (3) 不_ㄉ好_ㄟ聞_ㄟ</p>	 <p>8. 香_ㄟ火_ㄟ鼎_ㄟ盛_ㄟ</p> <p>(1) 很_ㄟ多_ㄟ人_ㄟ到_ㄟ廟_ㄟ拜_ㄟ拜_ㄟ (2) 很_ㄟ少_ㄟ人_ㄟ到_ㄟ廟_ㄟ拜_ㄟ拜_ㄟ (3) 廟_ㄟ有_ㄟ很_ㄟ香_ㄟ的_ㄟ味_ㄟ道_ㄟ</p>
 <p>9. 臭_ㄅ名_ㄟ遠_ㄟ揚_ㄟ</p> <p>(1) 很_ㄟ流_ㄟ行_ㄟ的_ㄟ (2) 很_ㄟ不_ㄉ好_ㄟ聞_ㄟ的_ㄟ (3) 讓_ㄟ人_ㄟ不_ㄉ喜_ㄟ歡_ㄟ的_ㄟ</p>	 <p>10. 吃_ㄟ香_ㄟ喝_ㄟ辣_ㄟ</p> <p>(1) 很_ㄟ享_ㄟ受_ㄟ的_ㄟ (2) 很_ㄟ好_ㄟ吃_ㄟ的_ㄟ (3) 不_ㄉ好_ㄟ吃_ㄟ的_ㄟ</p>

 <p>11. 臭^ㄅ架^ㄅ子^ㄉ</p> <ol style="list-style-type: none"> (1) 很^ㄉ兇^ㄉ的^ㄉ (2) 很^ㄉ老^ㄉ的^ㄉ (3) 有^ㄉ禮^ㄉ貌^ㄉ的^ㄉ 	 <p>12. 臭^ㄅ美^ㄉ</p> <ol style="list-style-type: none"> (1) 口^ㄉ臭^ㄉ的^ㄉ (2) 不^ㄉ好^ㄉ看^ㄉ的^ㄉ (3) 誇^ㄉ獎^ㄉ自^ㄉ己^ㄉ的^ㄉ
 <p>13. 逐^ㄉ臭^ㄉ之^ㄉ夫^ㄉ</p> <ol style="list-style-type: none"> (1) 喜^ㄉ歡^ㄉ做^ㄉ奇^ㄉ怪^ㄉ的^ㄉ事^ㄉ (2) 不^ㄉ愛^ㄉ乾^ㄉ淨^ㄉ (3) 很^ㄉ愛^ㄉ乾^ㄉ淨^ㄉ 	 <p>14. 臭^ㄅ名^ㄉ昭^ㄉ彰^ㄉ</p> <ol style="list-style-type: none"> (1) 很^ㄉ有^ㄉ名^ㄉ的^ㄉ (2) 讓^ㄉ人^ㄉ討^ㄉ厭^ㄉ的^ㄉ (3) 很^ㄉ髒^ㄉ的^ㄉ
 <p>15. 臭^ㄅ顯^ㄉ威^ㄉ</p> <ol style="list-style-type: none"> (1) 愛^ㄉ生^ㄉ氣^ㄉ的^ㄉ人^ㄉ (2) 不^ㄉ愛^ㄉ洗^ㄉ澡^ㄉ的^ㄉ人^ㄉ (3) 沒^ㄉ有^ㄉ禮^ㄉ貌^ㄉ的^ㄉ有^ㄉ錢^ㄉ人^ㄉ 	 <p>16. 臭^ㄅ錢^ㄉ</p> <ol style="list-style-type: none"> (1) 垃^ㄉ圾^ㄉ桶^ㄉ裡^ㄉ面^ㄉ的^ㄉ錢^ㄉ (2) 給^ㄉ乞^ㄉ丐^ㄉ的^ㄉ錢^ㄉ (3) 笑^ㄉ對^ㄉ方^ㄉ的^ㄉ
 <p>17. 乳^ㄉ臭^ㄉ未^ㄉ乾^ㄉ</p> <ol style="list-style-type: none"> (1) 老^ㄉ人^ㄉ (2) 小^ㄉ朋^ㄉ友^ㄉ (3) 大^ㄉ人^ㄉ 	 <p>18. 搶^ㄉ頭^ㄉ香^ㄉ</p> <ol style="list-style-type: none"> (1) 很^ㄉ好^ㄉ聞^ㄉ的^ㄉ (2) 搶^ㄉ第^ㄉ一^ㄉ的^ㄉ (3) 跑^ㄉ很^ㄉ慢^ㄉ的^ㄉ
 <p>19. 遺^ㄉ臭^ㄉ萬^ㄉ年^ㄉ</p> <ol style="list-style-type: none"> (1) 討^ㄉ厭^ㄉ的^ㄉ (2) 很^ㄉ臭^ㄉ的^ㄉ (3) 很^ㄉ有^ㄉ名^ㄉ的^ㄉ 	 <p>20. 銅^ㄉ臭^ㄉ味^ㄉ</p> <ol style="list-style-type: none"> (1) 垃^ㄉ圾^ㄉ桶^ㄉ裡^ㄉ面^ㄉ的^ㄉ錢^ㄉ (2) 給^ㄉ乞^ㄉ丐^ㄉ的^ㄉ錢^ㄉ (3) 笑^ㄉ對^ㄉ方^ㄉ的^ㄉ

Appendix D The Word-in-Context Task in the Pilot Study

	<p>各位小朋友，今天要帶你們一起跟海綿寶寶和派大星一起出來玩。因為平常他們都生活在海底世界的比奇堡，所以不太懂我們說的話。可以拜託你們幫幫海綿寶寶和派大星嗎？</p>
<p>Q1</p> 	<p>1. 他們跟珊迪約好早上 10 點在海灘見面。但是海綿寶寶和派大星卻遲到了好久。珊迪見到他們就說你們也讓我等了那麼久，本來看到你們來想擺臭臉的。</p> <p>請問臭臉是什麼意思呢？</p> <ol style="list-style-type: none"> (1) 髒髒的 (2) 心情不好的 (3) 很開心的
<p>Q2</p> 	<p>2. 珊迪覺得很熱，又在大太陽下等了好久。忍不住臭罵了一頓海綿寶寶和派大星。</p> <p>請問臭罵是什麼意思呢？</p> <ol style="list-style-type: none"> (1) 對小孩 (2) 很兇地 (3) 噴口水地
<p>Q3</p> 	<p>3. 走著走著，他們來當一間香氣四溢的漢堡餐廳。大家都想吃漢堡當午餐。</p> <p>請問香氣四溢是什麼意思呢？</p> <ol style="list-style-type: none"> (1) 十分好吃的 (2) 令人不舒服的 (3) 聞不出來的

Q4



4. 螃蟹老闆跟他們說，你們吃了以後就知道我店裡的蟹堡是全世界最好吃的!珊迪心想你這個臭美的老闆，我才不相信你的話。

請問臭美是什麼意思呢?

- (1) 有口臭的
- (2) 不好看的
- (3) 喜歡誇獎自己

Q5



5. 到了餐廳以後，海綿寶寶和派大星都點了蟹堡套餐加冰淇淋。珊迪說你們兩個還真是臭味相投。

請問臭味相投是什麼意思呢?

- (1) 身上皆有臭味
- (2) 擁有一樣的興趣
- (3) 都不喜歡洗澡

Q6



6. 海綿寶寶和派大星最喜歡一口蟹堡配一口冰淇淋。珊迪看了以後，又對他們說，你們倆也真是逐臭之夫。

請問逐臭之夫是什麼意思呢?

- (1) 喜歡做奇怪的事
- (2) 不愛乾淨
- (3) 很可愛的

Q7

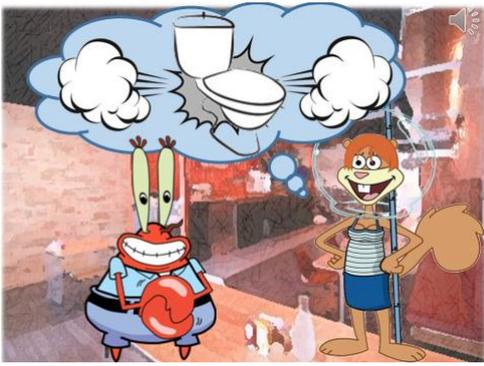


7. 吃到一半的時候，珊迪和派大星一起去了廁所。一打開廁所的時候，珊迪馬上說這廁所真是臭氣沖天阿。

請問臭氣沖天是什麼意思呢?

- (1) 非常不好聞的
- (2) 很好聞的
- (3) 動物的

Q8



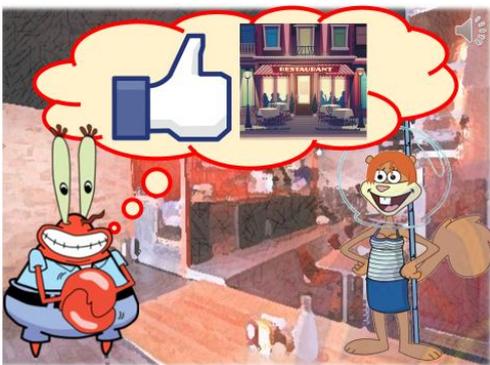
8. 離開廁所後，珊迪馬上到櫃檯跟螃蟹老闆說你們餐廳的廁所真是臭不可聞。

需要好好地打掃一番。

請問臭不可聞是什麼意思呢？

- (1) 聞不出來的
- (2) 讓人很不舒服的
- (3) 很舒服的

Q9



9. 臭屁的螃蟹老闆不想聽珊迪的話，還說怎麼可能，客人最喜歡我的餐廳了。

請問臭屁是什麼意思？

- (1) 喜歡誇獎自己的
- (2) 沒有洗澡的
- (3) 不好聞的

Q10



10. 生氣的螃蟹老闆對著海綿寶寶、派大星和珊迪說，你們這群乳臭未乾的小朋友。我不歡迎你們到我的餐廳！

請問乳臭未乾是什麼意思？

- (1) 老人
- (2) 小朋友
- (3) 大人

Q11



11. 珊迪也對螃蟹老闆說，我們不喜歡擺臭架子的老闆。我剛剛跟你說的都是實話。

請問臭架子是什麼意思呢？

- (1) 很兇的
- (2) 很老的
- (3) 有禮貌的

Q12



12. 螃蟹老闆也回話說，有你們這樣的客人，我一定搶頭香把你們趕走。

請問搶頭香是什麼意思呢？

- (1) 很好聞的
- (2) 搶第一的
- (3) 跑很慢的

Q13



13. 珊迪說我最不喜歡臭顯威了，螃蟹老闆你應該要好好聽客人的建議。

請問臭顯威是怎麼樣的人？

- (1) 愛生氣的
- (2) 不愛洗澡的
- (3) 沒有禮貌的有錢人

Q14



14. 如果你繼續用這個的態度對待客人，不久以後這家餐廳就會臭名遠揚。

請問臭名遠揚是什麼意思呢？

- (1) 很流行的
- (2) 很不好聞的
- (3) 令人不喜歡的

Q15



15. 螃蟹老闆又說我的漢堡餐廳是最棒的，怎麼可能會變成臭名昭彰的餐廳。

請問臭名昭彰是什麼意思呢？

- (1) 很有名的
- (2) 令人討厭的
- (3) 很髒的

<p>Q16</p> 	<p>16.原來螃蟹老闆只是個喜歡臭錢的人，又不懂要好好珍惜客人。</p> <p>請問臭錢是什麼意思呢？</p> <ol style="list-style-type: none"> (1) 垃圾桶裡面的 (2) 給乞丐的 (3) 笑對方的
<p>Q17</p> 	<p>17.他們三個躲得遠遠的，珊迪對著老闆說你真是個充滿銅臭味的老闆。</p> <p>請問銅臭味是什麼意思呢？</p> <ol style="list-style-type: none"> (1) 很愛錢的 (2) 身體很臭的 (3) 銅味道的
<p>Q18</p> 	<p>18.我只能說螃蟹老闆這樣的態度會讓你的漢堡餐廳遺臭萬年。</p> <p>請問遺臭萬年是什麼意思呢？</p> <ol style="list-style-type: none"> (1) 討厭的 (2) 很臭的 (3) 很有名的
<p>Q19</p> 	<p>19.珊迪趕緊帶著海綿寶寶和派大星離開漢堡餐廳，並對他們道歉。本來應該帶你們好好地吃香喝辣，卻沒想到會是這樣的結果。</p> <p>請問吃香喝辣是什麼意思呢？</p> <ol style="list-style-type: none"> (1) 很享受的 (2) 很好吃的 (3) 不好吃的
<p>Q20</p> 	<p>20.走吧！讓我帶你們去一家香火鼎盛的廟拜拜，把壞運都趕走。</p> <p>請問香火鼎盛是什麼意思？</p> <ol style="list-style-type: none"> (1) 很少人到廟拜拜 (2) 很多人到廟拜拜 (3) 廟有很香的味道

Appendix E Consent Form

同意書

親愛的家長您好:

此為語言研究的同意書。本研究為國立台灣師範大學英語系語言組的碩士論文，研究目的在於了解國中學生的母語學習狀況。希望貴子弟能夠協助研究進行。此碩士論文為調查學生對感官形容詞慣用語的習得狀況，且聚焦於學生對感官形容詞相關詞彙之隱喻掌握能力。研究進行之優先原則為不影響學生上課權益。

測驗進行方式為在學校教室內讓學生看投影片回答問題。該研究共有兩個部分，兩部分皆為問答題。以電腦卡通圖片搭配設計的故事情節讓小朋友回答問題。在測驗一中，學生須手寫回答一系列關於感官形容詞慣用語的題目。關於測驗二，小朋友會根據設計的故事情境回答詞彙內容而幫助主角解決疑惑。總測驗時間約需 20 至 30 分鐘。

為了感謝學生參與本研究計畫，兩次測驗完成後，將贈給學生一個精美小禮物。本研究結果僅供學術研究使用，且參與研究的學生個人資訊絕不對外公開。此外，所有問答題目也僅供本研究使用並會嚴加保密。若貴校家長與教師想了解學生之任務表現，亦可提供數據並加以說明，供教學參考。懇請家長支持本語言研究的進行，希望能夠獲得您的同意。最後，獻上最真誠的感謝。

敬祝

平安順心

國立台灣師範大學英語系語言學組

研究生：鄭淑君敬上

指導教授：陳純音教授

日期：民國一百零五年三月

學生姓名： _____

同意

不同意

家長簽名： _____

若你同意讓學生參與研究，煩請回答下列問題:

生日： 民國 _____ 年 _____ 月