

國立政治大學語言學研究所碩士論文

National Chengchi University

Graduate Program in Linguistics

Master Thesis

指導教授：張郁慧 博士

Advisor: Dr. Hsun-Huei Chang

非賓格不及物動詞在 U 型語言發展中受到非賓格及物動詞，被動語態，和主詞
生命度的影響

**Interaction of Alternating Unaccusatives, Passives, and Animacy Effect in the
U-shaped Development of Non-alternating Unaccusatives**

研究生：石惠中 撰

Name: Hui-jung Shih

中華民國 一百零三年 七月

July, 2014

Interaction of Alternating Unaccusatives, Passives, and Animacy Effect in the

U-shaped Development of Non-alternating Unaccusatives

BY

Hui-jung Shih



**A Thesis Submitted to the
Graduate Institute of Linguistics**

in Partial Fulfillment of the

Requirements for the Degree of

Master of Arts

July, 2014

Acknowledgements

In the long journey of my graduate student life, I express my greatest appreciation to my advisor, Prof. Hsun-huei Chang, for her being patient with guidance, since many times Prof. Chang spent much time revising my paper due to many errors in my thesis. Moreover, in her class, I was feeling encouraged in the discussion so that I was being confident. Many thanks also go to Prof. Chiung-Chih Huang, for her encouragement throughout my graduate student life. Not only did I gain knowledge in her class but I was also encouraged in life. I never forgot Prof. Huang helped me a lot when I was facing financial problems. I am really grateful for the supports and comments in my thesis from Dr. Yow-yu Lin. Under his guidance, some statistical support makes my thesis more convincing. In addition, I would like to thank everyone in the institute of linguistics. You all fulfill my life. Besides, I appreciate every participant conducting the experiment in my study.

Next, I would like to dedicate my love to my girlfriend, Sara (鈺忻), and two little kittens, Sesame (芝麻) and Little Dumpling (小籠包). You three gave me huge relief when I was feeling depressed in the heap of paper. More importantly, I express immense gratitude for Sara's tolerance towards my being indifferent when I was doing my research. You always encouraged me and said to me that "we go to Xin-ye (my favorite restaurant) when you finish your thesis." Additionally, I was feeling

grateful for Mi-jyou (米酒), Bao-yu (包魚), Xiao-bai-tu (小白兔), school badminton team, so free pizza, Plus.One.Lasai, and yoga club, because you color my life in the chaos of my four-year-long study. Further, thanks for the puddings from Home-mom (轟媽) to “bribe” the committee members.

Last but not least, I express my warmest thanks to my parents. Thanks for allowing me to pursue my dream. Also, I deeply appreciate my sister’s financial supports for some time when I was in trouble. I couldn’t have accomplished the thesis without you all.

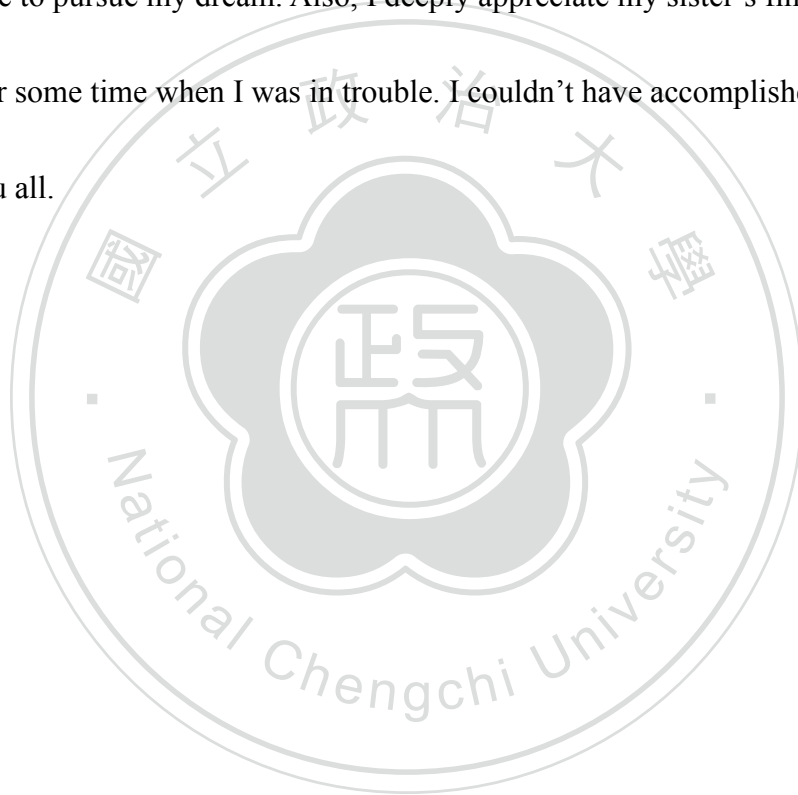


TABLE OF CONTENTS

	page
Acknowledges.....	iii
Table of Contents.....	v
Chinese Abstract.....	ix
English Abstract.....	xi
Chapter	
1. INTRODUCTION.....	1
1.1 Background and Motivation.....	1
1.2 Purposes of the Study.....	5
1.3 Organization of the Pater.....	6
2. LITERATURE REVIEW.....	7
2.1 The Unaccusative Hypothesis.....	7
2.2 The Confusion of Unaccusatives and Passives.....	9
2.2.1 Alternating Unaccsative and Non-alternating Unaccusative	
Verbs.....	14
2.3 U-shaped Learning.....	16
2.3.1 U-shaped in Language Development.....	16

2.3.2 Previous Study on U-shaped Learning.....	18
2.4 Typology Issue.....	19
2.4.1 Chinese Topic-comment Structure.....	20
2.4.1.1 Topic-comment Structure on L2 English Passives.....	21
2.4.1.2 Topic-comment Structure on L2 English Unaccusatives.....	22
2.5 Two Hypotheses on Unaccusatives: Transitivity Hypothesis and Postverbal NP Movement Hypothesis.....	23
2.6 Animacy Effect on Argument.....	24
2.7 Research Questions.....	28
3. METHOD.....	30
3.1 Subjects.....	30
3.2 Material.....	31
3.2.1 GJ Task.....	31
3.2.2 CET Task.....	34
3.3 Procedures.....	36
3.3.1 Pilot Study.....	36
3.3.2 Formal Testing.....	37
3.4 Data Analysis.....	37
4. RESULTS and DISCUSSION.....	41

4.1 The Results and Discussion of U-shaped Curve in Learning of	
Non-alternating Unaccusatives.....	41
4.1.1 Results	41
4.1.2 Discussion.....	43
4.1.2.1 Salience in Language and Reluctance in NP-V Word	
Order.....	44
4.1.2.2 Transitivity in Non-alternating	
Unaccusatives.....	46
4.2 The Influences of Alternating Unaccusatives and Passives	
with Respect to Learning of Non-alternating Unaccusatives.....	48
4.2.1 Results.....	48
4.2.2 Discussion.....	55
4.2.2.1 NP-V Word Order in Topic-comment Structure and Pro	
Drop in Chinese.....	55
4.2.2.2 No Subject-intransitive Word Order or Passives in a Single	
Verb.....	57
4.2.2.3 “No Subject-intransitive Word Order or Passives in a	
Single Verb” in U-shaped Learning.....	60
4.3 Animacy Effect.....	62

4.3.1 Results.....	62
4.3.2 Discussion.....	63
4.3.2.1 Examination on Transitivity Hypothesis.....	64
5. Conclusion.....	66
5.1 Major Findings of the Study.....	66
5.2 Pedagogical Implication in Language Teaching.....	68
5.3 Limitations and Suggestions.....	69
REFERENCES.....	72
APPENDIXES	
A: GJ Task.....	75
B: CET Task.....	76
C: Alternating and Non-alternating Unaccusative, and Passive Verbs in GJ Task.....	77

國立政治大學語言學研究所碩士班

碩士論文摘要

論文名稱：非賓格不及物動詞在 U 型語言發展中受到非賓格及物動詞，被動語態，和主詞生命度的影響

指導教授：張郁慧博士

研究生：石惠中

論文提要內容：

本論文是以 Kellerman (1978) 的 U 型學習理論為基礎做擴大研究。本篇論文旨在探討英文程度不同的中文為母語之人士，在學習非賓格不及物動詞時是否也會出現 U 型曲線，除此之外，非賓格不及物動詞與非賓格及物動詞，被動語態，主詞生命度之間的互動也將做討論。

在這個研究中，我們採用語法判斷(Grammaticality judgment)來測試受測者對於非賓格不及物動詞的理解和中英轉譯(Chinese to English translation)來測試受測者對於主詞生命度和主被動態之間的影响。此研究共有 123 位受測者，他們根據學習英文的長短被分為四個組別，分別是低、低中、中、與中高程度。

此研究可歸納為以下結論。(1) 不同英文程度的中文為母語之人士，在學習英文非賓格不及物動詞時也會出現 U 型曲線。此即意味著 U 型曲線不僅僅出現在母語為荷蘭語學習非賓格及物動詞 *Break* 的學習上，更可擴大到母語為中文

學習非賓格不及物動詞上。(2) 中文為母語之人士無法正確使用非賓格及物動詞，並且會把非賓格及物動詞當作非賓格不及物動詞。(3) 在學習非賓格不及物動詞中，主詞生命度確實會影響學習者使用主被動態之不同。當主詞有生命時，句子傾向使用主動態，當主詞是無生命時，句子傾向使用被動態。



ABSTRACT

The study is based on Kellerman's (1978) U-shaped leaning on *break* to do further study. The study aims to examine if the learning of non-alternating unaccusatives for L2 Chinese learners of English with different proficiency presents a U-shaped curve. In addition, the interactions among alternating unaccusatives, non-alternating unaccusatives, passives and animacy effect are discussed as well.

In the study, we use grammaticality judgment task to test participants' understanding of non-alternating unaccusatives, and adopt Chinese to English translation task to test animacy effect in non-alternating unaccusatives. 123 participants involve the experiment of the study. Among these participants, they are classified as four groups, low, low-intermediate, intermediate, and high-intermediate, according to how long they studied English.

The results of the study are summarized as follows. (1) There is a U-shaped curve in learning of non-alternating unaccusatives for L2 Chinese speakers learning English. It suggested that U-shaped learning is not only in alternating unaccusatives *break* in L1 Dutch but also in non-alternating unaccusatives in L1 Chinese. (2) For L2 learners, they are unable to use alternating unaccusatives correctly and tend to view alternating unaccusatives as non-alternating ones. (3) Animacy effect does influence the choices of voice forms. The study showed that participants tend to use active

voice while the subject is animate and prefer to use passive voice while the subject is inanimate.



CHAPTER ONE

INTRODUCTION

1.1 Background and Motivation

Overuse of passivization on unaccusatives has been commonly seen in second language learning. Research about the issue has been made in terms of different aspects (Balcom, 1997; Ju, 2000; Montrul, 1999; Oshita, 1998, 2001; Perlmutter, 1978; Yip, 1990, 1995; Zobl, 1989). Kellerman (1978) discussed the issue in terms of different L2 English proficiency of L1 Dutch speakers and presented a U-shaped curve in language learning. However, only the verb *break* is involved in the study; in addition, there exists typological difference between Dutch and Chinese. It is worth noticing to examine the performances of L2 Chinese speakers learning English in learning of non-alternating unaccusatives.

Previous studies have claimed that L2 learners of English usually overextend passive voice even if learners belong to different L1 (Balcom, 1997; Ju, 2000; Montrul, 1999; Oshita, 1998; Yip, 1990; Zobl, 1989). These errors are often found in the unaccusatives as follows.

- (1) a. *The World War III will be happened in the future. (Chinese: Yip, 1990)
- b. *The most memorable experience of my life was happened 15 years ago.

(Arabic: Zobl, 1989)

The phenomenon of overusing passivization is known as overpassivization. The verb *happen* in (1) is an intransitive-unaccusative verb, rather than transitive verb; they cannot be passivized. According to Zobl (1989), both passives and unaccusatives have identical characteristic of internal argument, without external argument, and both internal NPs were moved to the subject slot. He also argued that there is a lexical rule of unaccusatives before learners acquire passives. The lexical rules of unaccusatives are displayed as follows.

(2) [___ [V NP]] (i.e. [open the door])

The lexical rule would be subsumed when L2 learners acquire passives since passive rules are the core rules (Zobl, 1989). On the other hand, the assumption seems to imply the fact that the knowledge of unaccusatives did exist before learners acquire passives. Moreover, under the viewpoints, U-shaped learning of unaccusatives conducted by Kellerman (1978) also supported the assumption. For example, in his study, the transferability rate from L1 Dutch *Het kopje brak* into L2 English *The cup broke* is about 100% in the group of low proficiency while the transferability rate goes down to 64% in the group of higher proficiency; finally the transferability rate goes up to the 90% in the group of advanced proficiency.

However in Kellerman's study, there are some problems that we would like to discuss further in order to make the U-shape learning of unaccusatives more

convincible. First, just only the verb *break* was involved in the study. We need more unaccusatives to support the assumption of U-shaped learning.

(3) a. The sun melted the ice.

b. The ice melted.

(4) a. *The truck happened a car accident.

b. A car accident happened.

In the above example, both *happen* and *melt* are categorized as unaccusatives. However, *melt* has a transitive counterpart while *happen* does not. Those unaccusatives with transitive counterparts are known as alternating unaccusatives whereas those without transitive counterparts are noted as non-alternating unaccusatives. In Kellerman's study just involved the alternating unaccusative verb *break*. We would like to examine if the language learning of non-alternating unaccusatives still presents a U-shaped curve as well.

Second, typological difference might influence the learning of unaccusatives.

Chinese, as a topic-prominent language, allows a thematic patient/theme in subject slot.

(5). Wen-jian ji LE

Document send LE

“Documents were sent”

In the above example, the preverbal NP *wen-jian* ‘document’ is the topic followed by a comment *ji le* ‘sent,’ which is known as topic-comment structure. Most importantly, topic-comment structure in Chinese contains a thematic patient/theme subject with a semantic passive in active voice; similarly the structure is like English unaccusatives as below.

(6) a. The window broke

b. A problem emerged.

In the example of (6), both verbs *break* and *emerge* are referred to as unaccusatives. As we could see, both topic-comment structure and unaccusatives share the NP-V word order (i.e. an NP followed by a verb) with semantic passive in active voice. Therefore, for Chinese native speakers, it is possible that L2 Chinese learners of English might get accustomed to using NP-V word order with passive meaning in active voice. That is, topic-comment structure might facilitate the learning of unaccusatives. Thus, the typological issue of topic-comment structure is totally different from the Dutch case provided by Kellerman (1978). It is worth examining if the learning of unaccusatives still presents a U-shaped curve.

Studies also revealed that subject animacy might influence the voice form in the sentence (Croft, 1995; Ferreira, 1994). Voice form in a sentence might be determined by animacy hierarchy: human>animate>inanimate>abstract entities; human entities as

subjects are unmarked while inanimate entities as subjects are marked (Croft, 1995).

Unaccusatives usually contain inanimate subject, which might be the reason for L2

learners to use passive voice. Thus, the factor of animacy effect needs to be

considered in learning of unaccusatives.

1.2 Purpose of the Study

Based on the study by Kellerman (1978), there are some limitations that we would like to figure them out. There are three purposes in the study to fulfill the limitations by Kellerman (1978).

(1) To examine if the learning of non-alternating unaccusatives for L2 Chinese learners of English with different proficiency represent a U-shaped curve as the study presented by Kellerman (1978).

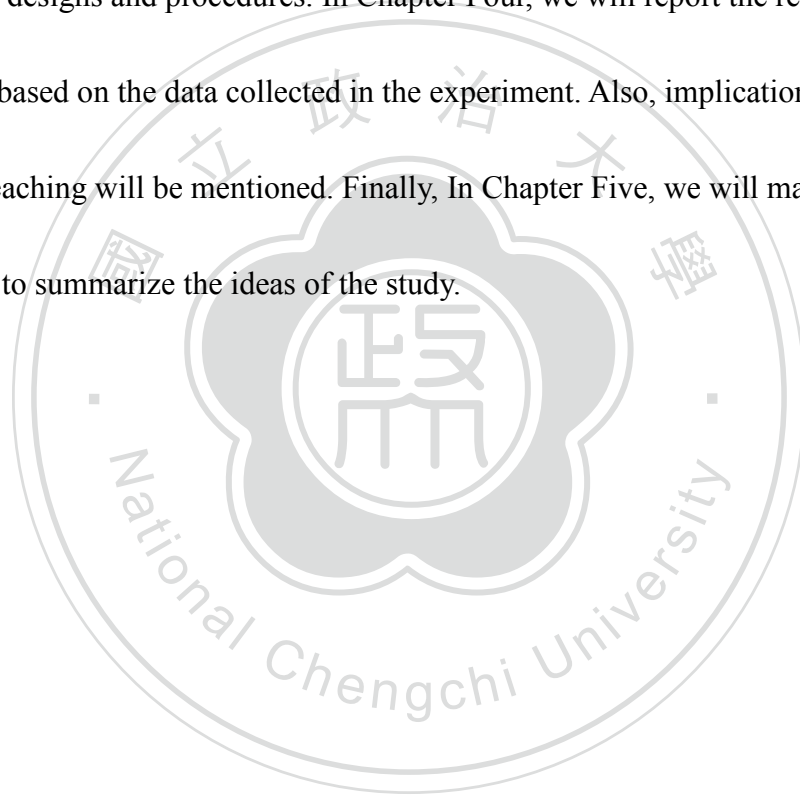
(2) To examine how is the influence of the alternating unaccusatives and passives in the U-shaped learning of non-alternating unaccusatives.

(3) To examine if the factor of animacy involves the usage of voice forms when L2 learners are using non-alternating unaccusatives.

The study would shed light on L2 Chinese speakers learning English unaccusatives. The issue would unveil the problems of the learning of unaccusatives in the hopes of facilitating the language learning. We expected that this finding could contribute to the development of L2 English learning.

1.3 Organization of the Paper

In Chapter two, unaccusatives hypothesis will be introduced first to disclosure the differences of syntactic configuration, and a discussion about alternating and non-alternating unaccusatives will also be demonstrated. U-shaped learning and previous study are also included. Chapter Three will deal with the methodology of experiment designs and procedures. In Chapter Four, we will report the results and discussion based on the data collected in the experiment. Also, implication for L2 language teaching will be mentioned. Finally, In Chapter Five, we will make a conclusion to summarize the ideas of the study.



CHAPTER TWO

LITERATURE REVIEW

There is some discussion about why alternating unaccusatives and passives behave similarly with non-alternating unaccusatives. U-shaped learning from Kellerman (1978) will be discussed. Finally we will move to the discussion of animacy effect.

2.1 The Unaccusative Hypothesis

Unaccusatives hypothesis proposed by Perlmutter (1978) and revised by Burzio (1986) claimed that intransitive verbs could be categorized into two subclasses: unergative (e.g. fly, paint, run, dance, play, etc.) and unaccusative verbs (e.g. melt, happen, appear, vanish, break, etc). Despite the fact that both belong to intransitive verbs, they share distinct properties in syntactic and semantic features. Unaccusative verbs, which usually lack of volition and associated with change of state, would take an internal NP, while unergative verbs, whose subjects usually get volition, would take an external NP, syntactic configuration schematized as follows.

(7) a. Unergative verbs: NP [_{VP} V]

b. Unaccusative verbs: _____ [_{VP} V NP] (Levin & Hovav, 1995)

In generative grammar, the above structures show that in deep structures, verbs in (7a) require an external argument without internal one and its NP is usually a

thematic agent. As for the verbs in (7b), it requires an internal argument as a role of thematic patient without external one. However, Burzio (1986) claimed that the object of unaccusative verbs does not get any case underlyingly; it must move to the subject position to get a structural case in favor of case filter. Therefore, unaccusative verbs and unergative verbs share the same subject-intransitive word order but stem from distinct syntactic configurations.

(8) a. Unaccusative: the guest_i [_{VP} arrived t_i]

b. Unergative: the boy [_{VP} jumped] (Oshita, 2001)

Apparently, both (8a) and (8b) look identical. However, the preverbal NP *the guest* goes from the internal verb phrase position and leaves a trace behind the verb *arrived* while *the boy* in (8b) originates in the preverbal position without movement. Both constructions process differently in syntactic configuration although they belong to intransitive verbs. Semantically, unaccusative verbs usually correlate with a thematic patient while unergative verbs fit with a thematic agent (Dowty, 1991), as shown in (8). Since agent always refers to human entities, while patient correlate with objects the thematic differences might lead to the voice forms differences (Croft, 1995). Yip (1990) also suggested that it is possible for L2 English learners to mark the passive morphology when an object appears in subject slot. Further, previous researchers (Yip, 1990; Zobl, 1989) claimed that learners overextend passives even if

they belong to different mother tongue, as exemplified below.

(9) a. *I do not think that such abusive action should be happened to a
twelve-year old child. (Chinese: Yip 1990)

b. *The most memorable experience of my life was happened 15 years ago.
(Arabic: Zobl, 1989)

The overuse of passivization on unaccusatives as above is known as overpassivization. This phenomenon has been evidenced in learning English as a second language by different L1 backgrounds (Balcom, 1997; Ju, 2000; Montrul, 1999; Oshita, 1998, 2001; Yip, 1990, 1995; Zobl, 1989)

2.2 The Confusion of Unaccusatives and Passives

Unaccusatives share plenty of characteristics with passives. Studies (Montrul, 1999; Oshita, 1998; Yip, 1990; Zobl, 1989) showed that L2 learners would overgeneralize passivization, even with different L1 backgrounds when acquiring passives. Zobl (1989) also claimed that as soon as L2 learners acquire passive voice, unaccusative verbs would be subsumed; passive rules become the core rule. In other words, L2 learners are prone to regard the unaccusative verbs as passive verbs. Yip (1995) further pointed out the idea that L2 Chinese learners of English considered unaccusative verbs as transitive ones when recognizing ungrammatical transitives as grammatical and rejecting the correct unaccusative verbs.

The reasons to accept ungrammatical passivized unaccusatives and reject correct unaccusatives might be the similarities between passives and unaccusatives. The similarities between unaccusative verbs and passive verbs could be listed as follows. Firstly, both unaccusatives and passives consist of one internal argument and their arguments are all moved to the subjection (Perlmutter, 1978) as shown below.

(10) a. The star [_{VP} appeared ____]

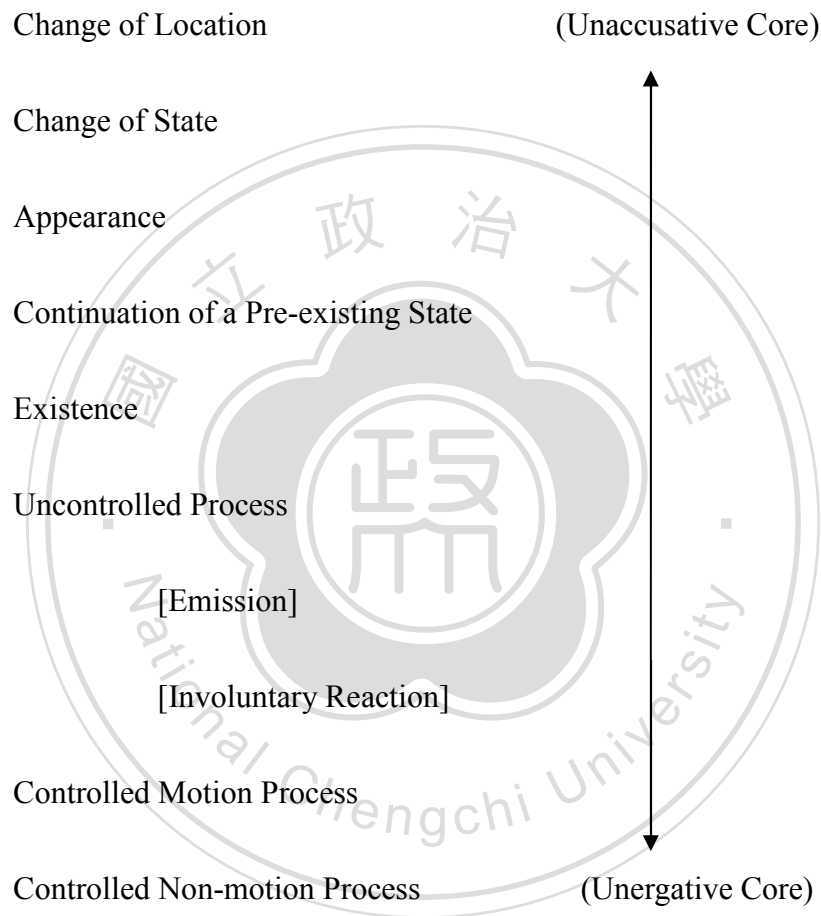
b. The house was [_{VP} painted ____]

The internal argument of the unaccusative verb in (10a) moves to the preverbal position while the internal one in (10b) goes forward to the sentence-initial position as well. In addition, the internal arguments always belong to thematic patient or theme. Thus, these similarities between unaccusatives and passives might confuse L2 learners. Secondly, both (10a) and (10b) remain agentless, in which (10a) does not need any agent in unaccusative verbs whereas the agent in (10b) was suppressed (Burzio, 1986). In contrast, some differences occurred between unaccusatives and passives. Firstly, unaccusative verbs usually lack volition such as *appear* in (10a) and are associated with change of state verbs (Perlmutter, 1978) while passive verbs carry volition, such as *paint* in (10b) associated with transitive verb taking an underlying agent with volition¹. Additionally, some researchers further came up with a hypothesis

¹ Usually passives derived from causative sentences; that is, there must be an agent cause something to happen. Therefore, underlyingly there is supposed to be an agent even though passives are agentless in the surface structures.

classifying the degrees of unaccusative verbs based on the semantic difference, which is known as Unaccusative Hierarchy Hypothesis as shown below (Sorace, 1993a, 1993b; Sorace & Shomura, 2001).

(11) The Unaccusative Hierarchy



(Sorace & Shomura, 2001)

In the hierarchy, the verbs to the core would be more unaccusative-like or ergative-like than the verbs to the peripheral (Sorace & Shomura, 2001). Most importantly, the semantic subtypes of the hierarchy from the peripheral unaccusatives to the core ones show the characteristics of non-volition, except for the unergative

core. As for passive verbs, they could be either volition or non-volition.

(12) a. We know Taipei 101 building.

b. Taipei 101 building is known to us.

(13) a. We bought some books.

b. Some books were bought by us.

In (12), *know* is the verb classified as condition of state as like unaccusative verbs, but it has transitive counterpart; therefore the verb *know* could be passivized as in (12b). However, in (13), *bought* is the verb referred to as a controlled motion verb which could be passivized as well. In other words, passive verbs allow both volition and non-volition. The trait of unaccusatives independent of volition is departed from passive verbs. Secondly, unaccusative verbs are intransitive verbs whereas passive verbs are always transitive verbs. These distinctive features between unaccusatives and passives do not keep L2 learners from making errors in unaccusatives but it seems that their similarities confuse L2 learners. However, the confusion influences the way that L2 learners view unaccusatives as passives while it was never found in the opposite way.

(14) a. Stars appeared.

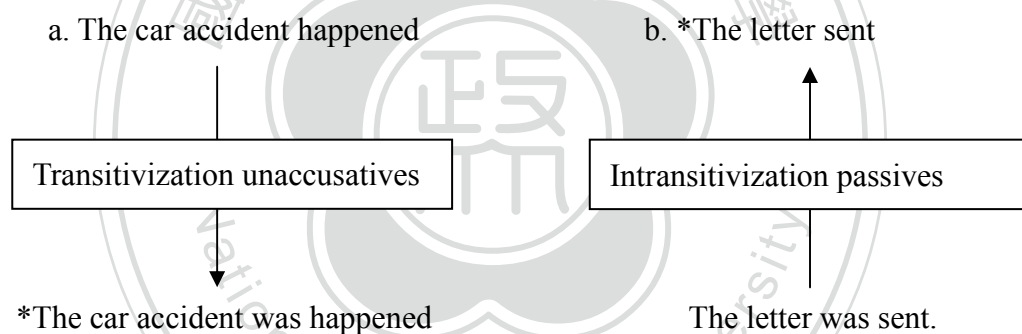
b. *Stars were appeared.

(15) a. *The fish devoured.

b. The fish was devoured.

The error of regarding unaccusatives as passives as in (14) happened in L2 speakers learning English (Balcom, 1997; Ju, 2000; Oshita, 1998, 2001; Yip, 1990, 1995; Yuan, 1999; Zobl, 1989). On the contrary, the error of incorrectly regarding passives as unaccusatives was never found as in (15). The relationship between transitivity unaccusatives and intransitivity passivization as showed below.

Figure 1: Transitivity unaccusatives and intransitivity passives



The phenomenon as above figure is widely used in L2 English at the time when L2 learners are reluctant to accept NP-V word order with respect to unaccusatives (Oshita, 2001). Zobl (1989) also supported that once L2 learners acquire passives, they would view passives as core rules and subsume unaccusatives. It seems that unaccusatives exist prior to passives for L2 learners. On the other hand, intransitivity passives are never found in L2 English. It seems that compared to unaccusatives, passives are likely to be more salient in L2 learners' mind. That might

be the reason that L2 learners of English overpassivize unaccusatives and do not intransitivize passives.

2.2.1 Alternating Unaccusative and Non-Alternating Unaccusative Verbs

Within unaccusative verbs, they could be characterized by alternating unaccusative verbs (e.g. break, melt, sink, etc.) and non-alternating unaccusative verbs (e.g. happen, appear, bloom, etc.). Alternating unaccusative verbs contain causative transitive counterparts but non-alternating unaccusative verbs do not.

Examples are as follows.

(16) a. I broke the window.

b. The window broke.

In (16a), the NP *the window* is an object of the causative-transitive verb *broke* while it is the subject of the inchoative-intransitive verb *broke* in (16b) as an NP-V order. That is, the unaccusative verbs could add a causer as an agent to become causative sentences as in (16a), or represent as the inchoative forms without the agent as in (16b). The behavior of the verb *break* in (16b) acts like the passive verbs just with the difference on passive morphology. Unlike non-alternating unaccusative verbs, alternating unaccusatives ones have nothing to do with verbs of existence or appearance. Studies showed that all unaccusative verbs are basically causative verbs (Chierchia 1989, Reinhart 1999), and later some researchers (Levin & Hovav, 1995)

assumed that alternating unaccusative verbs belong to causative verbs.

Non-alternating unaccusative verbs refer to those verbs that are unaccusatives but, in contrast, were not derived from the causative verbs. In other words, non-alternating unaccusatives do not have transitive counterparts. Often these verbs represent the characteristics of verbs of existence and appearance. The example is shown below.

- (17) a. A star appeared in the sky.
b. *The darkness appeared a star in the sky. (Levin & Hovav, 1995)

In (17a), the subject *a star* could not be in the object position of the causative sentence in (17b). Also, *the darkness* does not belong to the internal argument of the verb *appear*. Within unaccusatives, the difference with respect to the transitives or intransitives leads to the diverse result in passive voice.

- (18) a. The window was broken.
b. *A star was appeared.

Even though both *break* and *appear* belong to unaccusatives, the one, *break*, with transitive counterpart in passive voice is grammatical while the other one, *appear*, ungrammatical. For the phenomenon of passivized unaccusatives, Yip (1990) claimed that learners somehow underlyingly viewed unaccusative verbs as transitive verbs. That is, even though some syntactic configuration exists between alternating

unaccusatives and non-alternating unaccusatives, L2 English learners could not distinguish them apart. Permutter (1978) also suggested that both alternating and non-alternating unaccusatives fall into identical category for L2 English learners. Owing to the reason, L2 learners might accidentally correctly use passivized unaccusatives such as *The window was broken*, but were not reluctant to accept NP-V structures on unaccusatives such as *The window broke*. Therefore, even though alternating and non-alternating unaccusatives share similar syntactic configurations, it is possible that the processes of learning alternating and non-alternating unaccusatives might be different.

2.3 U-shaped Learning

Throughout language development, U-shaped learning plays a key role in the development of first and second language (Kellerman, 1978; Lightbown, 1983). The phenomenon not only implicates the fact the language learning is rule-based, but also is considered to be the process of language development.

2.3.1 U-shaped in Language Development

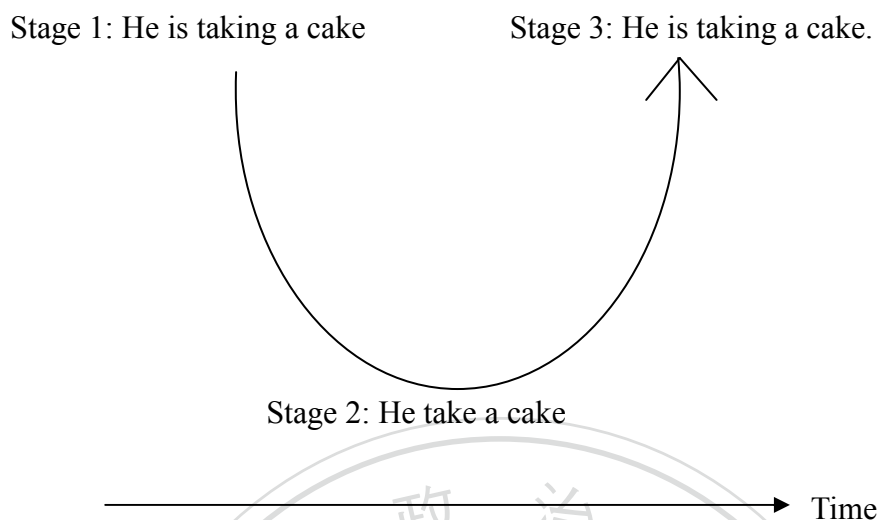
The research of sensitivity of alternating and non-alternating unaccusative verbs has been explored by Kellerman (1978). In the study, L1 Dutch subjects are divided into eight groups in accordance with different L2 English proficiency. Subjects are observed whether they would transfer L1 Dutch *Het kopje brak* as L2 English *The cup*

broke. The results in the experiment showed that the transferability rate is 100% in the group of age 14 to 17. Then the transferability rate decrease to 64% among age twenties; and finally up to 90% for the advanced group. The transferability rate is represented as a U-shaped in the language development of *break*.

The U-shaped learning with respect to *break* unveils three stages in the development, in which L2 learners accept alternating unaccusatives *break* with NP-V order at first followed by a rejection as proficiency increases; then finally L2 learners accept the structure when reaching advanced level. Similarly, the phenomenon seems to appear in early child language acquisition. Young children correctly use *went* referring to past tense of *go*. However, they incorrectly use *goed* as its past tense as linguistic competence progressed. Finally they achieve the usage *went* in the end. The phenomenon has been evidenced that U-shaped learning such as children's learning with respect to *go* plays a part through language development.

The appearance of U-shaped development could also be observed in SLA. Three groups of L1 French with different proficiency learning English were examined in their use of English progressive tense – *ing* (Lightbown, 1983). The performances of correctness concerning the use of *-ing* are as follows.

Figure 2: The use of *-ing* in U-shaped learning



Learners at first use progressive tense *-ing* both in simple and progressive tense. As they acquire simple tense, they overgeneralize simple tense and made errors on progressive forms. Finally, once learners could correctly use progressive, they could also use simple tense in correct contexts. Both U-shaped learning in first and second language study showed the sequences of language learning. It is believed that U-shaped learning is a key role in learning of language development.

2.3.2 Previous Study on U-shaped Learning

Unaccusative Trap Hypothesis refers to the fact there are three stages as L2 learners acquiring unaccusatives (Oshita, 1998, 2001). At the first stage, unaccusatives are misanalyzed as unergatives, and learners paradoxically correctly use NP-V order on unaccusatives. At the second stage, learners are reluctant to accept NP-V order on unaccusatives but substitute passive voice for unaccusatives. At final

stage, learners achieve the use of unaccusatives. This hypothesis predicts the U-shaped learning in the acquisition of English *break* by L2 Dutch (Kellerman, 1978, 1979) and the learning of progressive tense *-ing* (Lightbown, 1983).

Within the U-shaped learning, study (Kellerman, 1978, 1979) evidenced that Dutch speakers in a certain level of L2 English reject the transferability of NP-V order in the alternating unaccusative verb *break*. Additionally, the reluctance of NP-V word order in alternating unaccusatives is as strong as that in non-alternating unaccusatives to the Italians and Japanese subjects (Oshita, 1998). Zobl (1989) also provided that unaccusatives would be subsumed under passives. Therefore, it is possible that non-alternating unaccusatives are prior to passives and there would be overpassivization on non-alternating unaccusatives in a certain time as the predication by Unaccusative Trap Hypothesis. Therefore, we hypothesize that there might be a U-shaped curve in learning of non-alternating unaccusatives for L1 Chinese learning English.

2.4 Typology Issue

There are typological differences in languages: a subject-prominent language and a topic-prominent language. In Kellerman (1978), the study of U-shaped curve in learning of alternating unaccusatives *break* is conducted by L1 Dutch, which is a subject-prominent language. Research concerning early topic-prominent language in

L1 has been evidenced to come into the effect on L2 (Givón, 1995; Rutherford, 1989; Sasaki, 1990; Schachter, 1979). The characteristics of topic-prominent language in Chinese in learning of unaccusatives need to be illustrated.

2.4.1 Chinese Topic-comment Structure

Languages can be characterized by subject-prominent languages (SP) and topic-prominent language (TP) based on sentence information role, subject-predicate or topic-comment structure (Li & Thompson, 1976). Chinese is referred to as a topic-prominent language (Li & Thompson, 1976, 1981). Studies have shown that Chinese L1 topic-comment structures influence L2 English learning, as exemplified below.

(19) a. Irrational emotions are bad but rational emotions/ must use for judging.

Topic / Comment

(Schachter, 1979)

b. ...and there is a mountain/ separate two lakes.

Topic / Comment

(Schachter & Celece-Murcia, 1971)

c. To do this/ must have patience.

(Zhang, 1987)

Topic / Comment

d. China people/ live conditions very poor. (Green, 1996)

Topic / Comment

According to above sentences, Chinese speakers may transfer their L1 topic-comment structures to L2 English. In addition, a topic of a sentence is usually the object of the sentence.

(20) a. Wo you zhe-ben shu

I own this-CL book

'I own this book.'

b. Zhe-ben shu, wo you

This-CL book, I own

'This book, I own.'

The NP *Zhe-ben shu* in (20a) is an object, but it moves to the sentence-initial position in (20b) as a topic, by which the process is known as topicalization. Studies agreed that the NP *zhe-ben shu* in (20b) is regarded as a patient since it exists in a marked position instead of a usual object position (Huang, 1982; Shyu, 1995). Most importantly, the NP *zhe-ben shu* in (20b) holds an active voice. That is, topic-comment structure is an NP-V word order in Chinese in active voice.

2.4.1.1 Topic-comment Structure on L2 English Passives

Topic-comment structure in Chinese in active voice might turn out to be passive

voice in English.

(21) Fangzi zao hao LE

House build finish PFV

‘The house, (someone) has finished building it/ The house has been finished building.’

(Li & Thompson, 1976, 1981)

The above example is a topic-comment structure in Chinese. When it translates into English, there must be a null pronoun insertion or a passive voice. Therefore, for these sentences, there will be a translation mismatch in voice forms between Chinese and English (Li & Thompson, 1981). The reason for the mismatch might be that passive voice in Chinese could exist without passive morphology². Additionally, according to Yip (1995), L2 learners tend to passivize unaccusatives as soon as an object is in the subject position.

2.4.1.2 Topic-comment Structure on L2 English Unaccusatives

On the other hand, topic-comment structure with NP-V word order in active voice in Chinese is similar to the structure of unaccusatives. As we mentioned before, the internal argument of unaccusatives would move to the subject position as a patient or theme (Dowty, 1991; Perlmutter, 1978). In the way, both topic-comment structure

² Chinese passive morphology *Bei* not necessarily appeared in the passive meaning. That is, it is plausible that a sentence contains passive meaning without passive morphology *Bei*.

in Chinese and unaccusatives might share the same NP-V word order in active voice.

The example of topic-comment structure in Chinese in active voice is as follows.

(22) a. Che-huo fa-sheng LE

Car accident happen LE

‘A car accident happened.’

In (22), 車禍發生了 “che huo fa sheng le” is a topic-comment structure in active voice in Chinese. Interestingly, its English equivalent is *A car accident happened*, which is also an active voice like Chinese. In sum, topic-comment structures might somehow facilitate the learning of English passives due to the patient/theme in the subject position or might help the learning of unaccusatives because both topic-comment structure and unaccusatives share the same NP-V word order in active voice.

2.5 Two Hypotheses on Unaccusatives: Transitivity Hypothesis and Postverbal NP Movement Hypothesis

According to Yip (1990), L2 learners tend to passivize unaccusatives since they view unaccusatives as underlyingly transitives. It appears to be reasonable that learners correctly use passive voice on alternating unaccusatives but incorrectly overextend passivization on non-alternating unaccusatives.

(23) a. Someone broke the window.

b. The window was broken. (Kellerman, 1978)

(24) a. *A truck happened a car accident.

b. *A car accident was happened.

Learners might group alternating and non-alternating unaccusatives as transitive verbs, so (23b) and (24b) would be observed through learning of unaccusatives.

Although the hypothesis could explain the phenomenon as in (22) and (23), it may not refer to the fact that overpassivization results from transitivization unaccusatives (Ju, 2000).

The other hypothesis argued that overpassivization results from the postverbal NP movement (Zobl, 1989). There is a lexical rule of unaccusatives in the D-structure.

(25) [__ [V NP]] (i.e. [__ [sink the ship]]) (Ju, 2000)

Zobl presented that L1 Japanese learners learning English would produce *I was just patient until dried my clothes* instead of *I was just patient until my clothes had dried*. He suggested that there would be a NP movement happened between

D-structure and S-structure. However, Oshita (1998) argued that the phenomenon of postverbal NP movement with respect to unaccusatives could be observed in L1

Italian and Spanish, rarely in L1 Japanese and Korean speakers.

2.6 Animacy Effect on Argument

Previous studies showed that the argument of a sentence is highly associated

with the argument-predicate structure (Croft, 1995). The animacy hierarchy: human> animate> inanimate> abstract entities involve the choice of the predicate in a sentence. In the hierarchy, the most marked form would be inanimate or abstract entities such as patient or theme in the subject position as unaccusatives; the least marked form would be human entities. That is, animacy might influence the voice forms of the sentence. Animacy effects also have been evidenced to influence the real-time processing in RCs (Relative Clauses) for Chinese speakers learning English (Branigan, Pickering, & Tanaka, 2008). In order to test the animacy effect in relative structures in SRC (subject-extracted relative clauses), the animacy of internal RC head (subject) and the animacy of internal RC object are manipulated. There are four conditions in the test of real-time processing in SRC structures.

(26) a. **Inanimate RC-Object/Animate Head**

ti raokai damen de jizhei qiaoqiaode liule jinqu
 bypass gate DE reporter quietly slip-ASP inside

‘The reporter that _____ bypassed the gate slipped in quietly.’

b. **Animate RC-Object/Animate Head**

ti raokai baoan de jizhei qiaoqiaode liule jinqu
 bypass guard DE reporter quietly slip-ASP inside

‘The reporter that _____ bypassed the guard slipped in quietly.’

c. Animate RC-Object/Inanimate Head

ti zazhong baoan de jidani nianhude liule yidi

smash-into guard DE egg stickily splash-ASP ground

‘The egg that _____ smashed into the guard splashed the ground stickily.’

d. Inanimate RC-Object/Inanimate Head

ti zazhong damen de jidani nianhude liule yidi

smash-into gate DE egg stickily splash-ASP ground

‘The egg that _____ smashed into the gate splashed the ground stickily.’

(Branigan et al., 2008)

In the SRC structures, the results showed that sentence (26a) processes faster than sentence (26d) while sentence (26b) is faster than sentence (26c). That is, the real-time processing is faster when the subject is animate than when the subject is inanimate. On the other hand, in ORC (object-extracted relative clauses) structures, again animacy of RC subject and RC object (head) create four conditions. The results revealed that real-time processing would process faster when subject is inanimate than when subject is animate in ORC structures, as exemplified below.

(27) a. Animate RC-Subject/Inanimate Head

jizhe raokai ti de dameni lingluande tiezhe guanggao

reporter bypass DE gate messily post-ASP advertisement

‘The gate that the reporter bypassed _____ had flyers messily posted on it.’

[Note: In the sentence is not a passive construction.]

b. Animate RC-Subject/Animate Head

jizhe raokai ti de baoani shengqide huangu sizhou

reporter bypass DE guard angrily look-about surroundings

‘The guard that the reporter bypassed _____ looked about his

surroundings angrily.’

c. Inanimate RC-Object/Animate Head

jidan zazhong ti de baoanoi shengqide huangu sizhou

egg smash into DE guard angrily look-about surroundings

‘The guard that the egg smashed into _____ looked about his

surroundings angrily.’

d. Inanimate RC-Subject/Inanimate Head

jidan zazhong ti de dameni lingluande tiezhe guanggao

egg smash into DE gate messily post-ASP advertisemen

‘The gate that the egg smashed into _____ had flyers messily posted on

it’

Additionally, study showed that animacy effect might influence the choice of passive voice (Ferreira, 1994). In her study, participants were given two nouns (i.e.

either animate or inanimate, or both animate nouns) and a verb. The results indicated that when a direct animate argument follows a verb, participants tend to use passives; in contrast, when a verb requires an inanimate argument, participants would use active voice. Also, there is no preference was found when both arguments belong to animate arguments. Therefore, animacy effects might be the factor that would distract the use of unaccusatives for Chinese learners.

(28) a. A monster appeared.

b. *A star was appeared.

According to Ferreira, the determination of passive voice is not completely based on the verb *appear*, but on the animacy differences in subjects. In this account, (25b) is highly possible to be passive for L2 speakers learning unaccusatives. Accordingly, the phenomenon of overpassivization should take animacy subjects into account.

2.7 Research Questions

Since the phenomenon of U-shaped learning has occurred in first and second language, it appears to be the necessary procedure in language learning. Kellerman (1978, 1979) showed that the transferability of transitive and intransitive meaning of alternating unaccusatives represented a U-shaped curve. However, Kellerman's study just emphasizes the verb *break*; other non-alternating unaccusatives were not concerned. Also, the fact that the successful transfer from L1 Dutch to L2 in the group

of low proficiency seems to imply that unaccusatives is prior to passives. Research supported that L2 learners would subsume unaccusatives under passives (Zobl, 1989). Moreover, the interactions of alternating unaccusatives and passives would also be examined through different stages. Additionally, the impact of animacy would be concerned in our study. Therefore, we aim to provide a diachronic perspective discussing the interactions of passives, alternating unaccusatives with respect to learning of non-alternating unaccusatives. The research questions in the study would be stated as follows.

1. Does the learning of non-alternating unaccusatives by L2 Chinese learners of English represent a U-shaped curve as the study presented by Kellerman (1978)?
2. How are the influences of the alternating unaccusatives and passives on the learning of non-alternating unaccusatives?
3. Does the factor of animacy influence the learning of non-alternating unaccusatives?

CHAPTER THREE

METHOD

In this chapter, I will present the design of the experiment about the understanding of alternating unaccusatives, non-alternating unaccusatives, and passives. In section one, the background of the subjects will be presented. In section two, the given materials will be introduced. In section three, the procedure will include pilot study and formal testing. In section four, data analysis will be illustrated.

3.1 Subjects

123 subjects participated in the group. They were divided into four groups, low, low-intermediate, intermediate, high-intermediate according to how long they had studied English. The group in low proficiency does not participate in grammaticality judgment task (henceforth GJ) because they had not learned passives, and they are unable to identify the answer between unaccusative verbs and passive verb in the GJ test. All groups took part in the Chinese to English translation task (henceforth CET).

Backgrounds of these groups are displayed as follows. The groups of low, low-intermediate, intermediate, and high-intermediate had studied English for 8, 10, 11, and more than 12 years, respectively. Except for low proficient group, the other groups had learned passives in school.

Subjects were told to feel free if they had any questions about doing the

questionnaire. All subjects finish the experiment without any time limit. 6 subjects were discarded because too many items were not answered in their test sheet, just 117 reliable subjects in total involving the study.

3.2 Materials

Cross-sectional quantitative methods are adopted in the study. The study was designed to elicit the subjects' response to English to test the understanding of non-alternating unaccusatives interaction with alternating unaccusatives, passives, and subject animacy. There are two tasks in the study, GJ and CET. GJ aims to investigate their understanding of alternating, non-alternating unaccusatives, and passives while CET is used to test the use of non-alternating unaccusatives by observing the voice forms differences from Chinese to English. Also, the variance of subjects with animacy is concerned in the task.

3.2.1 GJ Task

There are 24 sentences in total in the task made up of three types of verbs, 8 for alternating unaccusative verbs, 8 for non-alternating unaccusative verbs, and 8 for passive verbs in English. Each given sentence consists of active voice and passive voice. The different voice forms of the verbs in every sentence are underlined for subjects to check. If subjects judge the sentence grammatical then they mark the answer with a circle ○, and leave no mark if the sentence is ungrammatical. Also, each

verb will be assigned with animate and inanimate subject in order to test animacy effect.

(29) The house (remained/was remained) cool.

(30) He (remained/was remained) cool.

The subjects of (29) and (30) are inanimate and animate respectively. Thus, the animacy of four alternating unaccusatives creates 8 sentences and the animacy of four non-alternating unaccusatives creates 8 sentences as well. On the other hand, 8 passive verbs create 8 sentences, 4 for animate subjects and 4 for inanimate subjects. The verbs of alternating and non-alternating unaccusatives, and passives used in the GJ task are displayed in the following table.

Table 1: Verbs of alternating and non-alternating unaccusatives, and passives in GJ task

Number	Alternating Unaccusatives	Non-alternating Unaccusatives	Passives
1	Sink	Remain	Invent
2	Melt	Appear	Clean
3	Break	Vanish	Buy
4	Roll	Emerge	Book
5			Discover
6			Tease
7			Remind
8			Attract
Total	4	4	8

The different numbers between unaccusatives and passives are because passive verbs usually do not occur in a sentence with animate/inanimate subject. For example,

it is inappropriate to arrange an inanimate subject in the passive verb *tease* since the verb usually collocates with an animate subject. Likewise, put an inanimate subject to the verb *attract* is inappropriate as well. In addition, arranging the animacies of the subjects to a single passive verb might not represent participants' knowledge on passives. The following table is the example of the verb *buy* collocating with an animate subject.

Table 2: The example of animate subject collocating with active/passive voices

He (bought/was bought)

For example, as the above table shows, if participants choose active voice in the verb *buy* collocating with an animate subject *He* (i.e. in the case participants consider *He bought* correct), it is not because they know or they do not know how to use passives, but because they know the intransitive usage of the verb *buy*. On the other hand, the reason for giving up *He was bought* might be because the semantic meaning of the sentence is against common sense. Therefore, for passive verbs, we arrange 8 different passive verbs in the task.

Among these three kinds of verbs, all tested items are randomly distributed, which can prevent participants find the patterns of the verbs.

3.2.2 CET Task

There are sixteen Chinese topic-comment structure sentences with active voice

displayed in the CET task, in which subjects were asked to translate into English.

Besides, since the test aims to test the use of non-alternating unaccusatives, half of the sentences are non-alternating unaccusatives while the others are passive verbs.

Therefore, eight of sentences should be presented with active voice whereas, eight with passive voice. Animate and inanimate subjects are assigned to each unaccusative verb and passive verb in order to test animacy effect, examples shown as follows.

Table3: The sample of CET

1. 車禍發生了。_____
4. 那位失蹤的小孩找到了。_____
5. 爸爸抵達(arrive)機場了。_____
11. 餐廳預約了。_____

In the Table3, both item 1 and 11 and both 4 and 5 are inanimate and animate subjects respectively. Item 1 and 5 should be translated in active voice in English while item 4 and 11, passives. In item 5, the hint *arrive* is provided so that subjects would not substitute *arrive* with *reach* or *get to*, which do not belong to unaccusatives.

Table4: The numbers and distribution of test items in GJ and CET tasks

	Alternating Unacc.		Non-alternating Unacc.		Passive Verbs		Total
	Animate	Inanimate	Animate	Inanimate	Animate	Inanimate	
GJ	4	4	4	4	4	4	24
CET			4	4	4	4	16

Considering that subjects might involve the problem of unknown vocabulary words, they are provided with unknown vocabulary list in order to exclude vocabulary

factor. Subjects could look up the words they were not familiar with from the list when they were doing tasks. The list is shown as follows.

Table 5. The unknown vocabulary words list

車禍	Car accident	出現	Appear/Emerge
發生	Happen	彈起來	Bounce
衣服	Clothes	抵達	Arrive
乾	Dry	機場	Airport
修理	Repair	通過	Pass
信	Letter	戲弄	Tease
失蹤的	Lost	買通	Bribe
動	Move	文件	Document
青蛙	Frog	主考官	Examiner
掉下來	Fall	找到	Find
預約	Reserve	節紮	Neuter
扔掉	Throw away	中毒	Poison
升起來	Rise	消失	Vanish

All the tested verbs and animate/inanimate subjects in GJ and CET are randomized in the test sheet in order to exclude the counter balanced effects. For the groups of different proficiency, each group is represented by a letter: Group A for low proficiency learners, Group B for low-intermediate learners, Group C for intermediate learners, and Group D for high-intermediate learners.

3.3 Procedures

3.3.1 Pilot Study

Pilot study covers the verbs identification and the use of non-alternaing unaccusatives. 68 subjects were tested in the pilot study in order to examine the

interaction of alternating unaccusatives, non-alternating unaccusatives, passives, and animacy. They had studied English about 10 years. Their PR³ in the entrance exam is at 70 indicating that the proficiency of the participants is better than that of 70% students.

The result showed that L2 English learners would overpassivize unaccusatives and the factor of subject animacy would influence the determination of voice forms. Thus, it was confirmed that passives and animacy do influence the learning of non-alternating unaccusatives.

Some problematic designs are found in the experiment. In CET, subjects might not use the non-alternating unaccusative verb as we expected, but alternatively use other nontarget words, exemplified as follows.

Table 6: Examples of non-target words in the study

包伯叔叔到了	Uncle Bob is here.
這隻螞蟻死了	The ant was dead.

In order to avoid the choice of alternative words, it is necessary that the assigned verb will be provided as a hint behind Chinese verb. The example is as follows.

Table 7: The verb *arrive* is assigned to be used

爸爸抵達(arrive)機場了	Father arrived at the airport.
-----------------	--------------------------------

Besides, subjects could involve the difficulty of unknown vocabulary. If

³ PR is the abbreviation of Percentile Rank, which represents the percentage of a score in total frequency.

participants still have any problems on vocabulary that wordlist does not provide, they were allowed to ask questions any time.

3.3.2 Formal Testing

All problematic items in the pilot study had been replaced. Before the start of the task, the directions to the test were illustrated and an example was displayed by the tester. The test began after the confirmation of participants' understanding about the test. Besides, participants were told to ask any question any time if they had any difficulty during the experiment.

Both of the tasks were conducted in the classroom. Participants were reminded to do the experiment as carefully as they could in order to assure the experiment of variability and reliability of the experiment.

3.4 Data analysis

Here is some of the policy on how to calculate the collected raw data. The directions of scoring will be demonstrated in this section.

In GJ, three possible answers, active voice, passive voice, and both are marked by numbers 1, 0, and 2, respectively. The number, 3, represents the case that participants do not choose any answers, which are regarded as discarded item. They would not be calculated in the study. In CET task, two possible answers, actives and passives, are marked by number 1 and 0. The number 3 was reserved for those

discarded items. The examples of discarded items are listed as follows.

Table 8: The examples of discarded items from participants' response

Test item	Participants' response
車禍發生了	There was a car accident happened/Car accident happening
這位先生中毒了	He get the poison
這隻貓咪動了	The cat started to move
餐廳預約了	I have been reserved the restaurant/I reserve the restaurant/ Reserve to (without subjects)
車禍發生了	It just happened a car accident
那份文件扔掉了	Throw away the document
這台腳踏車修好了	This bike is finish to repair

The standard of whether or not to abandon data is based on the argument-predicate structure. Even though the voice form of the main verb *happen* in the predicate is correctly used as in *It just happened a car accident*, the participant otherwise regards the verb *happen* as a transitive verb. It will be contradictory if the verb use *happen* is thought of as correctness on the usage of non-alternating unaccusatives. Besides, the data with incorrectly or alternatively using verbs such as *He get the poison*, *The cat started to move* and *This bike is finish to repair* would also be discarded since the main verbs are not what we concerned. Moreover, There-be sentence pattern such as *There was a car accident happened* would be discarded because this is not a canonical sentence word order in English.

Although the voice forms in the main verb is what we concerned, the argument of a sentence is also the factor in establishing the voice forms differences (Croft,

1995). L2 learners are likely to use passive voice when an object appears in the subject position (Yip, 1995). Thus, those imperative sentences such as *Throw away the document* and the agent insertion as in *I have been reserved the restaurant* and *I reserve the restaurant* would be discarded. Undoubtedly, fragment sentences such as *Reserve to* are viewed as discards. Those discards would not be analyzed in the study.

For the level of low-intermediate proficiency, a great deal of double verbs appears in L2 learners' production such as *The lost kid was find* and *The man is poison*. In the case, the criteria of identifying active or passive voice to L2 learners with respect to double verbs is based on the occurrence of passive tense — copular verb with past participle. In other words, if participants could use the passive voice in any other item such as *A car accident was happened* in his or her test sheet, they would be regarded to be able to use passives since they could use “be V-ed.” Therefore, their production in any other item in the sheet such as *The lost kid was find* and *The man is poison* would not be regarded as passive voice. In the data, many participants could use *Car accident was happened* in the sentence 車禍發生了 “che huo fa sheng le” or *Examine⁴ had been bribed, you can pass exam* in the sentence 主考官被買通了，你一定可以通過考試 “zhu kao guan bei mai tong le, ni yi ding ke yi tong guo kao shi.” Once these kinds of sentences were found in the data, double verbs in the

⁴ Obviously, the word *examine* here is a typo. Participant just substitutes *examine* for *examiner*. This kind of mistake would be regarded as typo and will not be calculated in the analysis.

test sheet would be regarded as active voice; otherwise doubles would be thought of as passives.



CHAPTER FOUR

RESULTS AND DISCUSSION

The chapter aims to present the results conducted in chapter three and discuss the findings of the research questions. There are three parts according to the research questions in the following sections: (a) the U-shaped curve in learning of non-alternating unaccusatives, (b) the influences of alternating unaccusatives and passives in the U-shaped learning of non-alternating unaccusatives, and (c) animacy effect on learning of non-alternating unaccusatives.

4.1 The Results and Discussion of U-shaped Curve in Learning of

Non-alternating Unaccusatives

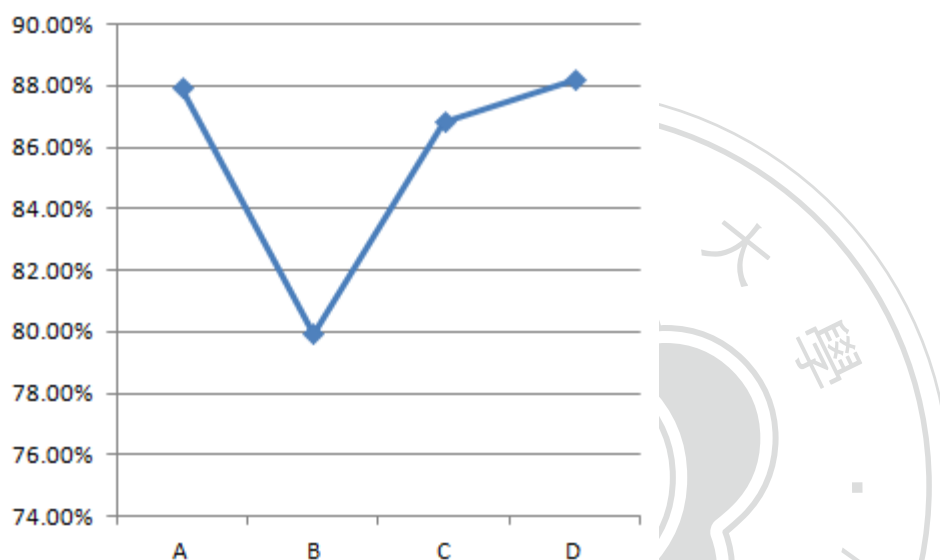
4.1.1 Results

The study of U-shaped curve of non-alternating unaccusatives is tested in CET. The test involves four groups, in which low proficiency group had not learned passive voice while the other groups had. Unaccusative Trap Hypothesis suggests that overpassivization on unaccusatives occurred in the second stage when L2 learners had learned passives while no overuse passivization happened in the first stage (Oshita, 1998, 2001). Research also supported that the use of unaccusatives would be subsumed after learners acquired passive voice (Zobl, 1989). Participants' performances on the use of non-alternating unaccusatives are presented as follows.

Table 9: The correct rate of non-alternating unaccusatives

Groups	Proficiency	Correctness on nn-alternating unaccusatives (%)
A	Low	87.91
B	Low-intermediate	79.92
C	Intermediate	86.80
D	High-intermediate	88.19

Figure 3: The correct rate of non-alternating unaccusatives from Chinese to English



In Table 7, the correct rate for Group A is 87.91%, which is nearly as high as Group D, 88.19%. There is an abrupt descend from Group A to B, reaching 79.92%, followed by a sharp increase to 86.80% for Group C. The curve represented in the Figure 3 has a “steep cliff” in learning of non-alternating unaccusatives. Although it is more like a V-shaped curve, the trend of the curve is as expected.

The experiment has conducted on 4 groups, group differences for independent variable, participants’ scores for dependant variable. After the collected data were decoded, the data were submitted to the one-way ANOVA on SPSS software. The analysis showed no significant difference in the use of non-alternating unaccusatives

among groups, $F(3, 113) = 1.931$, $p > .05$, $p = .129$. However, as we looked into the analysis between two groups in post hoc. The analysis revealed a statistically significant difference between Group A and Group B, and marginally significance between Group B and Group C. There exists a huge drop between Group A and Group B. The possible reasons for the gap of performances might be supposed to overpassivization and the phenomenon of subsuming unaccusatives. Nevertheless, overall it appears to be no differences with respect to the understanding of language development of non-alternating unaccusatives. Additionally, Levene's test for equality of variance between groups is not significant, that is, the numbers of sample differences between groups will not influence the result. The result does not reject the first hypothesis: it will be a U-shaped curve in learning of non-alternating unaccusatives. Moreover, the result evidences the fact that unaccusatives seem to be subsumed as learners acquired passive voice (Zobl, 1989) and matches the three stages of Unaccusative Trap Hypothesis in learning of unaccusatives (Oshita, 1998, 2001).

4.1.2 Discussion

The findings showed that L2 Chinese learners do overpassivize non-alternating unaccusatives in certain point of language development. The phenomenon occurred in the time when L2 learners acquired the passives, as the result displayed in Group B.

After L2 learners acquire passives, they seem to be more willing to use passive voice and were reluctant to accept NP-V order. It seems that the use of unaccusatives is subsumed and substituted for passives once an object appeared in the subject position (Yip, 1995).

4.1.2.1 Salience in Language and Reluctance in NP-V Word Order

The phenomenon of overpassivization might result from two reasons: the salience of passives and reluctance in NP-V word order. In the viewpoint of salience, study showed that the frequency of L2 structure could be the reason for being salient (Bardovi-Harlig, 1987). In the study, the construction of preposition stranding (marked form) and the construction of preposition piped piping (unmarked form) were examined by L2 learners of English as a second language. The results showed that preposition stranding (marked form) is acquired before preposition piped piping (unmarked form), which is opposed to markedness hypothesis: unmarked forms are acquired before marked forms. The study suggested that a factor of facilitating language learning is salience. According to Bardovi-Harlig, salience is defined as the frequency in the target language. That is, the higher frequency the structures are, the more salient they are. In the way, language learning would be facilitated through greater input of high frequency. Likewise, we defined salience as the availability of input as Bardovi-Harlig. Even though unaccusatives are commonly distributed in the

world (unmarked form) and the structures of passives are not so common in the world (marked form), the structures of unaccusatives are less seen than that of passives in L2 learning English. In other words, passives have much more input than unaccusatives in English. According to (Bardovi-Harlig, 1987), greater input leads to the learning of passives with ease and learning of unaccusatives with difficulty even though unaccusatives belong to unmarked and passives are marked. Another viewpoint comes from “Novelty effects”: the structure in L2 is quite different from L1, and this effect would facilitate language learning (Kleinmann, 1977). “Novelty effects” happened in different languages. In our study, the use of non-alternating unaccusatives with NP-V order with patient subject in English is quite similar to Chinese structure.

(31) Bi mai LE

Pens buy LE

‘Pens are bought’

Since Chinese is a topic-comment structure, a number of NP-V word order with a patient/theme subject could be observed in Chinese. Therefore, unaccusatives with NP-V word order are not such “novelty” to L2 learners. However, the elements of passives in English, such as copular verb followed by a participle, are never seen in Chinese. Consequently, based on the assumption of Kleinmann (1977), passives would be more salient than non-alternating unaccusatives in L2 English.

Additionally, the reluctance of accepting unaccusatives with NP-V order is evidenced (Kellerman, 1978; Oshita, 1998; Yip, 1995). Therefore, once the fact that passives are more salient than non-alternating unaccusatives and L2 learners are reluctant to accept NP-V order with unaccusatives, it is plausible that L2 learners of English overuse passivization on unaccusatives.

4.1.2.2 Transitivity in Non-alternating Unaccusatives

The U-shaped curve in learning of non-alternating unaccusatives illustrated that non-alternating unaccusatives could be correctly used for low proficiency learners. The phenomenon seems to reveal that there is a successful transfer from L1 NP-V word order to L2 unaccusatives. The determination of cross-language transfer appears to result from language distance (Kellerman, 1978). In his study, language distance involves language-neutral and language-specific items⁵. Language-neutral items are believed to be common across languages whereas language-specific ones are considered more unique in his or her language, such as idioms, phonology structure of language, and slang expressions. Kellerman further demonstrated that language-neutral items are more likely to be transferred than language-specific ones in second language acquisition. Therefore, the successful transfer of NP-V word order in the use of non-alternating unaccusatives from L1 Chinese into L2 English might be

⁵ In Kellerman's study, language-neutral items also refer to the more core meanings of lexical items while language-specific ones are associated with more peripheral non-core meanings.

because non-alternating unaccusatives belong to language-neutral items. However, as proficiency increases, the transferability is decreasing.

What is of interest in the study is that participants transitivize non-alternating unaccusatives. The example of tested items is as follows.

Table 10: The example of transitivizing unaccusatives in CET

爸爸抵達機場了	Father arrived airport
---------	------------------------

The phenomenon of regarding *arrive* as a transitive verb even happened in high-intermediate learners. There are two possible reasons for the phenomenon. First, perhaps it might be the successful transferability from L1 to L2 as mentioned before. The semantic meaning of *arrive* is like a language-neutral item since the meaning of *arrive* is believed in many languages. According to Kellerman (1987), L2 learners therefore might tend to map the L1 language habit (*arrive* 抵達 “di-da” as a transitive verb in Chinese) into L2 language. Second, transitivizing unaccusatives might reveal that L2 learners underlyingly view unaccusatives as transitive verbs. Previous study showed that the reason for overpassivization with respect to unaccusatives is because learners thought of unaccusatives as transitive verbs (Yip, 1990, 1995). Yip (1990) cited from L1 literature from Bowerman (1983) and L2 adult learners from Ruthford (1987) to support transitivization hypothesis.

(32) *He disappeared himself. (L1)

(33) *Do you want to see us disappear our heads? (L1)

(34) *The shortage of fuels occurred the need for economical engine. (L2)

(35) *This construction will progress my country. (L2)

Likewise, the production *Father arrived airport* by L2 learners of English seems to support Yip's hypothesis. Nevertheless, the argument of transitivization hypothesis might not be so strong unless the production *Airport was arrived by Father* is also found in L2 learners' production since transitives could be always passivized.

4.2 The Influences of Alternating Unaccusatives and Passives with Respect to Learning of Non-alternating Unaccusatives.

4.2.1 Results

Interactions to non-alternating unaccusatives would be illustrated below. Only three groups, low-intermediate, intermediate, high-intermediate, participated in the task since low proficiency learners had not learned passives; it would be not convincing on validity to have them choose answers from active/passive voices in GJ task. Again, there are three kinds of verbs tested in the task, alternating unaccusatives, non-alternating unaccusaives, and passives. The correct rate of each verb is shown as follows.

Table 11: Correct rate of unacusatives and passives with different proficiency.

Proficiency	Correct Rate(%)		
	Passive Verbs	Non-alternating Unacc.	Alternating Unacc.
Low-intermediate	68.56%	41.28%	7.57%
Intermediate	76.38%	67.01%	15.27%
High-intermediate	90.97%	81.25%	7.63%

From the table 9, the correct rate of passives begins at 68.56% while the correct rate of non-alternating unaccusatives and alternating unaccusatives starts at 41.28% and 7.57%, respectively. Compared to passives, low-intermediate learners seem to have difficulty on alternating and non-alternating unaccusatives. As proficiency level increases, the growing scale of non-alternating unaccusatives seems to be more obvious than that of passives. It seems that the difficulty of the use of non-alternating unaccusatives was overcome soon.

The above table revealed that the correct rate on alternating unaccusatives in the intermediate group is about two times better than the groups of low-intermediate and high-intermediate. The difference of correct rate on alternating unaccusatives among groups of low-intermediate, intermediate, and high-intermediate seems huge. We put the data of the correct rate on alternating unaccusatives in the calculation in ANOVA on SPSS.

Table 12: The analysis of correct rate of alternating unaccusatives in different groups

受試者間效應項的檢定

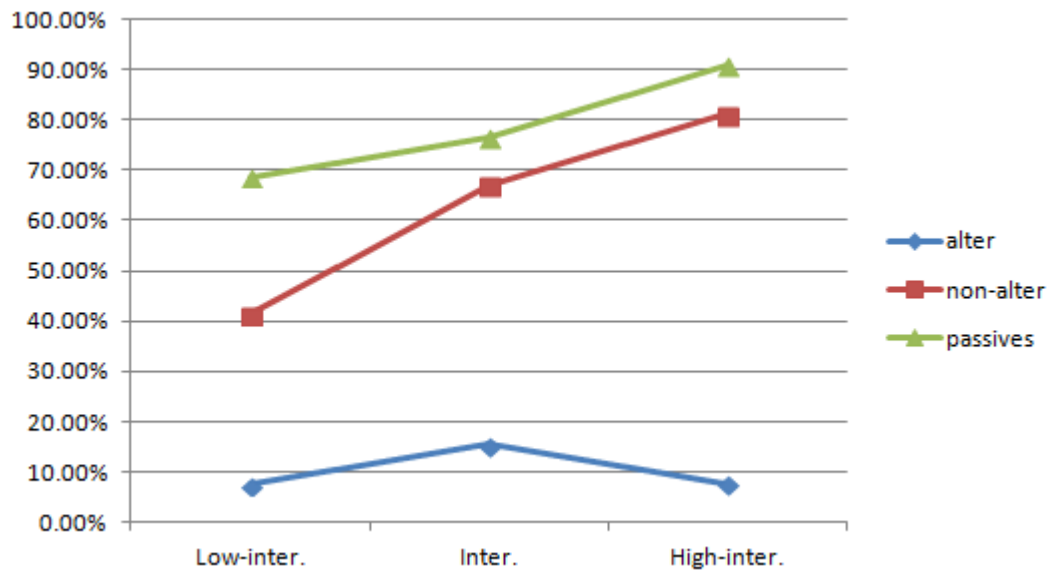
依變數: Scores

來源	型 III 平方和	自由度	平均平方和	F 檢定	顯著性
校正後的模式	7.966 ^a	2	3.983	3.145	.048
截距	52.366	1	52.366	41.350	.000
Groups	7.966	2	3.983	3.145	.048
誤差	106.379	84	1.266		
總和	179.000	87			
校正後的總數	114.345	86			

a. R 平方 = .070 (調過後的 R 平方 = .048)

The result of the analysis showed that there is a significance in different groups on the correct rate of alternating unaccusatives, $F(2, 84) = 3.145, p < .05$. The result showed that as learners' proficiency grows, the correct rate on alternating unaccusatives would be different. However, the correct rate on alternating unaccusatives would not be getting better or worse all the time as proficiency grows. Instead, the performances on the correct rate on alternating unaccusatives would become better first and then get worse as the following figure shows.

Figure 4: Correct rate on passives, alternating unaccusatives, and non-alternating unaccusatives with different proficiency.



In Figure 4, as proficiency increase, the correctness of alternating unaccusatives goes up first and then goes down at once. It seems that the understanding of alternating unaccusatives is nothing to do with proficiency. As for non-alternating unaccusatives and passives, correct rate would be getting higher as learner's proficiency grows. The language development of alternating unaccusatives is quite different from that of passives and non-alternating unaccusatives.

Simply looking into correctness on unaccusatives and passives could not understand the whole picture of the verbs. The error rate with respect to different verbs could disclosure the learning difficulty and provide whole picture of learning among alternating and non-alternating unaccusatives, and passives.

Table 13: Error rate on alternating and non-alternating unaccusatives and passives

with different proficiency

Error	Alter. Unacc. (%)		Non-alter. Unacc.(%)		Passives (%)	
	Non-alter. Unacc.	Passives	Alter. Unacc.	Passives	Alter. Unacc.	Non-alter. Unacc.
Low-Intermediate	38.63%	53.03%	7.19%	51.51%	7.57%	23.10%
Intermediate	44.44%	40.00%	6.26%	26.38%	8.33%	14.93%
High-intermediate	60.41%	31.49%	4.86%	13.88%	4.16%	4.86%

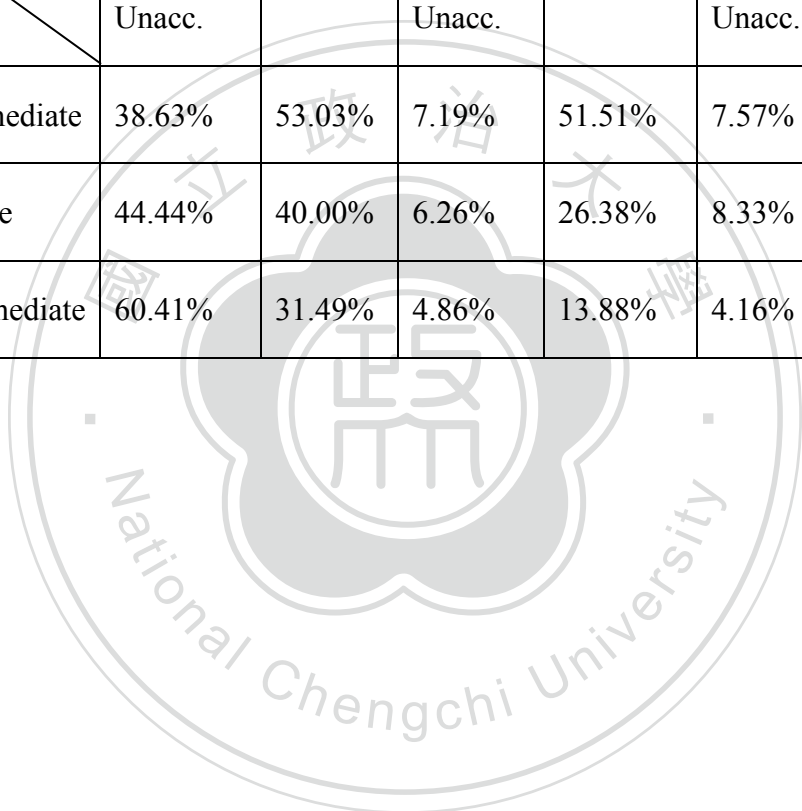


Figure 5: Error rate on alternating and non-alternating unaccusatives and passives

with different proficiency



In Figure 5, Y-axis is the error rate and verb differences are represented in X-axis in two rows. On the bottom of Figure 5 are the errors that participants do not correctly use on the type of verbs. In X-axis from left to right, there are three kinds of errors of verbs: error of alternating unaccusatives, error of non-alternating unaccusatives, and error of passives. Over each kind of error of verbs on X-axis are two subsections referring to the verb that participants misanalyzed for. In the figure, three different kinds of curve represent different groups of proficiency: ◆ for low-intermediate group, ■ for intermediate group, and ▲ for high-intermediate group.

As we could see in the error of non-alternating unaccusatives in Figure 4, participants tend to make the error of viewing non-alternating unaccusatives as

passives. In other others, participants would overextend passivization on non-alternating unaccusatives. According to the above figure, the error rates of overpassivization on non-alternating unaccusatives are 51.51%, 26.38%, and 13.88% with the different English proficiency from low to high. On the other hand, the errors with respect to misanalyzing non-alternating unaccusatives as alternating ones are few in participants. No matter how proficient they are, the misanalysis remains in a low level, 7.19% for low-intermediate group, 6.26% for intermediate group, and 4.86% for high-intermediate group.

According to the above data, they are calculated in one-way ANOVA on SPSS software. The results showed that the error rate of passivizing non-alternating unaccusatives exist significant differences in different proficiency, $F(2,84) = 25.523$, $p = .000$. Since the data is calculated by three groups, we could go further to examine the differences between groups by the analysis of post hoc. The post hoc. data is displayed as follows.

Table 14: The analysis of post hoc. about overpassivization in non-alternating unaccusatives

(I) Group	(J) Group	平均數差異 (I-J)	標準誤	顯著性	95% 信賴區間	
					下限	上限
2.00	3.00	2.0101*	.37635	.000	1.2617	2.7585
	4.00	3.0101*	.45758	.000	2.1001	3.9201
3.00	2.00	-2.0101*	.37635	.000	-2.7585	-1.2617
	4.00	1.0000*	.45080	.029	.1035	1.8965
4.00	2.00	-3.0101*	.45758	.000	-3.9201	-2.1001
	3.00	-1.0000*	.45080	.029	-1.8965	-.1035

The above table revealed that the error of overpassivization on non-alternating unaccusatives showed significant differences between groups, $p=.000$ or $p=.029$. Further, Levene's test for equality of variance between groups is not significant.

Additionally, the influence of alternating unaccusatives on the learning of non-alternating unaccusatives is also examined on SPSS. Analysis revealed no significant difference in misanalyzing non-alternating unaccusatives for alternating unaccusatives among different groups, $F(2,84) = .348$, $p=.707$. In sum, the reason for overpassivization in the U-shaped learning is because participants view non-alternating unaccusatives as passives, rather than as alternating unaccusatives. The result evidenced the viewpoint that unaccusatives would be subsumed under passives (Zobl, 1989).

4.2.2 Discussion

4.2.2.1 NP-V Word Order in Topic-comment Structure and Pro Drop in Chinese

Topic-comment structure with NP-V word order in active voice appears to fail to

prevent L2 Chinese learners of English from overpassivization. Topic-comment structure in Chinese might share similarity with unaccusatives in the way of NP-V word order with a patient/theme subject. In the way, the learning of non-alternating unaccusatives might be helpful. However, the result revealed that there is a phenomenon of overpassivization in learning of non-alternating unaccusatives. That is, the characteristic of topic-comment structure with NP-V word order with a patient/theme subject in active voice seems not stop L2 learners from overextending passives.

On the other hand, the property of Pro (pronoun) drop is another case where semantic meaning is expressed by active form. Pro usually plays a role of agent or experience and the topicalized NP, a theme or patient. Pro could be optionally dropped leaving NP-V word order with a theme subject.

(36) Dian-deng (wo) guan LE

Lamp (I) turn-off LE

“(I) turned off the lamp.”

In (35), there could be two NPs in Chinese. “Dian-deng” *lamp* is the topic of the sentence and the Pro *I* is a pronoun (Pro) as a thematic agent. As we can see, the Pro *I* could be deleted in Chinese. In the way, the word order “Dian-deng guan le” (*I turned off the lamp*) in Chinese is similar to unaccusatives. However, the similarity

seems not facilitate the learning of non-alternating unaccusatives in English.

Participants still make the errors of overpassivization.

In sum, the topic-comment structures and Pro drop are common in Chinese. Even though they both share similarities with unaccusatives, it seems that the similarities do not help the learning of non-unaccusatives in English. Participants still overextend passives on unaccusatives. It seems that the stimulus of active voices in Chinese does not stop participants from overpassivization. The phenomenon supports the assumption that the lexical rule of unaccusatives would be subsumed under passives since passives are the core rules (Zobl, 1989).

4.2.2.2 No Subject-intransitive Word Order or Passives in a Single Verb

Few learners would regard non-alternating unaccusatives as alternating ones but they might view alternating unaccusatives as non-alternating ones. As we could see in Table 13, no matter what proficiency learners belong to, most learners could not make the error of viewing non-alternating unaccusatives as alternating ones. The reason for the phenomenon might be that it is hard for learners to consider both NP-V word order and passivization correct on alternating unaccusatives, even though learners had learned both NP-V structures and passivization.

Table 15: Correct rate on alternating and non-alternating unaccusatives and passives in the group of high-intermediate level

Verbs \ Correctness	Correctness on high-intermediate level group (%)
Alternating unaccusatives	7.63
Non-alternating unaccusatives	81.25
Passives	90.97

As we could see in the above table, L2 learners indeed accept the structures of non-alternating unaccusatives and passives in high-intermediate level of group. However, they are reluctant to accept both structures happening in a single verb. Accordingly, on alternating unaccusatives, those who can accept non-alternating unaccusatives might reject passivization. For example, once L2 learners accept NP-V word order such as *The boat sank* and they will reject *The boat was sunk* in the meantime. Likewise, as long as L2 learners regard *The window was broken* was correct and they will consider the intransitive usage *The window broke* incorrect. According to the observation, active voice (i.e. subject-intransitive word order) in alternating unaccusatives seems to compete against the passive voice. It appears to suggest that L2 learners could not accept both voice forms within a single verb. There seems to be a rule “both intransitive usage and passive voice are not presented in a single verb” in L2 learners’ mind when they face unaccusatives. Therefore, once the

use of either active voice in intransitive usage or passive voice with respect to unaccusatives is sure, a rejection to the other voice on unaccusatives would be rejected in an immediate decision.

Additionally what is of interest is that learners tend to misanalyze alternating unaccusatives for non-alternating unaccusatives.

Table 16: Error rate about misanalyzing alternating unaccusatives for non-alternating unaccusatives with different proficiency

Error Proficiency	Misanalyze alternating unaccusatives for non-alternating unaccusatives (%)
Low-intermediate	38.63
Intermediate	44.44
High-intermediate	60.41

As the Table 16 shows, learners through different proficiency mistake alternating unaccusatives for non-alternating unaccusatives, 38.63% for low-intermediate, 44.44% for intermediate, and 60.41% for high-intermediate level. To our surprise, the error rate is increasing as learners' proficiency progresses.

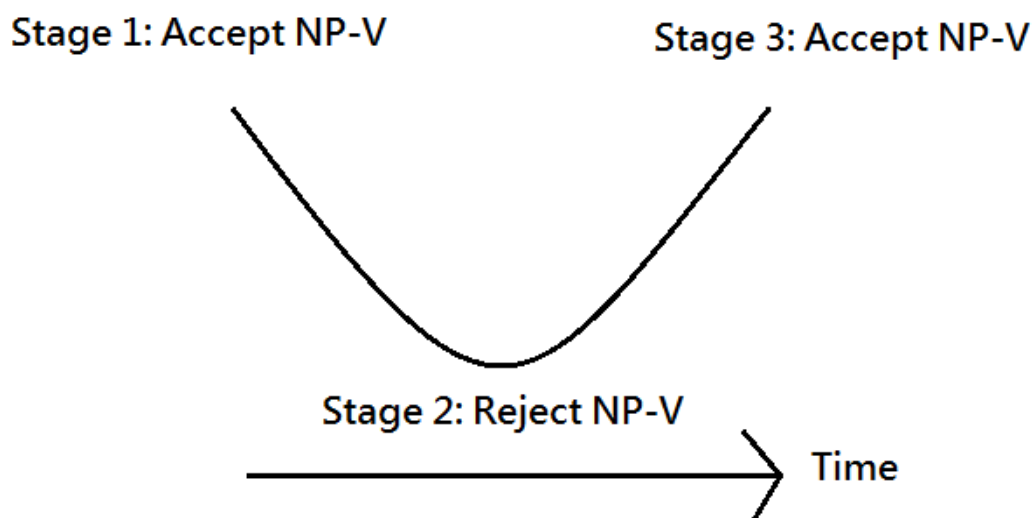
The findings appear to show that the higher proficiency learners are, the higher misanalysis learners tend to make. The result is not expected and unusual throughout language learning processes. The reason for the result might be because learners

would be getting familiar with the usage of non-alternating unaccusatives as their English proficiency grows (i.e. they would more accept intransitive usage in NP-V word order), but they might not accept both intransitive usage in active voice and passive voice occur in a single verb. Thus, learners would rather regard alternating unaccusatives as non-alternating unaccusatives rather than accept the usage of passive voice. In addition, this result was also predicted by Unaccusative Hypothesis: unaccusatives belong to a single group despite the fact that there are differences in terms of transitive and intransitive counterparts (Perlmutter, 1978).

4.2.2.3 “No Subject-intransitive Word Order or Passives in a Single Verb” in U-shaped Learning

The assumption “both intransitive usage in NP-V word order and passive voice are not presented in a single verb” could be supported in U-shaped learning as we presented. According to the result discussed in the previous section, language learning of non-alternating unaccusatives is represented with a U-shaped curve.

Figure 6: U-shaped learning of non-alternating unaccusatives with different stages



In the above figure, there are three stages with respect to learning of non-alternating unaccusatives with different proficiency learners. The stages could support the assumption that both intransitive usage in NP-V word order and passive voice are not presented in a single verb. In Stage 1, we could find that L2 learners accept NP-V word order. However, the assumption “both intransitive usage in NP-V word order and passive voice are not presented in a single verb” might not occur in the stage, since L2 learners had not learned passive voice, it is unreasonable to assert that accepting NP-V word order implies the rejection to passive voice. In Stage 2, In the stage, learners are reluctant to accept NP-V word order with respect to unaccusatives (Oshita, 1998, 2001), and also passivization on unaccusatives occurred in the stage (Ju, 2000; Levin & Hovav, 1995; Oshita, 1998, 2001; Perlmutter, 1978; Yip, 1995; Zobl, 1989). The phenomenon is predicated by our assumption. In Stage 3,

L2 learners are willing to accept subject-intransitive word order on non-alternating unaccusatives and consequently reject passive voice on unaccusatives; our assumption is also realized.

4.3 Animacy Effect

4.3.1 Results

The findings showed that the determination of active or passive voice on unaccusatives seems to be influenced by animacy effect. The phenomenon could also be found even in high-intermediate group of English learners.

Table17: Examples of voice forms influenced by animacy effect

車禍發生了	A car accident was happened.
青蛙掉下來了	The frog fell down.

As the table shows, participants prefer to use passive voice when the subject is inanimate, and use active voice when subject is animate. The following table displays the differences of correct rate between animate and inanimate subjects with different groups with respect to non-alternating unaccusatives in CET task.

Table 18: Correct rate between animacy effect with different groups on non-alternating unaccusatives on CET task

Group	Proficiency ⁶	Correct rate on animate subject (%)	Correct rate on inanimate subject (%)
B	Low-intermediate	87.88	71.97
C	Intermediate	91.67	81.94
D	High-intermediate	97.22	79.17

The above table shows that correct rate on animate subjects is at least 10% higher than on inanimate subjects. That is, participants would rather to use active voice on animate subjects and use passive voice on inanimate subjects. It seems that there exists different performances between animacy. Again the data were calculated by ANOVA in SPSS. L2 learners given by animate and inanimate subjects, the result revealed that there is a significant difference between the two distinctive subjects, $F(1, 173) = 21.861, P=.000$. In other words, the phenomenon of overpassivization could be influenced by animacy effect.

4.3.2 Discussion

The result revealed that animacy effect indeed influence L2 learners' performances on the determination of voice forms. It might be the reasons that

⁶ Since the task aims to test if animacy effect will influence the determination of active and passive voices, but low proficiency group had not learned passives, they could not be calculated.

animate subjects are able to do something actively whereas inanimate subjects are not, so participants prefer to use active voice on animate subjects and passive voice on inanimate subjects. Previous studies also supported that agent and experiencer are always animate (Jackendoff, 1978) while theme and patient are more typically viewed as inanimate (Kittilä, Västi, & Ylikoski, 2011). Moreover, similar research has been evidenced that theme-experiencer verbs has greater tendency in passive voice than agent-theme or experience-theme verbs (Ferreira, 1994).

4.3.2.1 Examination on Transitivity Hypothesis

Transitivity hypothesis argued that L2 learners treat unaccusatives as transitives underlyingly (Yip, 1990). For the transitivity hypothesis from Yip (1990, 1995), some comments from Ju (2000) are as follows:

“As Yip (1995) argued, if learners accept the ungrammatical transitives (*We disappeared our heads*) as grammatical and reject correct unaccusative equivalents (*Our heads disappeared*), then it is likely that these learners consider these verbs to be transitive. In other words, this hypothesis predicts that no learners reject *We disappeared our heads* while accepting *Our heads were disappeared*. If this prediction turns out to be true, it would provide crucial support for the transitivity hypothesis as a viable explanation for overpassivization errors in English interlanguages.”

Based on the analysis about transitivity hypothesis on unaccusatives, those

who accept passive voice on an unaccusative verb (*Our heads were disappeared*) would not reject its transitive counterparts (*We disappear our heads*). However, animacy effect is not in favor of the transitivity hypothesis. We compared the transitivity hypothesis and the results of animacy effect below

Table 19: Comparison between transitivity hypothesis and animacy effect

	Transitivity Hypothesis	Animacy Effect
While accept	A bus was vanished	A bus was vanished.
Not reject	The old man vanished a bus.	The old man vanished

According to the above table, if transitivity hypothesis is true, the sentence *The old man vanished a bus* will not be rejected. However, animacy effect tells us that L2 learners tend to use active voice on animate subjects and passives, on inanimate subjects. Therefore, it is possible that the active voice *The old man vanished* would be accepted since the subject is an animate. In the way, animacy effect implicated that fact that *The old man vanished a bus* appears to be unacceptable to L2 learners.

CHAPTER FIVE

CONCLUSION

This chapter aims to summarize the study and give a conclusion based on the discussion above. The chapter involves three sections. First, major findings of the study are summarized. Second, some pedagogical implication for Chinese in English teaching is offered. Third, limitations and suggestions are illustrated for further research.

5.1 Major Findings of the Study

The first research question is to examine if the learning of non-alternating unaccusatives for L2 Chinese speakers of English with different proficiency presents U-shaped curve as Kellerman's study (1978). The result showed that language development of U-shaped learning is not only in L1 Dutch but also in L1 Chinese. The findings suggested some important issue as follows. First, U-shaped learning of non-alternating unaccusatives in Chinese appears to indirectly evidence the fact that the knowledge of unaccusatives is prior to passives. This supports the idea that unaccusatives would be subsumed under passives (Zobl, 1989). Second, the result suggested that typological differences might not change the development of language learning of unaccusatives. Third, the language development of non-alternating unaccusatives presents U-shaped learning as like that of alternating unaccuatives in

Kellerman (1978).

The second research question deals with the influences of passives and alternating unaccusatives on the U-shaped learning of non-alternating unaccusatives. The results showed that the correct rate of alternating unaccusatives will not rise as learners' English proficiency increases. Instead, learners with higher English proficiency incorrectly use alternating unaccusatives more easily. That is, the higher English proficiency learners are, the more preference L2 learners view alternating unaccusatives as non-alternating unaccusatives. The fact could be explained by assuming that there is no classification of alternating unaccusatives for L2 Chinese learners. As the assumption provided by Permutter (1978), unaccusatives falls into single category without the differences between transitive and intransitive counterparts. Moreover, compared with the learning of unaccusatives, L2 learners could control the use of passives soon but they would have in difficulty learning non-alternating unaccusatives. As for alternating unaccusatives, even high-intermediate learners still could not correctly use alternating unaccusatives well.

The third research question involves animacy effect in learning of non-alternating unaccusatives. The results indicated that animacy effect would influence the determination of voice forms. L2 learners tend to use passive voice when subject is inanimate whereas they are apt to use active when subject is animate.

What is of interest is that the results indirectly rule out transitivization hypothesis provided by Yip (1995).

5.2 Pedagogical Implication in Language Teaching

According to the result of L2 Chinese speakers learning non-alternating unaccusatives with different proficiency, a U-shaped curve is represented. It implicated the fact that L2 learners on the level of low-intermediate could correctly use non-alternating unaccusatives from Chinese to English. The reason for the correct usage might be the form mapping from Chinese to English. Later, learners seem to be confused with passive voice. It might suggest that both passives and non-alternating unaccusatives share semantic passive; L2 learners seem reluctant to accept semantic passive with active form.

Table 20: Form and semantic in active and passives among different verbs

Verbs	Form		Semantic	
	Active	Passive	Active	Passive
Alternating Unaccusatives	○	○		○
Non-alternating Unaccusatives	○			○
Passives		○		○
Chinese Unaccusatives	○			○

According to previous study (Ju, 2000; Oshita, 1998, 2001; Yip, 1990, 1995; Zobl, 1989), L2 learners seem reluctant to accept form active while sentences involve semantic passive. However, there exist form active and passive, and form passive in Chinese.

(37) Bing rong-hua LE

Ice melt LE

‘The ice melted.’

From the above example, semantic passive with a form in active voice is common in topic-comment structures in Chinese. That is, the NP-V word order with semantic passive in Chinese would help L2 learners avoid making overpassivization once they do form mapping. Additionally, L2 learners have to be reminded that non-alternating unaccusatives involve the verbs of existence and appearance (Levin & Hovav, 1995). Consequently, for the verbs of existence and appearance, L2 learners could map the NP-V word order from Chinese into English to achieve the use of non-alternating unaccusatives in English.

5.3 Limitations and Suggestions

In the study, there are some limitations and suggestions that need to be mentioned for further research. First, students in Taiwan began to learn English at the first grade in elementary school. They had received lots of English input and might have learned some structures at the time. Thus, some participants might have learned passives in elementary school even if passives are introduced at nine grades. In the way, the proficiency of Group A in our study might not match our expectation well. Likewise, cram schools are commonly seen in Taiwan. Students could learn preview

lessons and even learn more advanced courses there. Even if we had classified their English proficiency based on their ages, this may not separate students' proficiency accurately. One way to solve the problems is to give participants a pretest to make sure their proficiency and exclude the students who had learned advanced English in cram schools. In the light, the experiment in the study will be more accurate and reliable.

Second, using alternating unaccusatives to test animacy effect would be better than using non-alternating unaccusatives. In the experimental design of animacy effect, Ideally, the tested items should be one sentence with animacy subject and one sentence with inanimate subject; besides, it would be better if both sentences belong to the same verb.

Table 21: Examples of the study of animacy effect by using alternating unaccusatives in CET task

Chinese input	English equivalent
鋼鐵人融化了	_____
冰融化了	_____

In the above table, the only difference in Chinese input is the subjects: one with animate subject and the other one with inanimate subject. It would be more convincing to say animacy effect influence voice forms when participants use active

voice in 鋼鐵人融化了 and use passive voice in 冰融化了. The disadvantage of using non-alternating unaccusatives is that non-alternating unaccusative verbs are not allowed to be presented in passive voice. Thus, the reason for those who do not choose non-alternating unaccusatives with passives might be because they had not seen the usage before.

Table 22: Examples of the study of animacy effect by using non-alternating unaccusatives in CET task

Chinese input	English equivalent
這隻貓咪動了	_____
球彈起來了	_____

As the above table shows, participants might not use *The cat was moved* in 這隻貓咪動了 not because of animacy effect but because of input shortage of this sentence. Therefore, a huge frequency effect might affect participants' judgment when they are given non-alternating unaccusatives. Alternating unaccusatives would be a better choice for testing animacy effect in CET task.

References

- Balcom, P. (1997). Why is this happened? Passive morphology and unaccusativity. *Second Language Research*, 13(1), 1-9.
- Bardovi-Harlig, K. (1987). Markedness and salience in second-language acquisition. *Language Learning*, 37(3), 385-407.
- Branigan, H. P., Pickering, M. J., & Tanaka, M. (2008). Contributions of animacy to grammatical function assignment and word order during production. *Lingua*, 118(2), 172-189.
- Burzio, L. (1986). *Italian syntax: A government-binding approach*. Dordrecht, The Netherlands: D. Reidel Publishing Co.
- Croft, W. (1995). Modern syntactic typology. *Approaches to language typology*, 85-144.
- Dowty, D. (1991). Thematic proto-rules and argument selection. *Language*, 67(3), 547-619.
- Ferreira, F. (1994). Choice of passive voice is affected by verb type and animacy. *Journal of Memory and Language*, 33(6), 715-736. doi: <http://dx.doi.org/10.1006/jmla.1994.1034>
- Givón, T. (1995). *Functionalism and grammar*. Amsterdam: J. Benjamins.
- Green, C. (1996). The origins and effects of topic-prominence in Chinese-English interlanguage. *International Review of Applied Linguistics*, 34(2), 119-135.
- Huang, C.-T. J. (1982). *Logic relations in Chinese and the theory of grammar*. Cambridge: MIT dissertation.
- Jackendoff, R. (1978). *Grammar as evidence for conceptual structure*: na.
- Ju, M. K. (2000). Overpassivization errors by second language learners. *Studies in Second Language Acquisition*, 22(01), 85-111. doi: doi:null
- Kellerman, E. (1978). Giving learners a break: Native language intuitions as a source of predictions about transferability. *Working Papers in Bilingualism*, 15, 59-92.
- Kellerman, E. (1979). The problem with difficulty. *Interlanguage Studies Bulletin*, 4, 27-48.
- Kittilä, S., Västi, K., & Ylikoski, J. (2011). *Case, animacy and semantic roles* (Vol. 99): John Benjamins Publishing.
- Kleinmann, H. H. (1977). Avoidance behavior in adult second language acquisition. *Language Learning*, 27(1), 93-107.
- Levin, B., & Hovav, M. R. (1995). *Unaccusativity: At the syntax-lexical semantics interface*. Cambridge, MA: MIT.
- Li, C. N., & Thompson, S. A. (1976). Subject and topic: A new typology of language.

- In C. N. Li (Ed.), *Subject and Topic* (pp. 457-489). New York: Academic.
- Li, C. N., & Thompson, S. A. (1981). *Mandarin Chinese: A functional reference grammar*. Berkeley: U of California P.
- Lightbown, P. M. (1983). Exploring relationships between developmental and instructional sequences in L2 acquisition. In H. S. a. M. H. Long (Ed.), *Classroom Oriented Research in Second Language Acquisition* (pp. 217-243). Rowley, MA: Newbury House.
- Montrul, S. (1999). Causative errors with unaccusative verbs in L2 Spanish. *Second Language Research*, 15(2), 191-219. doi: 10.1191/026765899669832752
- Oshita, H. (1998). "The Unaccusative Trap": L2 acquisition of English intransitive verbs. Linguistics and Language Behavior Abstracts (LLBA) database.
- Oshita, H. (2001). The unaccusative trap in second language acquisition. *Studies in Second Language Acquisition*, 23(2), 279-304.
- Perlmutter, D. (1978). Impersonal passives and the unaccusative hypothesis (BLS No.4).
- Rutherford, W. (1989). Preemption and the learning of L2 grammar. *Studies in Second Language Acquisition*.
- Sasaki, M. (1990). Topic prominence in Japanese EFL students' existential constructions. *Language Learning*, 40, 337-368.
- Schachter, J. W. R. (1979). Discourse function and language transfer. *Working Papers in Bilingualism*.
- Shyu, S.-I. (1995). *The syntax of focus and topic in Mandarin Chinese*. Los Angeles: University of Southern California dissertation.
- Sorace, A. (1993a). Incomplete vs. divergent representations of unaccusativity in non native grammars of Italian. *Second Language Research*, 9(1), 22-47. doi: <http://dx.doi.org/10.1177/026765839300900102>
- Sorace, A. (1993b). Unaccusativity and auxiliary choice in non-native grammars of Italian and French: Asymmetries and predictable indeterminacy. *Journal of French Language Studies*, 3(1), 71-93.
- Sorace, A., & Shomura, Y. (2001). Lexical constraints on the acquisition of split intransitivity. *Studies in Second Language Acquisition*, 23(2), 247-278.
- Yip, V. (1990). *Interlanguage ergative constructions and learnability [microform] / Virginia Yip*. [Washington, D.C.]: Distributed by ERIC Clearinghouse.
- Yip, V. (1995). *Interlanguage and learnability: From Chinese to English*. Amsterdam, The Netherlands: John Benjamins Publishing Co.
- Yuan, B. (1999). Acquiring the unaccusative/unergative distinction in a second language: Evidence from English-speaking learners of L2 Chinese. *Linguistics*, 37, 275-296.

- Zhang, S. I. (1987). A study of interference of the subjeless sentence in Chinese. *English Teaching*, 11:3, 69-84.
- Zobl, H. (1989). Canonical typological structures and ergativity in English L2 acquisition. In S. M. Gass & J. Schachter (Eds.), *Linguistic Perspectives on Second Language Acquisition* (pp. 203-221). New York: Cambridge UP.



Appendix A: GJ task

I. Grammaticality judgment: In each sentence, please circle one/two of the two answers so that the sentence is grammatically correct.

e.g. Many people (invited/were invited) to the party.

1. The boat (sank/was sunk).
2. He (remained/was remained) cool.
3. The window (broke/was broken).
4. The house (remained/was remained) cool.
5. A black box (emerged/was emerged)
6. The room (cleaned/was cleaned).
7. A bus (vanished/was vanished)
8. The book (bought/was bought).
9. The stone (rolled down/was rolled down) the lane.
10. I (reminded/was reminded) to turn off the light.
11. The monster (melted/was melted)
12. The picture (appeared/was appeared)
13. The iron man (broke/was broken)
14. The first creature (discovered/was discovered)
15. The ice (melted/was melted)
16. A cat (emerged/was emerged)
17. The new product (invented/was invented).
18. A panda (appeared/was appeared)
19. He (rolled down/was rolled down) the lane.
20. The room (booked/was booked).
21. The old man (vanished/was vanished)
22. He (teased/was teased).
23. The dog (sank/was sunk).
24. I (attracted/was attracted).

Appendix B: CET Task

II. Chinese to English test: Please translate the following sentences into English equivalents.

1. 車禍發生了。_____
2. 這位先生中毒了。_____
3. 那隻青蛙掉下來了。_____
4. 那位失蹤的小孩找到了。_____
5. 爸爸抵達(arrive)機場了。_____
6. 這隻貓咪動了。_____
7. 球彈起來了。_____
8. 主考官已經買通了，你一定可以通過考試。

9. 那份文件扔掉了。_____
10. 桌上的信寄出去了。_____
11. 餐廳預約了。_____
12. 這台腳踏車修好了。_____
13. 太陽升起來了。_____
14. 衣服乾了。_____
15. 那隻老虎出現了。_____
16. 這隻貓咪節紮了。_____

單字檢索:

車禍	Car accident	出現	Appear/Emerge
發生	Happen	彈起來	Bounce
衣服	Clothes	抵達	Arrive
乾	Dry	機場	Airport
修理	Repair	通過	Pass
信	Letter	戲弄	Tease
失蹤的	Lost	買通	Bribe
動	Move	文件	Document
青蛙	Frog	主考官	Examiner
掉下來	Fall	找到	Find
預約	Reserve	節紮	Neuter
扔掉	Throw away	中毒	Poison
升起來	Rise	消失	Vanish

Appendix C:

Alternating and Non-alternating Unaccusative, and Passive Verbs in GJ Task

Number	Alternating Unaccusatives	Non-alternating Unaccusatives	Passives
1	Sink	Remain	Invent
2	Melt	Appear	Clean
3	Break	Vanish	Buy
4	Roll	Emerge	Book
5			Discover
6			Tease
7			Remind
8			Attract
Total	4	4	8

