

**DEVELOPMENT OF A GRAMMAR AWARENESS–RAISING  
TEACHING MODEL IN LEARNING ENGLISH  
WH-MOVEMENT FOR EFL LEARNERS**



**A Thesis Submitted in Partial Fulfillment of the Requirements for  
the Degree of Doctor of Philosophy in English Language Studies**

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การพัฒนาแบบจำลองการสอนเพื่อเพิ่มความตระหนักในการใช้ไวยากรณ์  
ในการเรียนรู้การย้ายที่คำแสดงคำถามสำหรับผู้เรียนภาษาอังกฤษ  
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โฮ คุณ : การพัฒนาแบบจำลองการสอนเพื่อเพิ่มความตระหนักในการใช้ไวยากรณ์ในการเรียนรู้การย้ายที่คำแสดงคำถามสำหรับผู้เรียนภาษาอังกฤษเป็นภาษาต่างประเทศ

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งานวิจัยนี้ศึกษารูปแบบการเพิ่มพูนความตระหนักด้านไวยากรณ์ (GARM) เรื่องกำหนดข้อบังคับการข้ามหน่วยคำถามข้อมูล (wh-island constraint) ในภาษาอังกฤษของผู้เรียนชาวจีนที่เรียนภาษาอังกฤษเป็นภาษาต่างประเทศ งานวิจัยนี้มีวัตถุประสงค์เพื่อศึกษาว่าผู้เรียนภาษาอังกฤษชาวจีนมีความเข้าใจเรื่องการข้ามหน่วยคำถามข้อมูลในภาษาอังกฤษอย่างไรทั้งคำถามโดยตรงและคำถามแบบอนุประโยค ศึกษาบทบาทของความตระหนักทางไวยากรณ์เรื่องกำหนดข้อบังคับในการข้ามหน่วยคำถามข้อมูลในภาษาอังกฤษเป็นภาษาที่สอง และเสนอรูปแบบการเพิ่มพูนความตระหนักทางไวยากรณ์สำหรับผู้เรียนชาวจีนที่เรียนภาษาอังกฤษเป็นภาษาต่างประเทศในเรื่องกำหนดข้อบังคับในการข้ามหน่วยคำถามข้อมูลในภาษาอังกฤษ คำถามในการวิจัยมีดังนี้ 1) ผู้เรียนภาษาอังกฤษชาวจีนมีความแตกต่างในการหาความผิดที่เกิดจากการข้ามหน่วยคำถามข้อมูลทั้งก่อนและหลังการอธิบายด้วย GARM เรื่องการข้ามหน่วยคำถามหรือไม่ 2) ผู้เรียนภาษาอังกฤษชาวจีนมีความแตกต่างในการตรวจหาการละเมิดกำหนดข้อบังคับการข้ามหน่วยคำถามข้อมูลทั้งก่อนและหลังการอธิบายด้วย GARM เรื่องกำหนดข้อบังคับข้ามหน่วยคำถามแล้วหรือไม่ 3) ข้อผิดพลาดทางไวยากรณ์ของผู้เรียนภาษาอังกฤษเป็นภาษาที่สองเรื่องการข้ามหน่วยคำถามข้อมูลทั้งก่อนและหลังการอธิบายผ่าน GRAM คืออะไรบ้าง และข้อผิดพลาดใดที่พบบ่อย 4) อะไรเป็นสิ่งที่ทำให้เกิดความตระหนักด้านไวยากรณ์ในภาษาที่สอง และสิ่งนั้นมีความสัมพันธ์อย่างไรกับการใช้กฎการข้ามหน่วยคำถามข้อมูลในภาษาที่สอง 5) ผลของ GARM ในการรับรู้เรื่องการข้ามหน่วยคำถามข้อมูลในภาษาอังกฤษโดยผู้เรียนภาษาที่สองคืออะไร

การศึกษานี้เป็นการศึกษาทดลองทั้งเชิงปริมาณและเชิงคุณภาพ เครื่องมือที่ใช้เก็บข้อมูลได้แก่ แบบทดสอบการตัดสินใจไวยากรณ์, แบบทดสอบการสร้างประโยคคำถาม, และการสัมภาษณ์กึ่งมีโครงสร้าง กลุ่มตัวอย่างประกอบด้วยชาวจีนที่ลงทะเบียนเรียนในรายวิชาไวยากรณ์ภาษาอังกฤษ 18 สัปดาห์ ที่มหาวิทยาลัย Guizhou ประเทศจีน จำนวน 80 คน โดยใช้สถิติทดสอบค่าเฉลี่ยจาก 2 กลุ่มที่เป็นอิสระจากกัน และสถิติทดสอบค่าเฉลี่ยของกลุ่มที่ไม่เป็นอิสระจากกัน เพื่อวิเคราะห์และเปรียบเทียบความแตกต่างในกลุ่มและระหว่างกลุ่มต่างๆ ในส่วนของข้อมูลเชิงคุณภาพ ข้อผิดพลาดทางไวยากรณ์จากกลุ่มตัวอย่างจะถูกนำมาใส่รหัสกำกับ จัดกลุ่ม และใช้

Pearson chi-square เปรียบเทียบหาค่าความแตกต่างระหว่างความถี่ของข้อผิดพลาดทางไวยากรณ์ ทั้งภายในและระหว่างกลุ่มต่างๆ

ผลจากการวิจัยแสดงให้เห็นว่า GARM มีประสิทธิภาพในการพัฒนาสมรรถนะทางภาษา ของผู้เรียนชาวจีนในการตรวจหาข้อผิดพลาดในการข้ามหน่วยคำถามข้อมูล และการละเมิดกำหนด ข้อบังคับข้ามหน่วยคำถามข้อมูล ข้อผิดพลาดทางไวยากรณ์ของผู้เรียนภาษาที่สองชาวจีนส่วนใหญ่ เกี่ยวข้องกับการย้ายที่ของกริยานุเคราะห์ซึ่งรวมถึงตัวชี้วัดเรื่องกาล และการละเมิดกำหนดข้อบังคับ ข้ามหน่วยคำถามข้อมูล ผลของการวิจัยพบว่าปัจจัยที่ทำให้เกิดความตระหนัkd้านไวยากรณ์ใน ภาษาที่สองคือ ข้อมูลในภาษาที่สองที่มีการเน้น คำอธิบายโครงสร้างทางภาษาเป้าหมายที่ชัดเจน และการให้ข้อมูลย้อนกลับเพื่อการปรับแก้ของผู้สอน ไวยากรณ์

งานวิจัยสรุปโดยการอธิบายถึงบทบาทของความตระหนักและการสังเกตในการเรียนรู้ ภาษาที่สอง ตลอดจนยืนยันประสิทธิภาพของ GARM ที่เอื้อต่อสมรรถนะการเรียนรู้ของผู้เรียนภาษา ที่สองในการสร้างคำถามข้อมูล



HOU KUN : DEVELOPMENT OF A GRAMMAR AWARENESS–RAISING  
TEACHING MODEL IN LEARNING ENGLISH WH-MOVEMENT FOR  
EFL LEARNERS. THESIS ADVISOR : SANOOCH SEGKHOONTHOD  
NA THALANG, Ph.D., 260 PP.

GRAMMAR AWARENESS/UNIVERSAL GRAMMAR/WH-MOVEMENT/  
SECOND LANGUAGE ACQUISITION

This research aimed at proposing a grammar awareness-raising model (GARM) in learning English wh-movement by Chinese EFL learners. The purposes of the study were to examine how Chinese learners of English understand English wh-movement in order to produce grammatical direct wh-questions and embedded wh-questions within a sentence; to investigate the role of grammar awareness in second language English wh-movement learning; and to propose a grammar awareness-raising model for Chinese EFL learners to learn wh-movement in English. Based on the research purposes, the research questions are: 1) Are there any differences among Chinese L2 learners in detecting wh-movement errors before and after GARM based explanations on wh-movement? 2) Are there any differences for Chinese L2 learners in detecting wh-movement constraint violations before and after GARM based explanations on wh-movement constraints? 3) What are the grammatical errors made by L2 English learners concerning wh-movement before and after GARM based explanations on wh-movement? And what are the frequencies? 4) What triggers L2 grammar awareness, and how is it related to L2 wh-movement performance? 5) What are the effects of GARM in English wh-movement acquisition by L2 learners?

This present study was a pretest-treatment-posttest experimental study with both quantitative and qualitative approaches. The research instruments included grammaticality judgment test (GJT), question formation test (QFT) and semi-structure interview. Eighty adult native speakers of Chinese in an 18-week English Grammar Course at Guizhou University, China, took part in the research. Independent-sample t-tests and pairt-sample t-tests were adopted to analyze and compare the differences within groups and among groups. As for the qualitative data, the grammar errors made by the subjects were coded and categorized, and Pearson's chi-square was used to compare the differences between the frequencies of grammar errors within groups and among groups.

The results revealed that GARM was effective in improving Chinese L2 learners' performance in detecting wh-movement errors and wh-movement constraint violations. The grammar errors made by L2 English learners were mainly concerned with the movement of the auxiliary verbs including tense indicators and the violation of the wh-movement constraints. According to the research data, the factors that triggered L2 grammar awareness were the highlighted L2 input, the explicit explanation of the target linguistic structure and the corrective feedback from the grammar instructor.

The researcher concluded the study by explaining the role of awareness and noticing in second language learning and confirmed the effectiveness of GARM in facilitating L2 learners' performance in making English wh-questions.

School of Foreign Languages

Student's Signature\_\_\_\_\_

Academic Year 2013

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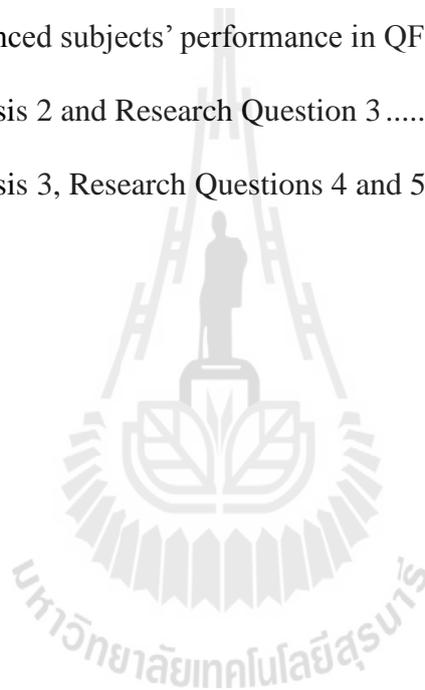
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## LIST OF ABBREVIATIONS

CF	corrective feedback
CG	control group
EFL	English as foreign language
ECP	empty category principle
GB	government and binding
GA	grammar awareness
GARM	grammar awareness-raising model
GJT	grammaticality judgment test
INFL	inflectional change
IQ	interrogative question
L1	first language
L2	second language
LAD	language acquisition device
LA	language awareness
NNS	non-native speakers
NS	native speaker
NTG	non-treatment Group

QFT	question formation test
SLA	second language acquisition
TG	treatment group
UG	universal grammar



# **CHAPTER 1**

## **INTRODUCTION**

The present study explores the relationship between second language (L2) learners' awareness of grammar rules in second language acquisition and language achievement associated with English wh-movement. This chapter is an introduction to the whole study covering the background to the study, the statement of the problems, research purposes, research questions, definitions of key terms as well as the significance of the study.

### **1.1 Background to the Study**

This present research deals with the role of grammar awareness (GA) in second language acquisition (SLA). What function GA has in SLA has been discussed by some specialists in the field of SLA, such as N. C. Ellis (2002), and Al-Hejin (2005). Besides the discussion on the role of GA, Chomsky's explanation on how an L1 is learned also receives attention from second language (L2) researchers. Since the second half of the last century, Chomsky's Universal Grammar (UG) has been one of the most heatedly debated theories due to its creative explanation of first language (L1) acquisition. Research on SLA has witnessed numerous revolutions since then. One of them is the shift of viewing how a second language is acquired from external factors to internal factors under the UG paradigm, which was proposed by Chomsky (1975). According to Chomsky (1986), first

language acquisition device is something innate as a genetic faculty. People learn their first language as they biologically and naturally grow up.

...knowledge of a particular language grows and matures along a course that is in part intrinsically determined, with modifications reflecting observed usage, rather in the manner of the visual system or other bodily 'organs' that develop along a course determined by genetic instructions under the triggering and shaping effects of environmental factors.

(Chomsky, 1986, p. 2)

The built-in universal linguistic principles, also known as UG, constrain native-speaker grammars. The first language acquisition is therefore claimed to be innate, which enables the language learners to set the first language parameters with the linguistic stimulus from the external world. When people are learning their first language, there is a mismatch between the input with which they come in contact with and the output that they make. How can language learners make logically and grammatical output with such wild and arbitrary input that they receive? Chomsky (1986) proposes that there exists some core grammar, which is universal to every language learner, and periphery grammar, which needs to be learned from birth until about four years old. The core grammar is the principles that may be applied to all languages and these principles are innate when language learners are born, whereas they need to set language parameters that match their native languages in order to realize successful language learning.

With the enlightenment of UG, applied linguists have considered how L2 learners acquire the target language after the completion of their first language

acquisition, in the hope of applying the Chomskyan ideas to explain the language acquisition process. The UG theories aim at characterizing the competence of a native speaker of a language and explaining how children of this language achieve that competence. Although Chomsky interprets the first language acquisition from the internal perspective, his theory does not explain second language acquisition. It is believed that the Chomskyan perspective on SLA parallels the L1 goals, namely to account for the nature and acquisition of the second language competence (White, 1989b). White (2003, p. 100) argues that L2 learners successfully acquire highly abstract unconscious knowledge, despite a poverty of the L2 stimulus, suggesting that this knowledge must originate from UG.

According to Chomsky (1986), principles, which are universal to all languages, and parameters, which characterize various language, constitute the natural languages learned by people. Many researchers have discussed second language acquisition within the principle-and-parameter paradigm. The basic assumption is that all language learners have innate universal principles. The external environment to which an L1 learner is exposed determines what parameters he will set. If an L2 learner wants to learn a second language once his L1 parameter setting is completed, he needs to reset his parameters into L2. White (1989a) made a conclusion that the transfer can be attributed to the L1 parameter and fossilization can be explained as the result of not resetting a parameter to an L2 position when the new position allows only an L1 sub-set parameter.

Up to now, there have been many studies on the acquisition of wh-movement by L2 learners of English from different language backgrounds, e.g. Choi (2007), Tsimpli and Dimitrakopoulou (2007), Park (2000), R. Bley-Vroman and

Yoshinaga (2000) and White and Juffs (1998), or how English speaking L2 learners of Chinese produce Chinese wh-questions. However, this present study focuses on what problems Chinese speaking learners of English have while they are learning English wh-movement.

Based on principles-and-parameters paradigm of explaining the core grammar and the differences among various languages, this present study explores whether the formal in-class instruction on grammatical structures of English wh-movement is indispensable for raising L2 learners' consciousness in learning target language phenomenon. The importance of attention, consciousness or awareness has been discussed recently, e.g. Esfahani and Kiyomarsi (2011); Kennedy (2012); Nazari (2013); Rezaei and Hosseinpour (2011); Schmidt (2010) and Svalberg (2007). It was pointed out by Chomsky (1986) that children's first language acquisition may be natural and effortless. L1 language learners acquire their L1 by growing in the natural language environment. However, it seems effort-costing for adult L2 learners to have such natural language learning processing. Therefore, this present study proposes a grammar awareness-raising model (GARM) for English as foreign language (EFL) learners for the purpose of providing a teaching method to help L2 learners understand English wh-movement and to facilitate L2 wh-movement producing.

Moreover, by comparing L1 and L2 learning processes, the researcher discusses the function of explicit instruction, enhanced L2 input as well as corrective feedback in second language acquisition. The role of grammar awareness in L2 wh-movement learning is also discussed in this study.

## 1.2 Statement of the Problem

This present study is concerned with characterizing and categorizing the problems that Chinese university EFL learners encounter while they are learning English wh-movement. Chinese is a well-known wh-in-situ language. It is observed that Chinese-speaking learners of English make ungrammatical sentences as

1-1a \*Who did the teacher teach *them* knowledge and morality?<sup>1</sup>

(Who did the teacher teach knowledge and morality?)

1-1b \*John told his wife when would he arrive at the office.

(John told his wife when he would arrive at the office.)

1-1c \*Why Sudan is so poor?

(Why is Sudan so poor?)

In 1-1a, the reason that Chinese learners fail to eliminate the pronoun “them” in a wh-question may be that Chinese does not require the movement of the wh-word to the beginning of the sentence and leave a trace in the place from which it is moved out. For example, the corresponding Chinese version of 1-1a is:

Lǎoshī	jiāogěi	shéi	zhīshi	yǔ	dàodé
Teacher	teach	<i>who(m)</i>	knowledge	and	morality?
	(INFL				
	+past)				

<sup>1</sup> Ungrammatical sentences in this paper will be marked with an asterisk (\*).

In 1-1b, the word order within the relative clause is ungrammatical because Chinese learners of English do not return the English auxiliary verb to its original place, which means the word “would” should be put after “he”. The Chinese version of 1-1b is:

Yuēhàn	gàosù	tā	qīzi	tā	shénmeshíhòu	dào	bàngōngshì
约翰	告诉	他	妻子	他	什么时候	到	办公室。
John	tell	his	wife	He	when	arrive	office.
	(INFL					(INFL	
	past)					past)	

In 1-1c, the English auxiliary verb is not required after the adverbial wh-word, ‘why’, because such non-movement phenomenon is the Chinese adverbial wh-question word order. This indicates that the L2 wh-movement parameters have not been successfully reset. The Chinese version of 1-1c is:

1-1c	Wèishénme	sūdān	shì	rúcǐ	pínqióng?
	Why	Sudan	is	so	poor?

It should also be mentioned here that the learners do not transfer the Chinese word order directly into English as they still start interrogative questions with the wh-word, such as when, which is different from Chinese parameters. An example is provided in 1-2 below.

1-2 tā shénmeshíhou zǒu de?  
 She when leave (functional word, T + past)  
 (When did she leave?)

It is possible for Chinese speaking learners of English to translate 1-2 into:

\*When she left?

Following the UG theory, this present study suggests an awareness-raising teaching model for EFL learners to facilitate English wh-questions generating. The reasons of proposing raising grammar awareness in L2 wh-movement learning lies in the difference between L1 acquisition and L2 learning. Generally speaking here, and discussed with more details in Chapter 2, L1 is acquired subconsciously and naturally, according to Chomsky (1986). On the contrary, language awareness in L2 learning is indispensable. Specifically speaking, in this present study, the awareness of the rules of English wh-movement in learning the language will be discussed. To raise L2 learners' awareness to the target linguistic phenomenon, namely wh-movement, may facilitate L2 learners' performance in producing English wh-questions. The target linguistic phenomenon under investigation is English wh-questions, also named direct questions, and embedded wh-questions, also known as indirect questions, made by Chinese learners of English at different periods of the experiment. The experimental data of the pretest and posttest were collected for the purpose of observing the changes of L2 learners' performance on wh-movement. The researcher herself coded and categorized the grammar errors made by L2 learners, and accordingly suggested a grammar-awareness raising model for them to conquer the

problem.

Meanwhile, this study aims at analyzing the roles of explicit instructions and corrective feedback in the learning of wh-movement by Chinese EFL learners.

### **1.3 Research Purposes and Hypotheses**

This study mainly aims at examining the problems in learning English wh-movement by Chinese learners of English and the role of awareness in L2 grammar learning process. The specific purposes of the present study are proposed as follows;

1. To examine how Chinese learners of English understand English wh-movement in order to produce grammatical direct wh-questions and embedded wh-questions within a sentence.
2. To investigate the role of grammar awareness in second language English wh-movement learning.
3. To propose a grammar awareness-raising model (GARM) for Chinese EFL learners to learn wh-movement in English.

Based on the research purposes presented above, it is hypothesized that if Chinese-speaking learners of English are constrained by L1 Chinese grammar rules of making wh-questions, they would not move the wh-word to the beginning of a direct wh-question and the auxiliary verbs, such as “can” and “will”, or the tense indicators, such as -es and -ed, will also remain unfronted. Therefore, the question would be what causes the ungrammatical wh-movement, L1 transfer or unsuccessful parameter

resetting or other factors, and how to overcome these problems while making English direct and indirect wh-questions.

Secondly, it is hypothesized that L2 learners' grammar errors concerning the movements of wh-components as well as auxiliary verbs or tense indicators and wh-movement constraints may be abated if they become aware of how and why English wh-components are moved back and forth. The purpose of this hypothesis is to test whether grammar awareness distinguishes between L1 acquisition and L2 learning.

Thirdly, it is hypothesized that GARM designed within UG paradigm may facilitate L2 learners in understanding and generating English wh-questions. The reason for this hypothesis is to test the applicability of GARM in facilitating L2 learners learning English wh-movement.

According to the above hypotheses, the following specific assumptions are proposed for the purpose of guiding research questions in the next section.

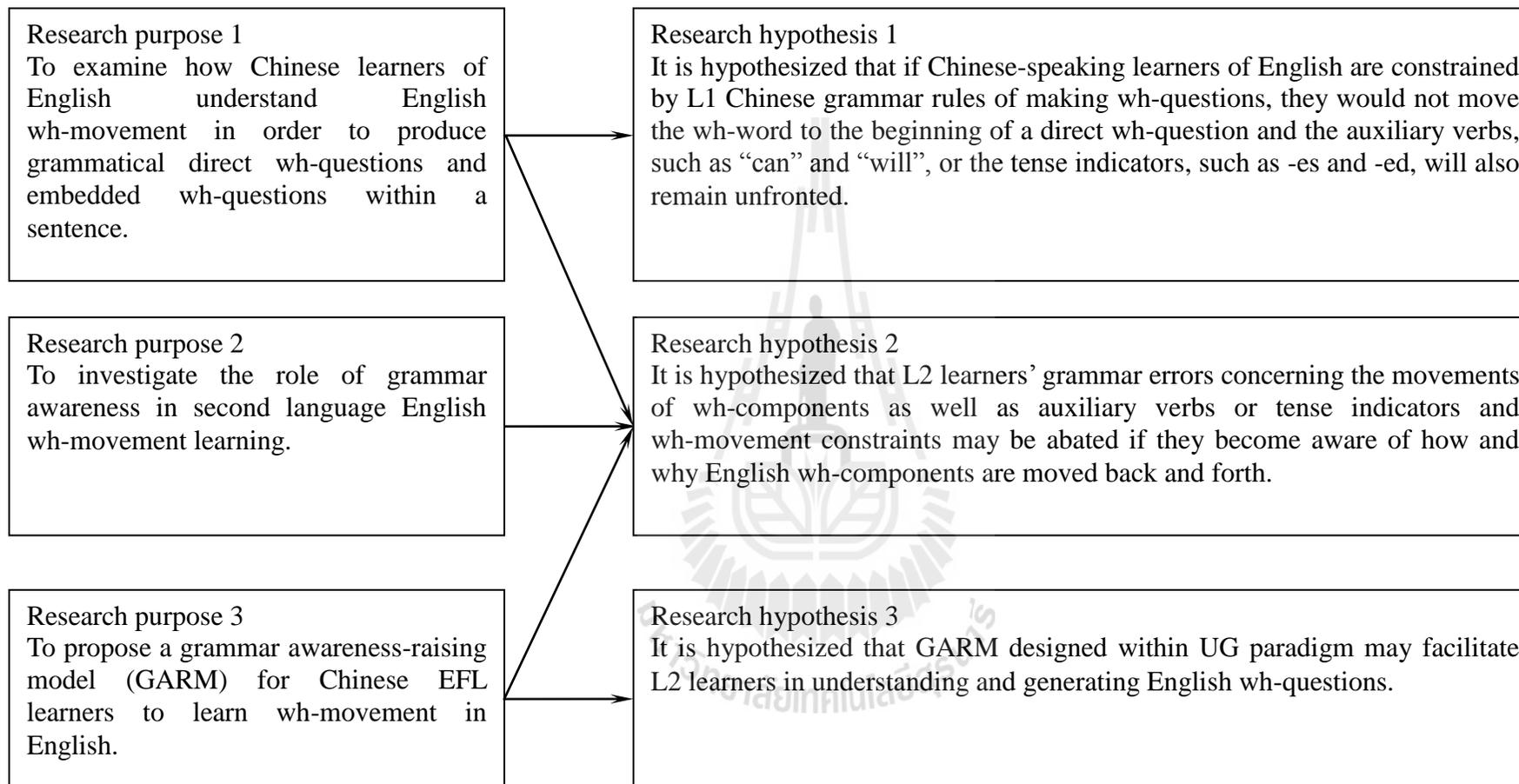
1. L2 learners have more trouble in moving the verb than moving the wh-component in making English direct and indirect wh-questions;
2. L2 learners initially are not able to detect wh-constraint violations and still move wh-words to the beginning, but can make correct judgment on wh-movement constraint violations under the guidance of awareness-raising grammar teaching model;
3. Grammar awareness on wh-movement significantly improves L2 learners' performance on judging wh-movement errors and wh-movement constraint violations.

## 1.4 Research Questions

This present research is conducted in order to examine whether UG framework is applicable to the research of SLA. Based on the research hypotheses stated above, the following research questions are proposed.

1. Are there any differences among Chinese L2 learners in detecting wh-movement errors before and after GARM based explanations on wh-movement?
2. Are there any differences for Chinese L2 learners in detecting wh-movement constraint violations before and after GARM based explanations on wh-movement constraints?
3. What are the grammatical errors made by L2 English learners concerning wh-movement before and after GARM based explanations on wh-movement? And what are the frequencies of the errors?
4. What triggers L2 grammar awareness, and how is it related to L2 wh-movement performance?
5. What are the effects of GARM in English wh-movement acquisition by L2 learners?

Aiming at illustrating the framework of the present study, the relationship between the research purposes, hypotheses and questions are summarized in Table 1.1 and Figure 1.1 as follows. An arrow within Figure 1.1 indicates that the hypotheses were made in order to realize the research purposes. Compared to the research purposes, the research hypotheses were more field-work related. The relationship between the research hypotheses and questions were illustrated in Table 1.1. The adopted research instruments and data that were used to answer the research questions are also summarized in Table 1.1.



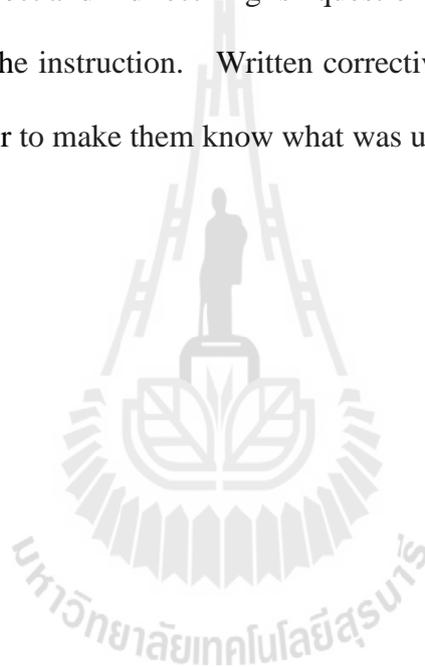
**Figure 1.1 The relationship between research purposes and hypotheses**

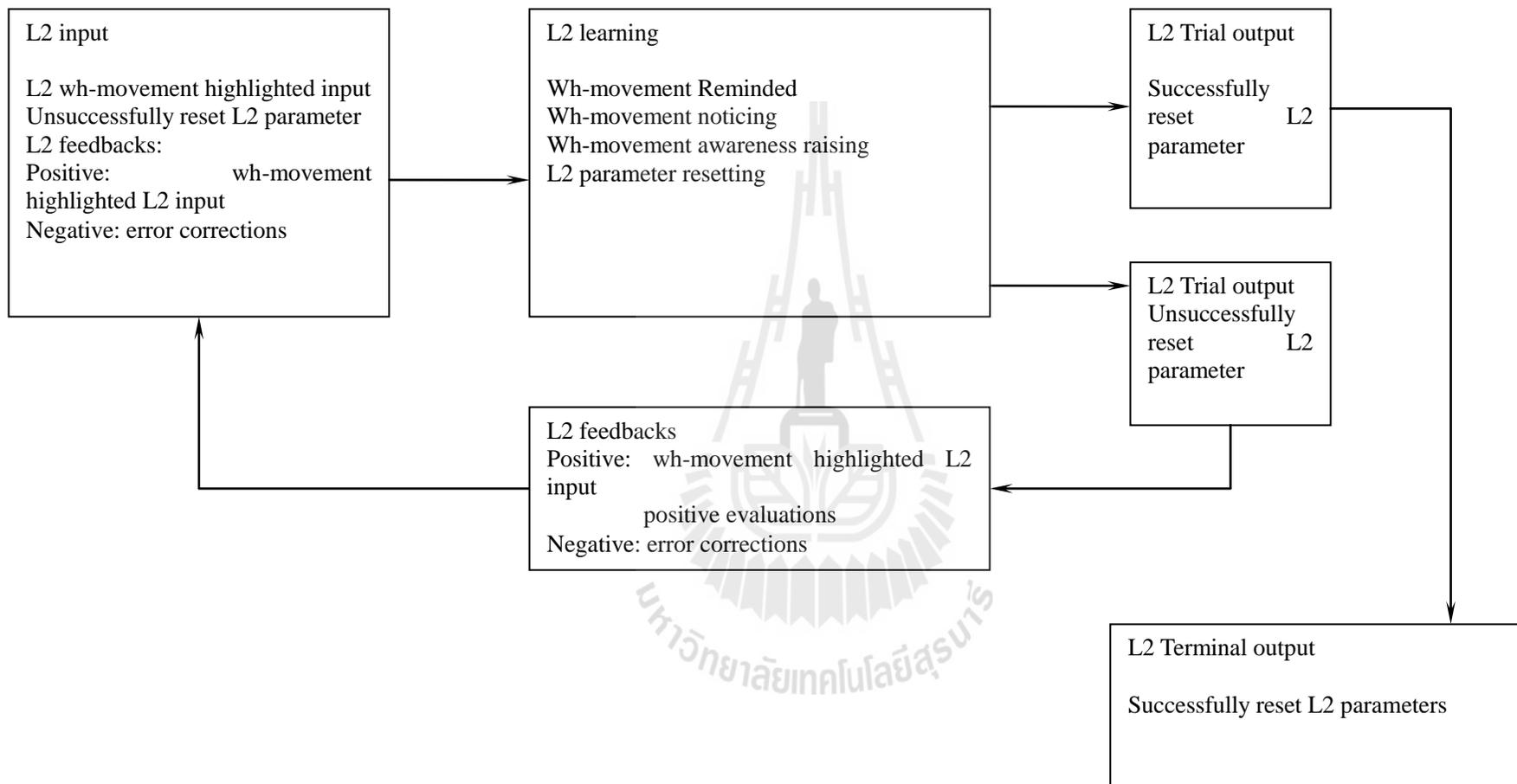
**Table 1.1 Research hypotheses, questions and adopted research instruments**

Research hypothesis	Research questions	Research instruments and data analyzing methods
<p>1. It is hypothesized that if Chinese-speaking learners of English are constrained by L1 Chinese grammar rules of making wh-questions, they would not move the wh-word to the beginning of a direct wh-question and the auxiliary verbs, such as “can” and “will”, or the tense indicators, such as -es and -ed, will also remain unfronted.</p>	<p>1. Are there any differences among Chinese L2 learners in detecting wh-movement errors before and after GARM based explanations on wh-movement?</p>	<p>Grammaticality Judgment Test (GJT) t-test</p>
	<p>2. Are there any differences for Chinese L2 learners in detecting wh-movement constraint violations before and after GARM based explanations on wh-movement island constraints? If yes, what are they?</p>	<p>Question Formation Test (QFT) t-test</p>
<p>2. It is hypothesized that L2 learners’ grammar errors concerning the movements of wh-components as well as auxiliary verbs or tense indicators and wh-movement constraints may be abated if they become aware of how and why English wh-components are moved back and forth.</p>	<p>3. What are the grammatical errors made by L2 English learners concerning wh-movement before and after GARM based explanations on wh-movement? And what are the frequencies?</p>	<p>Coding Frequency Pearson’s Chi-square test</p>
<p>3. It is hypothesized that GARM designed within UG paradigm may facilitate L2 learners in understanding and generating English wh-questions.</p>	<p>4. What triggers L2 grammar awareness, and how is it related to L2 wh-movement performance?</p>	<p>Semi-structured interview</p>
	<p>5. What are the effects of GARM in English wh-movement acquisition by L2 learners?</p>	<p>Semi-structured interview Written feedback</p>

**Grammar awareness-raising model (GARM)**

According to the results of the pilot study reported in Chapter 3, a grammar awareness-raising model was proposed, as shown in Figure 1.2. This GARM emphasized the effects of raising L2 learners' awareness of the grammar rules when they received L2 input which should be highlighted after being distributed to the learners. After highlighting the input, the L2 learners of this study were instructed the rules of making direct and indirect English questions. Then the L2 learners made trial output based on the instruction. Written corrective feedbacks were provided to the L2 learners in order to make them know what was ungrammatical or unacceptable.





**Figure 1.2 Grammar Awareness-raising Model (GARM)**

## 1.5 Definitions of Key Terms

The following terms are frequently used in the present study.

- Awareness

According to Schmidt (1994), awareness means the learner's knowledge or subjective experience in which he/she is detecting a stimulus. The definition given by the Association for Language Awareness is "explicit knowledge about language, and conscious perception and sensitivity in language learning, language teaching and language use."<sup>2</sup> Tomlin and Villa (1994, p. 193) define awareness as "a particular state of mind in which an individual has undergone a specific subjective experience of some cognitive content or external stimulus". Carter (2003, p. 4) defines language awareness as "the development in learners of an enhanced consciousness of and sensitivity to the forms and functions of language".

- Consciousness

Another frequently adopted term in studying how an L2 is learned is consciousness. It was firstly defined as deliberate attempts on the part of teachers (or researchers) to raise learners' consciousness of the formal features of the target language with a view to promote the development of their L2 knowledge by Smith (1981). Later on it was renamed as input enhancement (Smith, 1991, 1993) and expanded the meaning of consciousness to be the external manipulation of the input or instruction. Schmidt (1990) classified learning issues as consciousness as intention, consciousness as attention and consciousness as awareness. It was argued that awareness of abstract rules of grammar should not be the prerequisite for learning since there were some innate grammar rules in native speakers or advanced L2

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<sup>2</sup> [http://www.lexically.net/ala/la\\_defined.htm](http://www.lexically.net/ala/la_defined.htm)

learners' minds which could not be verbalized by them. Therefore, it was proposed to distinguish noticing, which was obligatory, and understanding, which was facilitative but not required in SLA (Schmidt, 1990, 2001).

Sa-ngiamwibool (2007) theoretically equals consciousness to awareness. He argues that to raise consciousness means to increase the ability to consciously perceive information and transfer it into learners' knowledge, which is termed understanding or learning.

In this present study, the two terms consciousness and awareness are differentiated according to the mental manipulation of L2 learners. Although the meaning of these two terms overlap with each other, awareness is defined as an L2 English learner's subjective recognition of movements of wh-components, the auxiliary verbs or tense indicators and the wh-island constraints violations. Nevertheless consciousness is related to the consequences of the instructors' or teachers' interference in learning an L2. Awareness emphasizes more on the role of L2 learners' active perceiving, thinking and understanding L2 information.

- Attention

According to Richards, Platt, Platt, and Candlin (1992), attention means the ability a person has to concentrate on something, or part of something, while ignoring other things. In this present study, attention is defined as a cognitive activity which an L2 learner's mental focus is concentrated on a linguistic issue. Schmidt (1995) argues that attention is the crucial requirement for learning L2 grammatical forms. Schmidt (2010) made a distinction between awareness and attention.

Tomlin and Villa (1994) define attention from the following four aspects,

- attention is a limited capacity;

- it consists of a process of selection;
- it involves controlled rather than automatic processing of information;
- it must involve a process of coordination among competing stimuli and responses

Chomsky (1975) states that L1 acquisition is always natural and incidental because children don't choose to learn their mother tongues. L1 acquisition succeeds with stimuli from the external environment to which a child is exposed. However, according to Schmidt (1994) and Tomlin and Villa (1994), L2 acquisition needs the detection of a stimulus, and it needs explicit learning since L2 learners may not notice the grammar rules or phenomena that they should learn.

In this present study, attention refers to an L2 learner's detection of L2 stimuli while learning L2.

- Corrective feedback

Among all the frequently used terms such as corrective feedback, negative evidence and negative feedback that indicated error correction in SLA, this present study adopted "corrective feedback" to mean the identification and grammar error corrections given by a language teacher to an L2 learner.

Schachter (1991) argues that feedback can be explicit (grammatical explanation or overt error correction) or implicit. Implicit correction includes confirmation checks, repetitions, recasts, clarification requests, silence, and even facial expressions that express confusion. His definition divides the feedback into two categories and clarifies specific contents of each type, which the researcher of this present study believes is good for later researchers to code and analyze different kinds of corrective feedback that L2 teachers use in classroom.

Long (1996) suggests feedback be divided into positive and negative evidence. Positive evidence refers to the information provided to an L2 learner to indicate what is grammatically acceptable. For example, a student said “he study English in the middle school”. A teacher may say “yes, he studied English in the middle school.” And negative evidence refers to providing an L2 learner with direct or indirect information about what is grammatically unacceptable. For example, a student said “she was taken a vacation”. The teacher may correct him by saying “no, you should say “she was taking a vacation”.

In this present study, corrective feedback is defined as the identification and error correction from an L2 teacher to make L2 learners know if their use of L2 is grammatically incorrect.

There are two kinds of evidence in SLA, *positive evidence* and *negative evidence*. R. Ellis (1994, p. 434) explains that positive evidence comes from exposure to the utterances by the speakers of a certain language. Therefore, the term “positive evidence” in this present study refers to the available information to an L2 learner which indicates what kinds of sentences are grammatical in the target language. Correspondingly, negative evidence refers to the available information to an L2 learner which indicates what kinds of sentences are ungrammatical in the target language.

- Wh-movement

According to Cheng and Corver (2006), wh-movement is defined as the phenomenon by which interrogative words appear at the beginning of interrogative sentences. Wh-movement is defined as “a type of operator movement whereby an expression containing a wh-word (i.e. a word such as who/ which/ what/ where/ why/

when) is moved to the front of a particular clause” (Radford, 1997, p. 535). In this present study wh-movement is defined as the derivation of a wh-component from its deep structure to the surface structure. The surface structure means a wh-component stands at the beginning of a direct or an indirect wh-question and therefore forms a question. The deep structure means the sentence with a place where the fronted wh-component was positioned before being moved out.

- Wh-in-situ

Contrary to English, which requires the fronting of a wh-component, there is no movement of Chinese wh-word and the auxiliary verbs or tense indicator when an interrogative sentence is made to inquire information. Therefore, such non-movement phenomenon is named as *wh-in-situ*.

- Direct wh-question

Direct wh-question means an interrogative sentence led by a wh-word. The auxiliary verb such as *will* and *can* or the tense indicator such as *-es* and *-ed* must be fronted with the wh-word. An example is provided below as in 1-3.

1-3 What is your name?

- Indirect wh-question

In comparison to the direct wh-question mentioned above, an indirect wh-question in this study is defined as a direct wh-question embedded in a matrix sentence to become a subordinate clause, with a wh-word leading the embedded question but without the fronting of the auxiliary verb or the tense indicator as shown in 1-4.

1-4 Please tell me what your name is.

- Explicit instruction

Doughty (2003) believes that explicit instruction includes all types in which rules are explained to learners, or when learners are directed to find rules by attending to forms” (Doughty, 2003, p. 265). R. Ellis (1994, p. 642) argues that formal instruction in language acquisition may take the form of explicit instruction, where rules of a language is explained to language learners and then practiced. In this study, the term “explicit instruction” refers to the process of explaining the L2 grammar rules by an L2 teacher to his/her learners in classroom situation. And the explicated rules are later practiced by L2 learners by doing after-school assignment.

- L2 parameter resetting

White (1985, 1990) supported the possibility of L2 parameter resetting in L2 acquisition. Following the Principles and Parameters framework, when L2 learners are acquiring a second language, they need to reset their parameters, which have been set during L1 acquisition, into L2 parameters. This procedure is defined as parameter resetting. In the present study, the term L2 parameter resetting means that when L2 learners are learning wh-movement, they need to adjust their L1 wh-in-situ parameters to match L2 wh-movement parameters. The L2 parameters resetting was represented by the subjects’ accuracy in making wh-questions. If there are no grammar errors concerning wh-movement and wh-movement island constraints violations, L2 parameters resetting is defined as successful L2 parameter resetting. Meanwhile, unsuccessful L2 parameter resetting indicates that the subjects’ accuracy of making grammatical wh-question and avoiding violations of wh-movement island

is low.

## **1.6 Significance of the Study**

Language acquisition is quite a complex and comprehensive field of study. There have been numerous studies on how an L2 is learned from both external and internal aspects. Chomsky's universal grammar provides an assumption about how a native speaker of a certain language receives the knowledge of his/her mother tongue, whereas whether the same paradigm could be applied to study L2 learning has been a hot topic in recent years.

So far, much of the research on UG in SLA has been carried out within the Government and Binding (GB) framework. There has been research on English-speaking L2 learners' interpretation of reflexives reconstruction in Chinese (Ying, 1999), the acquisition of English subjects by L1 Chinese speakers (Kong, 2005), evidence of accessibility from wh-interrogatives in EFL by L1 Greek learners (Tsimpli & Dimitrakopoulou, 2007) and other related aspects concerning the principles and parameters of GB. Besides UG cognitive explanation of language, researchers studying the role of input enhancement (Izumi & Bigelow, 2000) and corrective feedback (El Tatawy (2006), and Mackey (2006)) have also contributed to explaining L2 learning process. This research studies the role of L2 learners' awareness of English as the target language, as well as the effect of corrective feedback in learning English associated with English wh-movement. As it is known, UG is a theory concerning the issue of linguistic competence in people's minds. It describes the nature of grammatical representation, not a theory about language acquisition. In addition to a theory that constrains the interlanguage representation,

there should also be a theory explaining how that representation is acquired (Gregg, 1996).

Therefore, the theoretical significance of present study is to explore how Chinese-speaking learners of English acquire the wh-movement in order to describe the second language representation acquiring process. By doing this, we would be able to understand the influence of language awareness and corrective feedback. This research aims at describing the wh-movement acquiring process by Chinese learners of English at tertiary level, similar to previous studies concerning one level of learners such as Li (1998), White and Juffs (1998), R. Hawkins and Hattori (2006), Kumagami (2006), Slavkov (2009).

Moreover, the practical significance of this study lies in proposing an awareness-raising model for Chinese learners of English who are learning English wh-movement. By raising the learners' awareness of the target linguistic phenomenon, it is expected that Chinese teachers of English may be able to understand why the students make movement mistakes while raising direct wh-question or indirect wh-questions. The researcher aims at explaining the wh-movement acquisition process in hope of helping Chinese teachers of English understand what problems Chinese learners may have and how to facilitate English wh-movement acquisition. In other words, the researcher would like to explain L2 acquisition by providing positive and negative evidence, raising L2 learners' awareness towards English wh-movement for the purpose of providing a grammar awareness-raising model for L2 learners and teachers.

This study does not concentrate on analyzing and comparing the syntactic structure of English and Chinese interrogative questions. In other words, this is not

pure linguistic research, but an empirical study about acquisition instead. It aims more on describing and explaining the second language acquisition process instead of syntactic analyses of the differences between Chinese and English interrogative wh-questions.

### **1.7 Scope and Limitations of the Study**

This study covered the acquisition of English wh-movement by Chinese speaking L2 learners. It concerned the direct and indirect questions made by Chinese-speaking learners of English. L2 learners' sensitivity to wh-movement constraints violation were also discussed. The research was carried out with undergraduate English majors at Guizhou University, China. L2 learners' awareness to English wh-movement and the wh-movement constraints were analyzed. The function of explicit instruction on wh-movement was also included.

The following limitations apply to this study. First, the subjects of this study are chosen based on convenience and availability. Consequently, the subjects cannot represent the overall characteristics of university students of all majors. Second, this study can only provide L2 classroom input, which could not be as natural as L1 English learning environment. Therefore, the influence of the external linguistic environment such as language materials from the other English courses, or sometimes ungrammatical sentences from peers cannot be ignored.

## **CHAPTER 2**

### **LITERATURE REVIEW**

This chapter reviews the literature related to the present study, which includes the brief introduction in comparisons between L1 and L2 acquisition, researches on L2 learners' awareness of the target language, corrective feedback, as well as enhanced input, syntactic analysis on wh-movement, and relevant literature review of empirical studies on wh-movement acquisition by speakers of different languages for the purpose of providing research background.

#### **2.1 Comparisons between L1 and L2 Acquisition**

This research aims at dealing with whether acquisition of English wh-movement is constrained by universal grammar (UG) in the second language acquisition (SLA). Although Chomsky himself did not extend UG into SLA study, the study of SLA is aroused by the framework of first language acquisition proposed by Chomsky. Both kinds of study aim at solving three questions (Chomsky (1981, 1986), quoted in White (1989b, p. 1)):

What constitutes knowledge of language?

How is such knowledge acquired?

How is such knowledge put to use?

Chomsky believes that the first language (L1) input underdetermines the output. UG helps to explain how L1 learners acquire their mother tongue through the wildly arbitrary L1 data. As what is viewed by White (1989b), the questions of how languages are learned are as follows, how do they know what is allowed or what is forbidden in that language; how do they know some of the linguistic data are language while some data are just meaningless sounds; how do they distinguish the human language from the meaningless sounds in the nature; how do they know what the natural vocabulary of the language is while some words are just created by people for temporary purposes? According to Chomsky (1965), there is a mismatch between what goes in and what comes out of people's mind and the language acquisition device (LAD) helps people to elicit grammatical sentences among all of the linguistic input that the L1 learners receive. The L1 output differs from the input. In other words, the linguistic data that goes in people's mind is arbitrary and sometimes even ungrammatical, such as mothers' talk, whereas the output is usually grammatical and understandable.

Universal Grammar provides constraints on the possible grammar in the process of learning a language, whereas it does not explain how that language is learned. In other words, it is not a theory of language acquisition. There is a logical problem of language acquisition, namely the mismatch between the input (the primary linguistic data) and the output (a grammar). Input underdetermines output. Assuming this is true, people have asked whether this assumption works the same way in the second language acquisition.

According to (White, 1989b), this question remains central. Do L2 learners obtain unconscious knowledge (a mental representation) that goes beyond the

L2 input? If they do, can the influence of alternative sources of this knowledge, such as their L1, be eliminated?

In other words, the logical problem of language acquisition triggers exploration within second language acquisition field. The researcher of present study is interested in what happens in L2 learners' minds when they come across L2 linguistic data. The study specifically focuses on the acquisition of the English wh-movement by Chinese L2 learners.

If we view SLA from the first language acquisition perspective, there may also be a mismatch between what goes in and what comes out of an L2 learner's mind. Although the language backgrounds of first and second languages are different, when people are acquiring the two languages, it should not be ignored that the L2 output also differs from the L2 input. The mismatch between L2 inputs available to L2 learners and the learners' ultimate output is similar to the mismatch between input and output in the first language acquisition.

The logical problem of language acquisition also appears in second language acquisition. As what happens in first language acquisition, L2 learners receive L2 input and produce L2 output after understanding the grammar rules of the target language. However, what distinguishes L1 and L2 acquisition lies in the following two aspects. First, the input is different in the two language acquisition processes. L1 input usually happens in natural environment. L1 data may be unsystematic and sometimes even ungrammatical. Those ungrammatical sentences will not influence the final state of the L1 acquisition. Nevertheless, SLA in China usually happens in formal classrooms and what L2 learners receive is normally systematic and grammatical. Second, the function of negative evidence is different

in L1 and L2 acquisition. While a baby is learning his first language, the negative evidence such as correction does not work. The ungrammatical sentences will be naturally eliminated when he grows up. However, providing negative evidence in second language acquisition tends to be a very important method to improve one's language proficiency. An L2 learner needs someone to inform him of the grammatical mistakes he makes in order to avoid them next time.

Theoretically, language learners acquire first language by getting access to UG in their minds. UG constrains the principles which are universal to all languages and the external linguistic environment in which a language learner lives determines the parameters of that language. On the other hand, while the language learner is learning a second language, it is not known for sure whether UG still works or whether the L1 parameters will have influence on the L2 parameter setting.

Before Chomsky's UG theory, language ability was considered a kind of behavior instead of the first language acquisition. Behaviorists observed language acquisition, and believed that language was "determined by stimuli consisting of specific attributes of the situation, by responses to the stimuli called up in the organism, and by reinforcing stimuli that are their consequences" (Cook & Newson, 2000). In his book "*Verbal Behavior*", Skinner (1957) believes that verbal behavior is simply behavior subject to the same controlling variables as any other operant behavior.

However, behaviorism fails to explain the mismatch between the input and output. It cannot explain why language learners elicit grammars from the arbitrary data that enter people's minds. Skinner's point of view is therefore strongly criticized by Noam Chomsky.

Chomsky (1965) thus proposes a logical way to examine language acquisition, which is known as UG. Chomsky (1986) states that UG may be regarded as a characterization of the genetically determined language faculty. This language faculty, known as a “language acquisition device”, converts experience into a system of knowledge attained: knowledge of one or another language. White (2003) interprets the linguistic competence of native speakers as an abstract and unconscious linguistic system. The acquisition of L1 is constrained by the universal linguistic principles, as she said,

...it will be presupposed that the linguistic competence of native speakers of a language can be accounted for in terms of an abstract and unconscious linguistic system, in other words, a grammar, which underlies use of language, including comprehension and production. Native-speaker grammars are constrained by built in universal linguistic principles, known as Universal Grammar (UG).

(White, 2003, p. 1)

According to Chomsky (1965), children are biologically endowed with some device which may guide their language learning. This innate biological faculty, termed as language learning device (LAD), is a hypothetical brain mechanism in people’s minds. Universal grammar is a theory of linguistics postulating principles shared by all languages. Everyone is assumed to have this UG once born, and the natural linguistic environment that he gets contact with will be the parameters which determine what language he is going to speak. The differences of input, attention,

negative evidence between L1 and L2 acquisition, as well as explanation on principles and parameters will be restated below for the purpose of preparing research background.

### **2.1.1 Input**

The difference between L1 and L2 acquisition in terms of input lies in the beginning age, beginning state, quality time, grammaticality and learning environment. While children are learning their first language, they are exposed to arbitrary L1 input. These linguistic materials are usually unsystematic and sometimes ungrammatical. However, L1 children may elicit grammar rules from the arbitrary L1 data with which they get contact. According to Larsen-Freeman and Long (1991, p. 114), children “heard ‘surface structures’ but were able to learn ‘deep structures’”. Comparatively, L2 input, especially under classroom circumstance, is normally grammatical. If L2 learners learn ungrammatical grammar rules, they are not able to correct them automatically. Moreover, L2 learners are not able to learn deep structure from surface structure.

The similarities and dissimilarities between L1 and L2 are generalized in Table 2.1 as follows.

**Table 2.1 Comparisons between L1 and L2 input**

	L1	L2
Beginning age	L1 learners receive their L1 input once they were born and L1 acquisition completes at around 3 years old.	Most L2 learners start receiving L2 input after their L1 acquisition completes. The subjects in the present research started learning English at around 10 years old
Initial state	Once L1 learners receive L1 input, they are born with innate universal principles. They set L1 parameters to which the learners are exposed.	When L2 learners start learning L2, their minds are already set with L1 parameters.
Quality time	The time that L1 learners learn L1 is all day long. They learn in natural environment and L1 acquisition happens whenever they listen, speak, read and write.	Generally, L2 learning happens in classroom. The time that L2 learners spend in learning an L2 is comparatively limited.
Grammaticality	The input that L1 learners receive is arbitrary and sometimes ungrammatical. L1 learners are able to elicit L1 grammar rules from the unsystematic L1 data.	The input that L2 learners receive is normally grammatical. And the L2 materials should be error-free because L2 learners are not able to elicit L2 grammar rules from arbitrary L2 data.
Learning environment	L1 learning environment for children is natural and relaxing with no pressure.	L2 learning environment is normally formal classroom with learning pressure.
Quantity	Massive amounts of input for L1 children.	For classroom-dominated L2 acquisition, the quantity of L2 input is limited.

### 2.1.2 Awareness and Consciousness

As we might observe, when an L1 learner is acquiring the first language, it is effortless to learn how to speak and listen to that language as supported by the

phenomenon that attention with awareness to language rules is not required. Generally, awareness and consciousness both mean the mental information processing of L2 learners. In the present study, awareness is defined as learners' attention to the linguistic materials while consciousness was concerned more about language instructors' roles. For the purpose of understanding the mental activity, the two terms, awareness and consciousness are used interchangeably in this section.

Conversely, adult learners of a second language do not own that L1 ability. L2 learners' awareness of certain linguistic phenomenon needs to be highlighted or triggered with external methods, such as practicing or memorizing, as N. C. Ellis (2002, p. 299) claims, SLA theory and neuroscience of learning and memory are closely connected. The role of consciousness in learning L2 should not be neglected and it is most thoroughly discussed in Schmidt's Noticing Hypothesis (Schmidt, 1990).

The role of consciousness in L1 and L2 acquisition is compared by Schmidt (1994) summarized in Table 2.2 as follows.

**Table 2.2 Comparisons between L1 and L2 consciousness**

	L1	L2
Intention	Children's L1 acquisition is incidental since children don't choose to learn their mother tongues.	L2 learners need to intend to learn a second language. When they choose to learn it, they need to focus on what is being taught unlike L1 learning.
Attention	While L1 learners are learning L1, they don't have to pay attention. They learn L1 unconsciously.	While L2 learners are learning L2, they need to detect the L2 stimulus. If they do not notice the L2 stimulus, the L2 input will not be understood.
Awareness	L1 learners are not aware of learning because L1 acquisition happens naturally and unconsciously.	Language awareness in SLA takes important roles since L2 learners should be aware of the learning target so that the L2 input may be understood.
Control	L1 output requires little mental processing effort.	L2 output requires considerable mental processing effort.

### 2.1.3 Corrective Feedback

Corrective feedbacks, including positive and negative evidences, take different roles in L1 and L2 acquisition. As what is viewed in Chapter 1, corrective feedback helps language learners know what is ungrammatical in a language. When a child is learning his first language, corrections from adults will normally be in vain. Such corrections as tense or person will usually be ignored by a young L1 learner. However, his L1 output will become grammatical automatically with his aging until about five years old. Chomsky (1975, p. 29) believes that negative evidence does

not take any role in language acquisition because what functions is “the system of principles, conditions, and rules that are elements of properties of all human languages”. The innate linguistic mechanism which is available to all humans enables language learners acquiring their L1s. However, Chomsky’s UG only interprets L1 acquisition.

Many SLA researchers have provided affirmative point of views toward the role of corrective feedbacks in L2 learning. Gass (1991, p. 136) views corrective feedback functions as an attention getting device. She argues that if there is no direct corrective feedback in the input, fossilization might occur because the corrective feedback would permit learners to detect discrepancies between their native language and target language. The corrective feedback between L1 and L2 is compared and illustrated from the perspectives of form, quantity and effect in Table 2.3.

**Table 2.3 Comparisons between L1 and L2 corrective feedback**

	L1	L2
Form	Oral	Oral / written
Quantity	Corrections in L1 acquisition normally take no effect. Therefore, instructors do not often correct errors made by young L1 learners.	L2 instructors need to provide enough corrections to L2 learners in order to remind the learners avoiding making the same mistakes.
Effect	In vain	Effective

#### **2.1.4 Principles and Parameters**

Language acquisition device (LAD) is argued to be universal in every L1 speaker’s mind. Many people in the past equated the term “language acquisition

device” with UG. But some researchers think that it would be more accurate to consider UG “...as a component within an LAD (Hilles, 1991) or as part of a language faculty ” (Radford (1997), quoted in White (2003)). LAD is a concept initiated by Chomsky (1965) to explain what enables people learning languages. Meanwhile, the concepts of principles and parameters are proposed by Chomsky to analyze the core grammar that is owned by all languages and various characteristics of different languages. Chomsky explains the relationship between the principles and parameters by saying,

What we expect to find, then, is a highly structured theory of UG based on a number of fundamental principles that sharply restrict the class of attainable grammars and narrowly constrain their form, but with parameters that have to be fixed by experience.

Chomsky (1993, p. 3).

The UG approach claims that the principles make the core grammar that fits all of the languages in the world, such as the Projection Principle, Subjacency Principle, Binding, Government, and others. A newborn child is open to any human language. The external environment to which he is exposed determines what language he will acquire. When a certain language is acquired, particular parameters of this language are set. Consequently, language learners may acquire various languages because of the particular parameters. However, these languages have the same principles, namely, what constitutes the universal grammar. The universal grammar is innate once a child is born. What he learns in his life is only part of the

universal grammar. Some of his language is derived from the universal grammar, and “some come from the experiences that have set values for parameters and led to the acquisition of lexical knowledge” (Cook & Newson, 2000, p. 87).

However, while language learners are learning a second language with their first language parameters already set, the parameters need to be reset to coordinate with the target language in order to achieve successful language learning. For example, Chinese-speaking learners of English need to know that they should move the questioned section of a sentence to the beginning of it while they are making an interrogative sentence, whereas such fronting is not permitted in Chinese. Therefore, these L2 learners need to reset the parameters.

The function of UG in SLA is studied by concentrating on some sub-principles and parameters within the universal grammar paradigm. Researchers assume that if L2 learners can reset the target language parameters which do not exist in their native language, it may be concluded that they acquire the target language by resetting the parameters. The sub-principles and parameters such as the noun phrase (Escribano, 2006), the Binding principles (Kiguchi & Thornton, 2004) and the Overt Pronoun Constraint (OPC) (Rothman, 2009) have been explored and the results suggest that second language learners may acquire the target linguistics phenomenon by resetting the parameters.

In this study, wh-movement is chosen to be the focus because English and Chinese have different parameters regarding interrogative questions. When native speakers of English are asking an interrogative question, fronting of the wh-word is obligatory, whereas Chinese does not require fronting of the wh-words while asking for some information. Therefore, Chinese EFL learners need to understand how to

make proper wh-movement in English, in other words, proper reset of the target parameters in order to make appropriate wh-questions in English.

Some scholars have carried out research on the acquisition of wh-movement of L2 learners with different first language backgrounds such as Thai (Ruangjaroon, 2005), German (Burse, 2004), Egyptian Arabic (Lassadi, 2003, 2007), Japanese (Hattori, 2004; Yamane, 2003), and Malay (Wong, 1999). It has been admitted that second language parameters resetting is not as simple as first language parameters setting.

## **2.2 Role of Input, Output, Awareness and Corrective Feedback in SLA**

The previous section 2.1 compared the differences between L1 and L2 input, awareness and corrective feedback. This section focuses on the role of these three factors in SLA.

### **2.2.1 Input and Output in SLA**

As what has been discussed above, there are differences between L1 and L2 input. The effect of input in L2 acquisition has been discussed by several researchers.

Izumi (2002) investigated the facilitative effects of output and visual input enhancement by adult learners of English. His research specifically focused on the function of noticing of formal elements in the target language. He explored whether induced noticing and learning may have the same effect as visual input enhancement to attract learners' attention to problematic form features in the input. The input in his research was controlled with systematic differences with computer. The

measurement in the experiment was computer-assisted formation task and reading comprehension.

The major findings of Izumi (2002) were that those who were exposed to the same input for only comprehension tasks performed lower proficiency than those who were engaged in output activities. The subjects of his research who received visual input enhancement did not show significant improvement. Another major finding was that the effect of input enhancement was not comparable to that of output.

Izumi (2002) studied the effect of input in L2 acquisition. However, the function of L2 input needed more consideration because input will not function to L2 learners if they do not notice it. One of the differences between L1 and L2 input lies in the awareness of target language. As what was reviewed in section 2.1, L1 learners absorb L1 input subconsciously without any effort. But L2 learning is completely different from that of L1. L2 input should be noticed firstly so that the input may be understood by L2 learners in order to be able to acquire that language. In other words, Izumi (2002) observed the function of L2 input and concluded that whether the input was noticeable and understandable needed to be reevaluated.

R. Ellis (2005) reviewed related studies in SLA, and drew a set of general principles for language teaching. L2 input was one of his principles, which claimed that “successful instructed language learning requires extensive L2 input.” He reviewed that Krashen (1981, 1994) strongly supported the importance of language input. According to Krashen (1981, 1994), the input should be comprehensible for L2 learners so that what was “input” into an L2 learner’s mind may be transferred into “intake”. Furthermore, R. Ellis (2005) suggested that to ensure successful L2 input to learners, teachers needed to maximize use of L2 inside the classroom, and to create

opportunities for students to receive input outside the classroom.

The researcher of this present agrees with Krashen (1981, 1994) and Ellis (2005) that to make L2 input accepted by L2 learners, the input should have the following characteristics.

Firstly, L2 input should be understandable. Understandable L2 input enables L2 learners to notice the target of learning so that the input may be transferred into intake. If the L2 input is incomprehensible, it will be meaningless linguistic data to the learners and may be thereafter neglected. In this present study, the subjects were required to find out English sentences with *wh*-movement, on their own, as their after-class exercises. To ensure the correctness of their homework, they needed to understand the materials that they read. In other words, the L2 input should be understandable to the subjects, otherwise it would be difficult to find out grammatical English sentences with *wh*-movement.

Secondly, there should be extensive L2 input. As suggested by R. Ellis (2005, p. 217), L2 needs to become the medium and object of instruction. The researcher of this present study required the subjects to collect English sentences with *wh*-movement from various sources, including reading materials as newspapers and magazines, entertaining materials such as movies and song lyrics as well as listening to materials as English news reports. The purpose of assigning such after-class homework was to maximize the means of using L2.

Thirdly, learners should have plentiful L2 input outside the classroom. Referring to R. Ellis (2005, p. 218), the researcher of the present study believed that there should be enough amount of L2 input for learners to be “soaked” into it. She guided the subjects how to search linguistic data with target phenomenon using online

sources from which the subjects needed to elicit wh-questions.

By comparing L2 output with input, it may be observed that, unlike L1 learners, when L2 learners are producing in the target language their performance may involve grammatical errors more or less. In other words, what goes out of L1 learners' minds is naturally consistent with what enters, whereas such consistency for L2 learners requires greater effort. The difference between L1 and L2 learners is that ungrammatical or unacceptable errors normally exist in both the L2 learners' oral and written outputs. Being distinctive from L1 learners who perform effortlessly, L2 learners need to be cautious while generating L2 sentences. That is to say, L2 learners should strenuously strive to make their output error-free, which is clearly different from their counterparts.

The role of L2 output in SLA has been considered by scholars as Swain and Lapkin (1995) as well as Izumi and Bigelow (2000). Swain and Lapkin (1995) argued that output motivated 'noticing', and triggered mental processes that led to modified output. The author of this research agreed that L2 output could inspire L2 learners noticing the difference their performance with grammatical input and then made necessary corrections to their output when later on they produced similar L2 sentences. Izumi and Bigelow (2000) carried out an empirical study on the noticing function of output by adopting essay writing tasks and test reconstruction tasks. Although the researchers concluded that there were no unique effects of output, they also believed that extended opportunities to produce output with relevant input were found to be crucial in improving L2 learners' grammatical accuracy. It is believed in this current research that L2 learners' output functions as a starting point of improvement because it helps learners notice where to put efforts to improve L2

output.

### **2.2.2 Language Awareness in SLA**

Language awareness is related to concepts as consciousness, noticing and attention. In this research, we will leave comprehensive discussion on differences among them aside, and focus more on the role of language awareness. For the convenience of understanding, the term language awareness will be adopted in this present study to mean the cognitive action that happens in L2 learners' minds in order to learn that language. The role of awareness and related terms as consciousness, noticing, understanding and attention in SLA has been heatedly discussed since the 1980's.

As what was suggested by Allport (1988), there were three prerequisites for a person to be aware of a given experience. Firstly, there should be cognitive change as the result of the experience. Secondly, a learner needs to report the awareness of the experience when it happens. And thirdly, a learner should be able to describe the experience.

Reber (1989, p. 219) argued that implicit learning referred to "the process by which knowledge about the rule governed complexities of the stimulus environment is acquired independently of conscious attempts to do so". Moreover, explicit learning happened when the learner was aware of and actively involved in the processing of the input.

Schmidt's Noticing Hypothesis (1990) was the milestone of the theories concerning the language awareness. Schmidt (1990) argued that subconscious language learning was impossible. Noticing was the necessary and sufficient condition for L2 learners to convert input to intake. Moreover, paying attention was

facilitative and necessary for adult learners to acquire grammatical features.

For the purpose of illustrating and comparing relevant researches, the experimental studies on the role of language awareness or consciousness are summarized in Table 2.4.



**Table 2.4 Studies on the role of language awareness or consciousness**

Nazari (2013)	
Research purposes	To investigate how implicit and explicit methods of instruction might affect the learners' achievement in both receptive and productive modes.
Research questions	1. Is there any significant difference between the effects of implicit grammar instruction and explicit grammar instruction on learners' achievement of linguistic items in the receptive mode? 2. Is there any significant difference between the effects of implicit grammar instruction and explicit grammar instruction on learners' achievement of linguistic items in the productive mode?
Participants	60 elementary female adult learners, divided into implicit method group and explicit method group with 30 learners in each.
Target structure	Present perfect
Procedures (Pretest-treatment-posttest)	Explicit group The participants were explained the target structure explicitly. They worked in pairs to help each other understand the rules. They were assigned related exercises from the text book. After doing the exercises, they wrote on a topic with the required structure and direct feedbacks were given to them by the teacher.
	Implicit group The participants were shown how the grammar was used but did not talk about it. They were provided a text with highlighted forms of the intended grammatical structure. They were asked to write on the same topic as the explicit group did. The feedbacks were given implicitly by comparing the participants' errors with what was written in the textbook.
Results	The answers to both the research questions were yes.
Conclusions	The explicit group outperformed the implicit group. When the participants focused more on the content, they were less likely to learn specific grammar structures. Explicit teaching strategy was more effective than the implicit one. When learners are informed of the grammatical rules, they feel more comfortable, self-confident and motivated in the classroom.

**Table 2.4 Studies on the role of language awareness or consciousness (continued)**

Kennedy (2012)		
Research purposes	To clarify the link between LA and L2U. <sup>3</sup>	
Research questions	What's the relationship between L2 use and qualitative LA?	
Participants	10 full-time students (4 male, 6 female) speaking Mandarin, Arabic, Spanish, and Romanian, with one learner a balanced French-Portuguese bilingual.	
Course	English pronunciation Purpose 1: to raise learners' awareness of English pronunciation Purpose 2: to develop learners' fluency and intelligibility	
Instruments	Language Activity Log: an electronic database containing daily living, social interaction, academic work, attending class, research/teaching assistant, and recreation	
Procedures	The learners took a 13-week pronunciation course. LA was measured through dialogue journals. From weeks 2 to 12, the learners wrote weekly entries exchanging them with a partner. They linked what they already knew and what they were learning to reflect on what they noticed about native speakers' speech, or to discuss how they could use what they were learning. Totally, learners wrote 80 journal entries during the 10 weeks. All entries were then coded and analyzed as showing either quantitative or qualitative awareness to language.	
Results & discussion	No significant relationship between any measure of LA and that of L2 use for all learners collectively. Three patterns of relationship between LA and L2 use were found longitudinally.	
	1. L2U↔; QNA↓; QLA↑ gained QLA≠L2U	Learners with relatively high levels of qualitative awareness, even higher awareness may be possible without increased L2 use.
	2. L2U↑; QNA↓; QLA↑ QLA=L2U	Increased qualitative awareness coincided with increased L2 use.
	3. L2U↓; QNA↔; QLA↑ Decrease QLA= decrease L2U	Decreased qualitative awareness coincided with decreased L2 use.
Conclusions	1. Learners with a certain initial level of qualitative awareness, increased qualitative awareness may not include increased L2U. 2. Other learners may have interlinked relationship between qualitative aspects of LA and L2U.	

<sup>3</sup> Note: L2U = L2 use; QNA = quantitative awareness; QLA = qualitative awareness ↔: consistent; ↓: decrease; ↑: increase; ≠: no concurrent change; =: concurrent change

**Table 2.4 Studies on the role of language awareness or consciousness (continued)**

Esfahani and Kiyoumars (2011)	
Research purposes	To investigate whether the Principle of Economy in multiple wh-questions is available to Persian learners of English
Research questions	<ol style="list-style-type: none"> <li>1. How do native speakers of English differ from L2 learners in Reaction Time Method in sentence-matching task?</li> <li>2. What is the effect of L2 proficiency on the reaction time of students in sentence matching task?</li> <li>3. What is the effect of grammaticality type on the reaction time of students in sentence-matching task? (Will the ungrammatical examples take both L2 learners and native English speakers longer to match than the grammatical examples?)</li> </ol>
Participants	60 university students divided into three groups according to their L2 English proficiency (20 Low Intermediate , 20 High Intermediate, and 20 Advanced groups). 10 native speakers made up the control group.
Target structure	Economy Principle of UG in Multiple wh-questions
Instruments	Reaction Time Method; L2 proficiency test; sentence-matching task
Procedures	<p>The on-line test contained 40 pairs of English sentences, 20 matching grammatical pairs which observed the UG Economy Principle and 20 matching ungrammatical pairs which violated this Principle.</p> <p>The reaction time of EFL learners to both grammatical and ungrammatical pairs was measured and compared to that of English native speakers.</p>
Results	<ol style="list-style-type: none"> <li>1. The results revealed that native speakers of English can do the task faster than non-natives.</li> <li>2. The more proficient groups were faster than the less ones in sentence matching task.</li> </ol>
Conclusions	<ol style="list-style-type: none"> <li>1. Economy Principle is not accessible to second language learners to the same extent as it is to first language learners.</li> <li>2. Moreover, the more proficient the participants were, the more their performance became close to the result of native speakers. Therefore, proficiency can be considered as a strong factor for UG activation.</li> </ol>

**Table 2.4 Studies on the role of language awareness or consciousness (continued)**

Rezaei and Hosseinpur (2011)	
Research purposes	<ol style="list-style-type: none"> <li>1. To investigate whether learners prefer inductive or deductive consciousness raising (CR) tasks</li> <li>2. To investigate Iranian learners' inductive and deductive CR task preference on the basis of their field independence/dependence (FI/D) cognitive style.</li> <li>3. To investigate the effect of learners' gender and language proficiency levels on their inductive and deductive CR task preference.</li> </ol>
Research questions	<ol style="list-style-type: none"> <li>1. What is the learners' preference on CR task?</li> <li>2. What is the role of the learners' FI/D cognitive style in their task preference?</li> <li>3. Whether proficiency affects the learners' task preference?</li> </ol>
Participants	124 adult students including 50 males and 74 females
Variables	FI/D; gender; proficiency level;
Target structure	Relative Clause
Instruments	<p>A deductive and an inductive grammar CR task</p> <p>A task evaluation questionnaire</p> <p>Group Embedded Figure Test (GEFT)</p> <p>Nelson Quick Check Test (NQCT)</p>
Procedures	First, an inductive and a deductive grammar CR task were administered to the participants. Then, a task evaluation questionnaire was employed to examine the learners' attitudes towards, and opinions about, the tasks. GEFT was used to measure the subjects' FI/D cognitive style and NQCT served for determining the participants' proficiency levels.
Results	The results indicated that the participants preferred deductive CR task over inductive one and viewed it to be more useful. The subjects' FI/D cognitive style, proficiency level, and gender did not appear to affect their task preference or attitudes to the tasks.
Conclusions	<ol style="list-style-type: none"> <li>1. Iranians are mostly after deductive type of learning.</li> <li>2. Learners' FI/D cognitive style did not affect their task preference.</li> <li>3. The learners' proficiency and gender also did not appear to affect their task preference.</li> </ol>

**Table 2.4 Studies on the role of language awareness or consciousness (continued)**

Adams (2003)	
Research purposes	To investigate the potential for prompting noticing in language learning using an open learner model (OLM)
Research questions	<ol style="list-style-type: none"> <li>1. Will participants understand the OLM views?</li> <li>2. Will participants consider the OLM views to be accurate?</li> <li>3. Will participants find the OLM views useful for their learning?</li> <li>4. Will the salience technique help participants to 'notice' the correct form and 'notice the gap' between their knowledge and the domain knowledge?</li> <li>5. Will any 'noticing' be maintained over time?</li> </ol>
Participants	30 students at intermediate or higher intermediate level
Target structure	Irregular verbs; irregular plural nouns
Instruments	OLM; questionnaire
Procedures	<ol style="list-style-type: none"> <li>1. Participants were instructed about the OLM.</li> <li>2. Participants answered questions showing learner model (LM) basic information. LM contained conscious raising sentences and compared learners' knowledge with LM native.</li> <li>3. The initial and final states of the participants were compared and analyzed.</li> <li>4. A questionnaire was used to collect the participants' views towards the OLM.</li> </ol>
Results	50% of the participants' initial LM was at a low level and none was seen at the excellent level. In contrast, 90% of the final LM was identified at high levels (excellent, very good, or good), with progression throughout the session from initial to mid to final learner model.
Conclusions	An awareness-raising technique used in an OLM may help language learners to notice target forms. It could be a useful way of helping students to notice language features, with all students noticing some of the features tested. The learners may be able to internalize correct forms into their language system, using an OLM such as Notice.

**Table 2.4 Studies on the role of language awareness or consciousness (continued)**

Leow (1997)	
Research purposes	To investigate the role of awareness and its potential effects on learner's immediate behavior on both recognition and written production task.
Research questions	How do different levels of awareness of morphological forms in a problem-solving task influence learners' mental representations and subsequent recognition and accurate written production of such forms?
Participants	28 beginning L2 learners of Spanish
Variables	Levels of awareness; recognition assessment task score; written-production task score
Target structure	Irregular third person singular and plural preterit forms of stem-changing <i>-ir</i> verbs in Spanish
Instruments	Crossword puzzle; multiple-choice recognition assessment task; written-production task; think-aloud protocol
Procedures (Pretest-treatment-posttest)	<ol style="list-style-type: none"> <li>1. Instructions on the regular forms of <i>-ir</i> verbs in the preterit;</li> <li>2. Pretest with recognition assessment and written-production tasks;</li> <li>3. Experiment with crossword puzzles, think-aloud process recorded;</li> <li>4. Code the participants' think-aloud tapescripts into two categories: <ul style="list-style-type: none"> <li><b>A:</b> +cognitive change; +meta-awareness; ± morphological rule</li> <li><b>B:</b> +cognitive change; -meta-awareness; -morphological rule</li> </ul> </li> <li>5. Group the participants according to the categories;</li> <li>6. Posttest with recognition assessment and written-production tasks.</li> </ol>
Results & discussion	Qualitative results
	Category A participants' meta-awareness appeared to correlate with the use of conceptually-driven processing, such as hypothesis testing and morphological rule of formation. Category B participants' exhibited no conceptually-driven processing of noticed forms.
	Quantitative results
	Level of awareness contributes positively to learners' ability to recognize and, to a lesser extent, produce in a written mode forms noticed during a problem-solving task.
Conclusions	<ol style="list-style-type: none"> <li>1. Different levels of awareness lead to differences in processing;</li> <li>2. More awareness contributes to more recognition and accurate written production of noticed forms;</li> <li>3. The findings provide empirical support for the facilitative effects of awareness on foreign language behavior.</li> </ol>

Based on the previously discussed studies on language awareness, the researcher of this present study believes that no L2 acquisition may be successfully achieved without awareness of the target language. Therefore, L2 learners' awareness of English wh-movement characteristics will be explored.

The role of language awareness in L2 learning was studied by Fairclough (1992) who specifically defined it as critical language awareness. It was believed that language awareness could lead L2 learners to realize that language can conceal and reveal the social and ideological nature of all texts. Some researchers believed that language awareness was strongly advocated as an essential component in educating teachers because they believed the essential link between teachers' knowledge of language and their practices in reality (James & Garrett, 1992; Wright & Bolitho, 1993). In this present study, the author agreed that the language awareness took an efficient effect in promoting L2 learners to acquire more knowledge of the target language, English. Furthermore, the language awareness a teacher had may also assist L2 learners in understanding the target linguistic structures while they were doing autonomous study.

As mentioned previously in Table 2.4, Kennedy (2012) pointed out that qualitative awareness of language was crucial if L2 learners expected to communicate meaning. If L2 learners wanted to develop beyond learning the linguistic rules, they would need to understand how that language worked to convey meaning and to apply that knowledge in meaningful communication.

The author of this current study agrees with Kennedy (2012) that qualitative awareness enables L2 learners to apply linguistic rules into practice. Therefore, this key term, awareness, is defined as an L2 English learner's recognition and qualitative

application of moving wh-components and avoiding the wh-island constraints violations in learning English wh-movement.

By reviewing the previous studies, the teaching approaches and activities adopted by the scholars may be generalized and presented in the following table.

**Table 2.5 Teaching approaches and activities arousing L2 awareness**

	Research purposes	Teaching methods activities	Target	Procedures	Conclusions
Izumi and Bigelow (2000)	To promote noticing	Essay writing tasks	Past hypothetical conditional	Output 1→ Input→ Output 2	Essay-writing tasks more susceptible in drawing learners' attention.
		Text reconstruction tasks	Past hypothetical conditional	Input 1→ Output 1→ Input 2→ Output 2	
Storch (2001)	To compare the performance of tertiary ESL learners	A short composition	The quantity and nature of attention to grammatical choices The accuracy of the grammatical choices	Pretest→ Treatment→ Posttest	The text reconstruction task was the most successful
		An editing task			
		A text reconstruction			
Hanaoka (2007)	To investigate the nature of noticing function of output and its effect on subsequent learning	Picture description	Lexical features	1. picture description 2. comparison with native-speaker models 3. immediate revisions 4. delayed revisions	More proficient learners noticed significantly more lexical features than less proficient learners. Noticed problems were more incorporated.

The previous studies suggested that in L2 learning, being different from L1 acquisition, L2 learners' output acted as a direction previewer in the procedure of making grammatical final L2 performance.

### 2.2.3 Corrective Feedback in SLA

Following the previous discussion on differences between L1 and L2 acquisition in section 2.1, negative evidences in such two kinds of process functions differently.

As what has been discussed previously, repeated here, the effect of correction distinguishes L1 and L2 learning. For children's L1 acquisition, the corrective feedback would usually be in vain; whereas corrective feedback is indispensable in L2 acquisition. However, according to UG, advocated by Chomsky (1975), instruction, including negative evidence does not play significantly in L2 learning, because it will only change language behavior temporarily (Carroll, 1995; Cook, 1991; Schwartz, 1993), and what makes language acquisition possible is universal grammar and the innate linguistic mechanism Chomsky (1975, p. 29). Nevertheless, the role of corrective feedback in SLA has been continuously and vigorously debated among researchers of L2 learning.

Schmidt (1990, p. 176) argued that "subliminal language learning is impossible, and that intake is what learners consciously notice. This requirement of noticing is meant to apply equally to all aspects of language. Gass (1991) stated that corrective feedback functioned as an attention getting device. Moreover, Gass and Varonis (1994) further argued that "the awareness of the mismatch serves the function of triggering a modification of existing L2 knowledge".

Long (1996) categorized environment input into positive evidence and negative evidence. Positive evidence means to provide L2 learners with what is grammatical and acceptable in the target language, and negative evidence means to provide direct and indirect information about what is ungrammatical and unacceptable.

In other words, all things that enter learners' minds were divided into either positive or negative evidence, which was doubted by the researcher of the present study.

The reasons to the disagreement with Long (1996) may be explained from two perspectives. Firstly, it overlooked the analyzing ability of learners' minds. Although for most of the time, what L2 learners received were grammatical L2 input, with their language levels raised, they were able to distinguish ungrammatical L2 data from grammatical ones. Therefore, it is too simplistic to claim that input is either positive or negative because L2 learners should be able to judge that input is grammatical or not. Secondly, it oversimplified the classification of corrective feedback, in that L2 learners should not only be informed of what was acceptable or unacceptable but also be able to produce what was acceptable and avoid what was unacceptable. The corrective feedback needs to be able to help L2 learners control their output to be grammatical. In general Long (1996) ignored learners' internal mental mechanism in learning an L2.

Mackey (2006) carried out an experiment concerning feedback, noticing and instructed second language learning. He suggested that interactional feedback was associated with L2 learning because it prompted learners to notice L2 forms. His study explored the relationship between feedback and instructed ESL learners' noticing of L2 form. The results of the study pointed to the positive relationship between interactional feedback in the classroom, the learners' reports about noticing and their learning of L2 question forms.

Though Mackey (2006) proved positive relationship between corrective feedback and L2 learners' accuracy in question formation, there is more space for further study. The researcher of this present study is eager to find out whether there

is positive relationship between corrective feedback and L2 learners' accuracy in making English wh-movement and judging wh-island constraints violation. And the corrective feedback will more specifically refer to teachers' written feedback in this present study.

The empirical studies that are in support and against corrective feedback are summarized and reported in Table 2.6 and Table 2.7 respectively.



**Table 2.6 Studies in support of corrective feedback in SLA**

Shirazi and Sadighi (2012)	
Research purposes	To determine the differential effects of two forms of corrective feedback (CF), recast and elicitation.
Research questions	1. Do the learners who are exposed to communicative activities including a CF benefit more than those who are just exposed to communicative activities? 2. Is explicit negative feedback in the form of elicitation more effective than implicit feedback in the form of recasts?
Participants	60 intermediate learners divided into two experimental groups and a control group
Target structure	Relative clause
Instruments	TOEFL test; communicative focused task; recast feedback; elicitation feedback
Procedures (Pretest-treatment-posttest)	1. A TOEFL was adopted to ensure the homogeneity of the group. 2. The experimental groups performed some communicative focused tasks concerning the relative clauses. 3. Feedbacks were given to the experimental group in the form of recasts or elicitation. 4. Participants in the control group did not receive any feedbacks.
Results	1. There was no statistically significant difference among the three groups in terms of their overall performance. 2. Significant difference was found between feedback group and non-feedback group in posttest and delayed posttest. 3. The elicitation feedback group outperformed the recast feedback group in immediate posttest but not in delayed posttest.
Discussion & Conclusions	1. To expose learners to the juxtaposition of communicative activities with consciousness raising activities such error correction is more efficient than to mere communicative activities without correction. 2. The result of the immediate posttest provided support to the elicitation feedback because of the explicit-implicit dichotomy. Explicit feedback led to more feedback appreciation. 3. The less effectiveness of recast feedback demonstrated that the learners did not realize the teachers' recast as a kind of CF. 4. In terms of long-term effect, both explicit and implicit CF have positive influence on the learners' performance.

**Table 2.6 Studies in support of corrective feedback in SLA (continued)**

Gil, Marsden, and Whong (2011)	
Research purpose	To shed light on whether explicit teaching about the restrictions on the distribution of the word “any” can affect grammatical competence.
Research questions	1. Can L2 learners acquire the restrictions on the distribution of “any”? 2. Does negative evidence, in the form of explicit instruction about where “any” is ungrammatical as well where it is grammatical, facilitate acquisition?
Participants	15 upper intermediate or advanced learners divided into an experimental group with 10 and control group with 5 participants.
Variables	L2 learners’ judgment on the grammaticality judgment test
Target structure	English pronoun “any”
Instruments	Grammaticality judgment task (GJT)
Procedures (Pretest-treatment-posttest)	1. pretest GJT. 2. Instructions on “any” with explicit instructions only to the experimental group. 3. The experimental group was exposed to continued explicit discussion of uses of “any”. 4. Posttest GJT.
Results & discussion	1. The performance of both the experimental group and the control group appears to improve from the pre-test to the post-test. 2. The rates of acceptance of the grammatical tokens of both groups decrease from pre- to post-test.
Conclusions	1. The control group exhibited similar over-rejection in the post-test. It seems that, if anything, exposure to “any” in the teaching materials, rather than explicit instruction, made a difference to the learners’ behavior. 2. The findings did not indicate positive effect of negative evidence on the experimental group, but it called on further study on the effect of L1 transfer.

**Table 2.6 Studies in support of corrective feedback in SLA (continued)**

Bitchener and Knoch (2010)	
Research purposes	<ol style="list-style-type: none"> <li>1. To investigate the extent to which written corrective feedback (CF) can help advanced L2 learners, who already demonstrate a high level of accuracy in two functional uses of the English article system further increase that level of accuracy.</li> <li>2. To investigate the extent to which there may be a differential effect for different types of feedback on any observed improvement.</li> </ol>
Research questions	<ol style="list-style-type: none"> <li>1. Does advanced learner accuracy in the use of two functions of the English article system improve over a 10-week-period as a result of written CF?</li> <li>2. Does advanced learner accuracy in the use of two functions of the English article system vary according to the type of written CF provided?</li> </ol>
Participants	63 advanced L2 writers divided into three treatment groups: Group 1: written meta-linguistic explanation group; Group 2: indirect feedback group; Group 3: written meta-linguistic explanation and oral form-focused instruction group
Variables	Accuracy of article use
Target structure	English article system, including the referential indefinite article “a” and the referential definite article “the”
Instruments	Picture description
Procedures (Pretest-treatment-posttest-delayed posttest)	<ol style="list-style-type: none"> <li>1. Pretest.</li> <li>2. Three days later, the texts were returned with written CF. All three groups of participants were given time to consider the CF. Group 1 considered the meta-linguistic explanation. Group 2 consider the indirect feedback. Group 3 considered the written meta-linguistic explanation and took part in the form-focused discussion. Control group received no feedback.</li> <li>3. Immediate posttest was administered after the participants considered the CF. Control group completed the immediate posttest without consideration.</li> <li>4. 10 weeks after the pretest, the delayed posttest was administered.</li> </ol>
Results & discussion	<ol style="list-style-type: none"> <li>1. In the immediate posttest, the three treatment groups outperformed the control group in accuracy.</li> <li>2. Among the three treatment groups, the indirect feedback group decreased in terms of accuracy in the delayed posttest comparing to the other two treatment groups.</li> <li>3. At the time of the delayed post-test, the indirect feedback group could not sustain the improvement in accuracy and therefore did not differ significantly from those in the control group.</li> </ol>
Conclusions	<ol style="list-style-type: none"> <li>1. The effectiveness of written CF was evident in helping advanced learners improve the accuracy.</li> <li>2. Providing the advanced learners with meta-linguistic explanation had more effective influence on advanced learners than just identifying where an error was.</li> </ol>

**Table 2.6 Studies in support of corrective feedback in SLA (continued)**

Sheen, Wright, and Moldawa (2009)	
Research purposes	<ol style="list-style-type: none"> <li>1. To investigate the relative efficacy of focused and unfocused written corrective feedback (CF) on the accurate use of grammatical forms by adult ESL learners.</li> <li>2. To examine whether writing practice without CF leads to gains in grammatical accuracy</li> </ol>
Research questions	<ol style="list-style-type: none"> <li>1. Is there any difference in the effect of focused and unfocused error correction on adult ESL learners' accurate use of English articles?</li> <li>2. Is there any difference in the effect of focused and unfocused error correction on adult ESL learners' accurate use of grammatical features other than that which is the focus of the correction?</li> <li>3. Is there an effect for written narrative tasks without error correction on the accurate use of grammatical features other than that which is the focus of the correction?</li> </ol>
Participants	<p>5 native English-speaking teachers, 80 intermediate level students divided into one control group and three experimental groups as follows.</p> <ol style="list-style-type: none"> <li>1. Focused written CF group (FG);</li> <li>2. Unfocused written CF group (UG);</li> <li>3. Writing practice group (WPG).</li> </ol>
Variables	The experiment treatment; article scores
Target structure	English articles; copula 'be', regular past tense 'ed'; irregular past tense; preposition
Instruments	Narrative writing test;
Procedures (Pretest-treatment-posttest-delayed posttest)	<ol style="list-style-type: none"> <li>1. Participants read a story with the key words explained, and then handed it in.</li> <li>2. Then the participants were asked to write the story as closely as they could remember.</li> <li>3. Participants' written narratives were collected and corrected.</li> <li>4. Focused written direct CF: the narrative corrected based on the correction guidelines focusing on article errors only. Unfocused written direct CF: the narratives corrected targeting five different grammatical features.</li> <li>5. The participants received their narratives with corrections. They were required to revise it after reading through the feedback.</li> </ol>
Results & discussion	All three experimental groups (FG, UG and WPG) gained in grammatical accuracy over time in all the posttests.
Conclusions	Unfocused CF is of limited pedagogical value whereas focused CF can contribute to grammatical accuracy in L2 writing.

**Table 2.6 Studies in support of corrective feedback in SLA (continued)**

Rahimi (2009)	
Research purposes	<ol style="list-style-type: none"> <li>1. To investigate the impact of feedback on writing accuracy over time.</li> <li>2. To examine the relevance of the students' mother tongue to the feedback effect.</li> </ol>
Research questions	<ol style="list-style-type: none"> <li>1. Does the teacher's feedback help students improve their writing accuracy over time?</li> <li>2. To what extent does teacher's feedback help students reduce the errors belonging to different grammatical categories in subsequent essays?</li> <li>3. Does error feedback affect structure complexity?</li> <li>4. What are the student views about the feedback and are they in line with the numerical data?</li> </ol>
Participants	56 intermediate-leveled Iranian English majors divided into the no-feedback group (NG) and the correct group (CG)
Variables	Feedback treatment; accuracy in L2 writing
Target structure	Verb errors; noun ending errors; article errors; wrong word; sentence structure errors
Instruments	Essay writing; semi-structured interview
Procedures (same procedure repeated in expository essay and argumentative essay writing )	<ol style="list-style-type: none"> <li>1. Introducing the expository/argumentative essay and providing model.</li> <li>2. In-class expository/argumentative essay writing.</li> <li>3. Essays being collected, commented on and returned to the participants.</li> <li>4. CG receiving corrective feedback in the form of underlining and coding of the grammar errors as well as brief comments on the content and organization of the essays.</li> <li>5. NG receiving no in-text feedback, but some comments on the organization and the content and some general comments on grammar.</li> </ol>
Results & discussion	<ol style="list-style-type: none"> <li>1. Although both groups have improved their writing accuracy as a result of practice with writing, the interaction of feedback with practice has helped CG make more improvement over time as compared with NG.</li> <li>2. For CG all the categories, the error mean has significantly reduced from the first essay to the last, while in NG, error reduction can be seen only in three categories; verb, sentence, and word categories.</li> <li>3. Improvement in accuracy resulted in improvement in writing complexity.</li> </ol>
Conclusions	<ol style="list-style-type: none"> <li>1. It is important to provide feedback, particularly in an EFL context where teachers' instruction and feedback are the most important ways through which learners can improve their language proficiency.</li> <li>2. The error means of all the categories significantly reduced over time in the absence of feedback. The students paid more attention to more global grammatical points. The participants were more successful at identifying and correcting the errors related to the sentence structure than those related to the articles.</li> <li>3. Both groups improved the complexity of their writing over time due to their practice in writing and error correction had no effect on their writing complexity.</li> </ol>

**Table 2.6 Studies in support of corrective feedback in SLA (continued)**

Varnosfadrani and Basturkmen (2009)	
Research purposes	<ol style="list-style-type: none"> <li>1. To clarify the role that the manner of correction plays in restructuring learners' interlanguage.</li> <li>2. To know whether the manner of correction affects the learning of the type of structure corrected.</li> </ol>
Research questions	<ol style="list-style-type: none"> <li>1. Is there a difference between the effects of explicit correction and implicit correction in language learning?</li> <li>2. Is there any difference between the effects of error correction on structures which are acquired early and those which are acquired later?</li> </ol>
Participants	56 upper-intermediate adults
Variables	Explicit treatment, implicit treatment, scores in the individualized tailor-made test
Target structure	English articles; past tense; plural "s"; relative clause; active & passive voice; third person singular "s"
Instruments	individualized tailor-made test; story retelling; interview
Procedures (Pretest-treatment-posttest)	<ol style="list-style-type: none"> <li>1. Each individual learner was assigned two different passages and then was asked to read for comprehension.</li> <li>2. The learner was then asked to reconstruct the content of the passages.</li> <li>3. Some grammar errors made by the learner in each of the task passages were then corrected by the researcher according to immediate/delayed explicit treatment or immediate/delayed implicit treatment.</li> <li>4. For immediate explicit correction, as soon as the learner made an error, the researcher stepped in to correct the learner in an explicit manner.</li> <li>5. For delayed explicit correction, the researcher waited till the learner's reconstruction was over and then would draw the learner's attention to the error explicitly.</li> <li>6. For the immediate implicit manner, as soon the learner made an error, the researcher recast the erroneous utterance.</li> </ol>
Results & discussion	<ol style="list-style-type: none"> <li>1. One possible reason for better performance in the explicit may have been that it was more effective in raising awareness of corrected feature in the learners.</li> <li>2. Awareness may have been the main cause for the better performance of the explicit correction group over the implicit.</li> <li>3. Learning can only take place if the learner's interlanguage is close to the point when the structure to be taught is acquired in the natural setting.</li> <li>4. Though explicit corrective feedback was more effective than implicit CF in the case of the early structures, the opposite was true in the case of the late structures</li> </ol>
Conclusions	<ol style="list-style-type: none"> <li>1. Explicit correction helped learners outperformed those who received implicit correction.</li> <li>2. Developmental early features are learned better with explicit correction and developmental late features with implicit correction.</li> </ol>

**Table 2.6 Studies in support of corrective feedback in SLA (continued)**

Bitchener (2008)	
Research purposes	<ol style="list-style-type: none"> <li>1. To investigate whether targeted corrective feedback on ESL student writing results in improved accuracy in new pieces of writing over a 2-month period.</li> <li>2. To investigate whether there is a differential effect on accuracy for different corrective feedback options.</li> </ol>
Research questions	<ol style="list-style-type: none"> <li>1. Does accuracy in the use of two functions of the English article system vary over time?</li> <li>2. Does accuracy in the use of these features vary according to the type of corrective feedback provided?</li> <li>3. Does accuracy in the use of these features vary as a result of the interaction of feedback type and time?</li> </ol>
Participants	75 low intermediate level learners from multiple language background divided into three treatment groups and a control group
Variables	The experiment treatment; English article accuracy
Target structure	English article system: the referential indefinite article “a” the referential definite article “the”
Instruments	Picture description
Procedures (Pretest-treatment-posttest-delayed posttest)	<ol style="list-style-type: none"> <li>1. Two weeks after the pretest, treatment was given to the participants.</li> <li>2. The participants of the treatment groups were permitted to consider the feedback and then they were required to write a second piece of writing.</li> <li>3. The control group wrote a second piece of writing without consideration.</li> <li>4. Two months after the immediate posttest, the participants were required to write a third piece of writing.</li> </ol>
Results & discussion	<ol style="list-style-type: none"> <li>1. There was a significant improvement in accuracy immediately after the treatment had been provided, and this level of accuracy was retained in the third piece of writing.</li> <li>2. Participants in group one who received direct corrective feedback as well as written and oral meta-linguistic explanation and those in group three who received direct corrective feedback and no meta-linguistic explanation outperformed the control group who did not receive corrective feedback.</li> <li>3. There was significant difference in accuracy between learners who received direct corrective feedback as well as written and oral meta-linguistic explanation and those received only explicit error correction.</li> </ol>
Conclusions	<ol style="list-style-type: none"> <li>1. The improvement of accuracy was the result of a moderately intensive, targeted focus on two functional uses of one problematic linguistic domain for ESL learners.</li> <li>2. Meta-linguistic explanation in the feedback is effective in improving L2 learners' accuracy.</li> </ol>

**Table 2.7 Study against corrective feedback in SLA**

Truscott and Hsu (2008)	
Research purpose	To clarify whether error reduction during revision is a measure of learning
Participants	47 EFL graduate students with various academic backgrounds, divided into an experimental group and a control group
Variables	Corrective feedback; grammatical errors
Target structure	Grammatical errors that violate all English grammar rules.
Instruments	Picture describing and story telling
Procedures (Pretest-treatment-posttest)	<ol style="list-style-type: none"> <li>1. Instruction on the genres of narration, description, and argumentation.</li> <li>2. Participants received pictures and were required to write a narrative story based on the pictures.</li> <li>3. Experimental group participants' works were returned with errors underlined and the participants revised the narrative. Control group did the same thing without marked errors.</li> <li>4. The same procedure was done twice and the writing works of the experimental and control groups were collected.</li> <li>5. All participants' grammar errors were counted and compared for the purposes of observing the differences between groups during the process of writing two narratives.</li> </ol>
Results & discussion	<ol style="list-style-type: none"> <li>1. The groups were equal in their initial writing proficiency.</li> <li>2. The reduction in error rates from Narrative 1 between the two groups is significant, which meant that error feedback had a significant effect on students' rewrites.</li> <li>3. The results of Narrative 2 indicated that the two groups were identical, which meant that the corrections did not have effective influence on students' writing development.</li> </ol>
Conclusions	Error correction helped students reduce errors on rewriting. However, the benefits of error correction did not extend to a new writing task. Successful error reduction during revision is not a predictor of learning. Improvements made during revision are not evidence on the effectiveness of correction for improving learners' writing ability.

Truscott and Hsu (2008) did not lend support the effectiveness of error correction in improving L2 learners' grammar accuracy. The researcher of the current study believes that their research was problematic in three aspects.

Firstly, the grammatical errors were counted without categorization. As what was done by Rahimi (2009), the errors were categorized as verb errors; noun ending errors; article errors; wrong word; sentence structure errors. L2 learners' errors in their output may be specifically tracked down and analyzed instead of simply counting the frequency of all errors without specification. To categorize the errors may help the researcher understand which type of error was more frequently made and may thereafter provide the learners with corresponding explanation or meta-linguistic corrective feedback.

Secondly, the errors provided to the participants were marked without correction or meta-linguistic explanation. As argued by Bitchener (2008), corrective feedback with direct error correction and written meta-linguistic explanation will facilitate L2 accuracy. Those marked errors without any forms of explanation in Truscott and Hsu (2008) may raise L2 learners' awareness of the errors but won't be able to help the learners' understand what is grammatical or ungrammatical and the reasons. Furthermore, such error-marked-no-explanation method may help L2 learners avoid making errors in the contexts identical to the previous one, whereas it is ineffective in helping L2 learners understanding the reasons and avoid making similar grammar errors when the context is different.

Thirdly, there was no consistency between the two narratives in their research. The narratives that the participants were required to write were two individual ones, i.e. not consistent in purpose of improving the learners' accuracy in

English grammar accuracy. Accordingly, together with the above two mentioned reasons, there was no significant improvement in learners' output.

Whether L2 learners of this study perform as what is supported by UG, namely corrective feedback will be in vain, or effective will be discussed with more details.

Syntactic analysis on English and Chinese wh-movement will be presented in the following section.

## **2.3 Wh-movement**

It is well known that Chinese wh-words remain in their position while people are inquiring information. On the other hand, English wh-words have to move to the beginning of a sentence in order to form a question. This section compares English wh-questions with Chinese ones for the purpose of introducing the parameters of the two languages.

### **2.3.1 Comparison of English and Chinese Wh-expressions**

Before a more detailed discussion of direct wh-questions, as well as indirect wh-questions (embedded wh-clauses), it is necessary to compare the wh-components in the two languages.

The interrogative pronouns in English and Chinese, along with the specification of each wh-expression, are listed in Table 2.8.

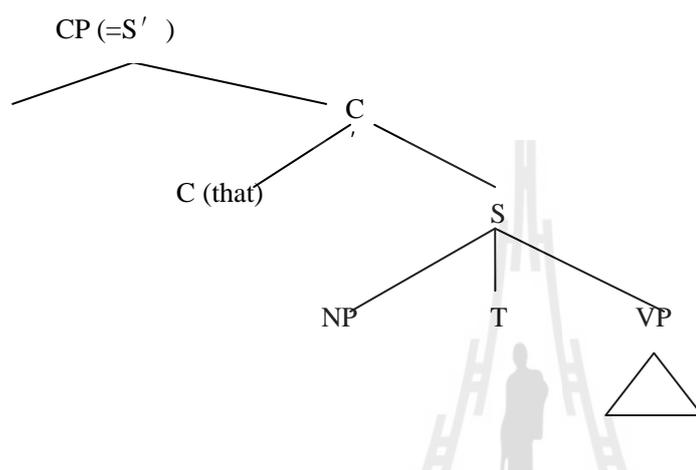
**Table 2.8 Comparison of English and Chinese wh-expressions**

	English	Chinese	Specification
1	who	谁 (shéi)	human
2	what	什么 (shénme)	things / non-human
3	when	什么时候 (shénme shíhòu)	time
4	where	哪儿(nǎr) 什么地方(shénme dìfāng)	place
5	how many/much	几 (jǐ) 多少 (duōshǎo)	quantity
6	how (+adj./adv.)	怎么样 (zěnmeyàng)	degree
7	how (to v.)	怎么 (zěnmeyàng)	means
8	which	哪个 (nǎgè)	feature
9	why	为什么 (wèishénme)	reason

It is known that Chinese is a wh-in-situ language. In English, when a wh-question is raised to find out some information, the wh-component should be fronted to lead the sentence, whereas the Chinese counterparts stay in the questioned part within a sentence. The specific characteristics of wh-component in different parts of a sentence in Chinese and English will be analyzed with more details in the following section.

The core structure of an English sentence is shown in Figure 2.1, with CP as complementizer phrase, C complementizer, S sentence, NP noun phrase, VP verb

phrase and T tense indicator. When a certain part within a statement is questioned, it will be replaced by a wh-word and fronted to the beginning of the sentence, whereas at the same time the inflectional change (INFL) will be moved to C. CP has C as their heads. A tree showing a CP is given below.



**Figure 2.1 CP tree**

### 2.3.2 Subject Wh-questions

The subject wh-question means the wh-component takes the place of the subject in a sentence. As for the subject wh-question in English, the wh-component takes the role as a subject of a sentence. Therefore, there is either no fronting of wh-component or fronting of auxiliary verb or INFL as shown in 2-1 below.

2-1 Eileen watched a movie yesterday in her room.→<sup>4</sup>

Who watched a movie yesterday in her room?

As for Chinese, the structure of statements and wh-questions are the same

<sup>4</sup> An arrow “→” after a declarative sentence means this sentence will be changed into an interrogative question below both in English and Chinese.

as English SVO sentence structures. The difference between English and Chinese is the position of the adjuncts. The above English sentence 2-1 may be translated into Chinese as 2-2,

2-2

**Eileen** zuótiān zài tā fángjiān kànle yíbù diànyǐng.→

**Eileen** yesterday in her room watched a movie.

(Eileen watched a movie in her room yesterday.<sup>5</sup>)

2-3

**Shéi** zuótiān zài tā fángjiān kànle yíbù diànyǐng?

**Who** yesterday in her room watched a movie?

(Who watched a movie in her room yesterday?)

Although the subject wh-questions in both languages appear to have a similar structure, it would be too soon to conclude that they undergo the same movement with reference to the wh-component. To be more specific, the Chinese subject remains in-situ, whereas the English subject is moved to the front of the question from the subject position of the statement and leaves a *trace(t)* in the original place without fronting the INFL in the sentence, as shown in 2-4 below,

2-4 Who<sub>*i*</sub> *t<sub>i</sub>* watched a movie yesterday in her room?

who watch –ed (+INFL-past tense) a movie yester day in her room?

The corresponding Chinese version of above English sentence is shown

<sup>5</sup> The English version of a Chinese sentence will be presented in a bracket after the Chinese sentence for the sake of ease of understanding.

below, where the wh-word *Shéi* remains in-situ without fronting:

2-5

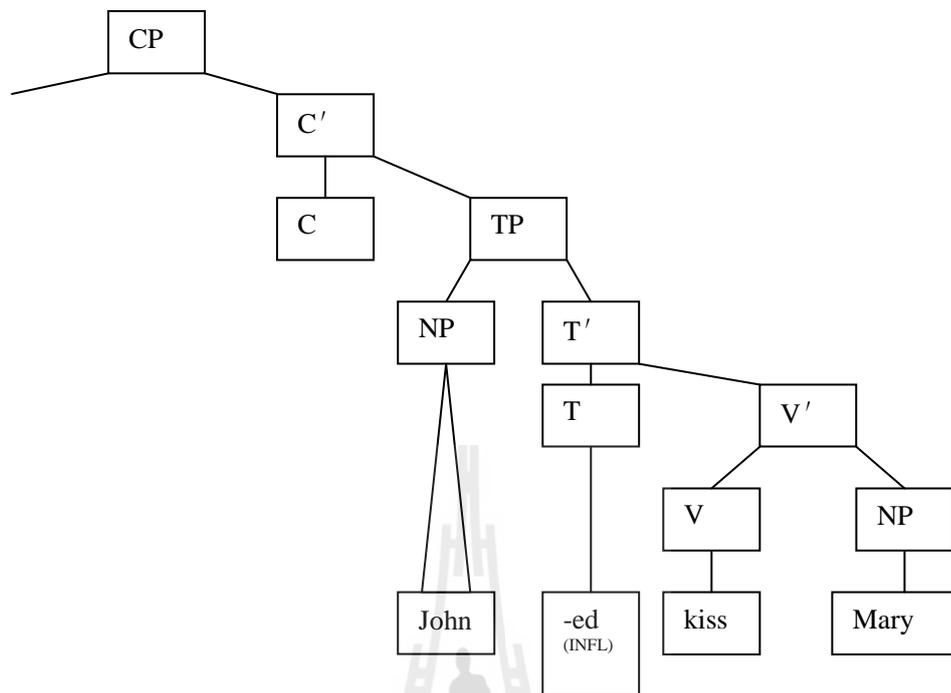
**Shéi** zuótiān zài tā fángjiān kànle yíbù diànyǐng?

### 2.3.3 Object Wh-questions

It is defined in the current study that the object wh-component which takes the role of an object in a sentence as an object wh-question. The object wh-component is the receiver or undergoer of an action in a sentence as an object in a statement is. When an English wh-question is raised to ask for information about the receiver of the action, the object of a sentence is usually substituted by a wh-word and fronted to the beginning of the sentence with the tense indicator T-to-C i.e. auxiliary verb or INFL fronted at the same time.

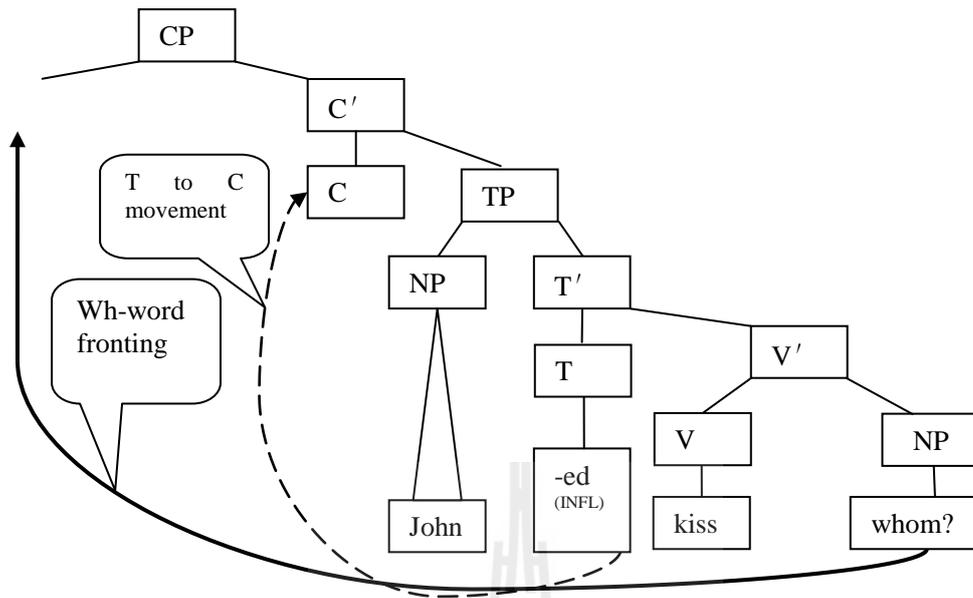
The statement structure of a sentence is shown in Figure 2.2.

2-6 John kissed Mary.



**Figure 2.2 Tree structure of an English statement**

When an interrogative question is raised to ask for the information about the receiver of John's kiss, the object of this sentence is substituted by a wh-word, i.e. whom, and fronted to the beginning of the sentence. Moreover, the tense indicator is also moved to the complementizer place, as shown in Figure 2.3.



**Figure 2.3** Tree structure of English wh-question

Therefore, a question is formed to be like 2-7,

2-7

Whom<sub>i</sub> did John kiss *t<sub>i</sub>*?

However, the Chinese wh-component that substitutes the object will stay in-situ. The surface structure of the Chinese statement is the same as that of English statement as shown in 2-8 below,

2-8

Yuēhàn wěnlē **mǎlì.**

John kissed **Mary.** (John kissed Mary.)

However, if someone wants to know the receiver of John's kiss, it is

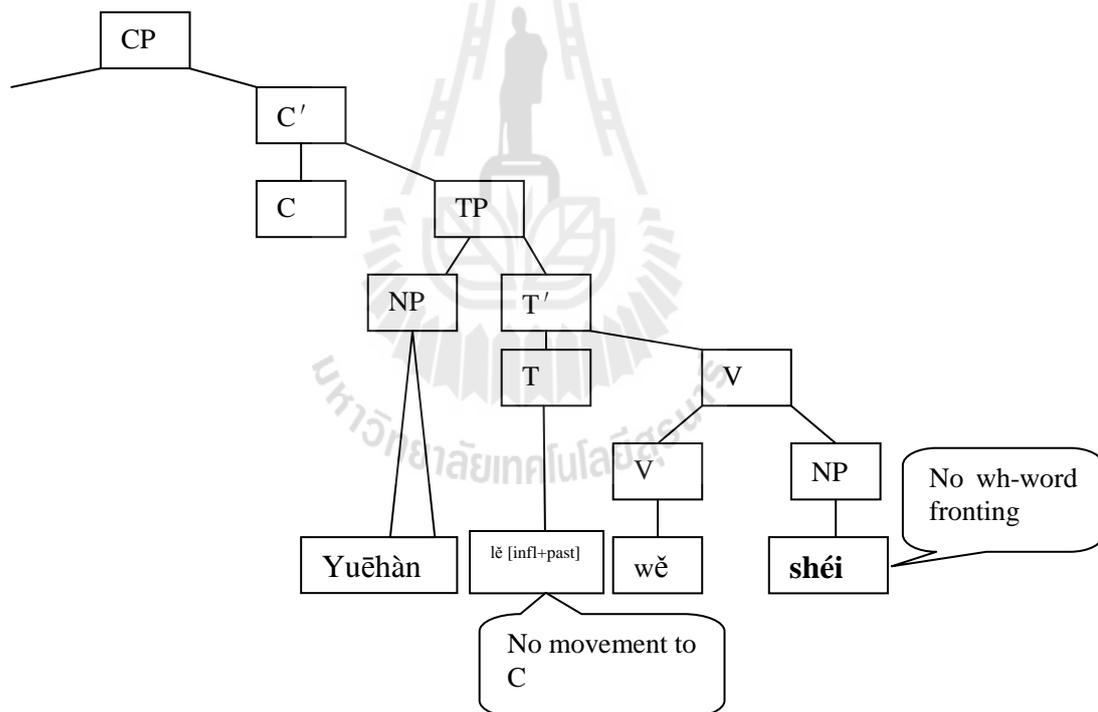
ungrammatical to front the wh-component in Chinese, and he should ask a question in Chinese as,

2-9

Yuēhàn wěn le(INFL+past) **shéi?**

John kiss -ed **whom?** (Whom did John kiss?)

The tree structure of the above Chinese interrogative question is shown in Figure 2.4.



**Figure 2.4 Tree structure of Chinese wh-question**

Another set of object wh-question examples in English and Chinese with double objects may be exhibited in the following sentences.

2-10

English statement: John gave Mary a rose. →

Chinese statement: Yuēhàn gěi le(INFL+past)mǎlì yìzhī méiguì.→

John give (INFL+past) Mary a rose.

(John gave Mary a rose.)

English object questions:

What did John give to Mary?

or

To whom did John give a rose?

Chinese object questions:

Yuēhàn gěi le(INFL+past) mǎlì **shénme?**

John give (INFL+past) Mary **what?**

(What did John give to Mary?)

Yuēhàn gěi le(INFL+past) **shéi** yìzhīméiguì.?

John give (INFL+past) **whom** a rose?

(To whom did John give a rose?)

As analyzed above, the major difference between English and Chinese is the fronting of both the wh-expression and the auxiliary verb to proper places within a sentence.

### 2.3.4 Islands

There are several constraints in English which ban the extracting of wh-component. Detailed explanation of the constraints and comparison of the

wh-component in wh-island between English and Chinese will be given in this part.

#### 2.3.4.1 The Complex NP-Constraint (CNPC)

The complex noun phrase means an S (CP) dominated by a noun phrase (NP). The Complex NP-Constraint, also termed as Complex Noun Phrase Condition in Chomsky (1986), means no element in an S (CP) dominated by an NP could be moved out of that NP by a transformation. Examples in Chomsky (1986, p. 34) are quoted here to illustrate the constraint.

2-11

\*Which book did John meet [<sub>NP</sub> a child [<sub>CP</sub> who read *t*]]

Chomsky (1986) explains that the CP is a blocking category and the NP inherits barrierhood from CP. Thus, two barriers are crossed, and a Subjacency violation results. In other words, no element in an attributive clause (CP) modifying an NP should be moved out of the NP to become the wh-component leading a sentence. For example,

2-12

He stole the necklace that my mother made for me. →

\*What<sub>*t*</sub> did he steal [<sub>NP</sub> my necklace [<sub>CP</sub> that my mother made *t* for me]]?

Comparatively speaking, Chinese noun phrases do not require extracting the questioned part to the beginning of a sentence to make it a wh-question.

Therefore, CNPC does not display in the surface structure of a Chinese sentence. Components in an NP dominated CP may leave in-situ and form the wh-component in a sentence. For example, the Chinese version of above sentence is shown below.

2-12

Tā tōule wǒ māma gěi wǒ zuò de xiàngliàn.

He stole my mother for me made necklace.

(He stole the necklace that my mother made for me.)

If a question is raised to ask about the receiver of the action, a wh-word “*shénme*” about non-human things may just take the position of the receiver to change the statement into an interrogative question.

2-12

Tā tōule wǒ māma gěi wǒ zuò de **xiàngliàn**.→

He stole my mother for me made **necklace**.

(He stole the **necklace** that my mother made for me.)

Tā tōule wǒ māma gěi wǒ zuò de **shénme?**

He stole my mother for me made **what?**

(What did he steal which was made by my mother?)

If a question is made to ask about an element in the adjunct of the noun, which is CNPC, the wh-word will take the position of that element to change the statement into an interrogative question.

2-12

Tā tōule *wǒ māma* gěi wǒ zuò de xiàngliàn.→He stole *my mother* for me made necklace.(He stole the necklace that *my mother* made for me.)Tā tōule *shéi* gěi wǒ zuò de xiàngliàn?He stole *who* for me made necklace?(The necklace made by *whom* was stolen by him?)

However, in English the element within a complex NP must not be extracted out of the NP to make a wh-question asking for information about that element.

2-13

He stole the necklace that *my mother* made for me. →\*Who<sub>t</sub> did he steal [<sub>NP</sub> my necklace [<sub>CP</sub> that *t* made for me]]?

As we can see from the comparison between the two languages, there is no CNPC in Chinese. Within the framework of UG, the Subjacency Principle is one of the principles innate in people's minds. Therefore, if this principle is really with people at birth, Chinese speaking English learners should be able to obey this rule while they are learning English. Nevertheless, they have to reset the parameters of the wh-movement since what violates the CNPC in English is grammatical in Chinese.

This present research will adopt grammaticality judgment task to test Chinese EFL learners' sensitivity to the subjacency violation. If UG constrains them, they are predicted to be able to detect what violates the subjacency principle. Moreover, if they could distinguish English parameters from Chinese ones, then it is predicted that Chinese speaking learners of English need to reset the parameters in order to realize successful second language acquisition.

#### 2.3.4.2 The Sentential Subject Constraint (SSC)

SSC means that no element in a clause which takes the role of the subject of a sentence can be extracted out of the clause to make an interrogative question as shown in 2-14..

2-14

That he won *the game* encouraged me. →

\*What<sub>t</sub> did he win *t* encouraged me?

As for Chinese, interrogative questions inquiring information about the element in the clause should be made by substituting the element with a wh-word.

The Chinese version of the above statement is as follows.

2-15

Tā yíngdé *bǐsài* jīli le(INFL+past) wǒ. →

He won *game* encouraged me.

(That he won *the game* encouraged me.)

Tā yíngdé *shénme* jīli le(INFL+past) wǒ?

He won *what* encouraged me  
 (*What* did he win that encouraged me?)

Or another part may be questioned as follows,

2-15

*Tā* yíngdé bǐsài jīli le(INFL+past) wǒ.→

*He* won game encouraged me.

(That *he* won the game encouraged me.)

*Shéi* yíngdé bǐsài jīli le(INFL+past) wǒ?

*Who* won the game encouraged me

(*That who* won the game encouraged me?)

### 2.3.4.3 The Coordinate Structure Constraint (CSC)

CSC means that neither a conjunct, nor any element contained in a conjunct in a coordinate structure may be moved out of that conjunct.

2-16

Betty likes apples but hates *bananas*.→

\*What<sub>*t*</sub> does Betty likes apples but hate *t*?

?What does Betty *t* like but hate *t*?<sup>6</sup>

In example 2-16, in order to ask what Betty hates, the questioned part

<sup>6</sup> A “?” indicates a grammatical but unacceptable or ambiguous sentence.

may be left in-situ as “Betty likes apples but hates *what?*” which is similar to Chinese interrogative questions.

There is also a coordinate structure in Chinese. But since an element must not be extracted and fronted to make a wh-question, the above mentioned example is grammatical in Chinese.

2-17

Betty xǐhuān píngguǒ dànshì tònghèn *xiāngjiāo*.→

Betty like apple but hate *banana*.

(Betty likes apples but hates bananas.)

Betty xǐhuān píngguǒ dànshì tònghèn *shénme?*

Betty like apple but hate *what?*

(\* Betty likes apples but hates what?)

It is assumed in this present research that after Chinese speaking learners of English receive instructions on wh-movement constraints, they would be able to tell that to extract a conjunct is not legitimate in English, and they will allow a questioned-element stay in-situ.

#### 2.3.4.4 The Adjunct Island Constraint

The adjunct island constraint means that an element in the adjunct of a sentence cannot be extracted and fronted.

An element in the adjunct of a Chinese sentence may be questioned by replacing the element with a wh-word.

## 2-18

Eileen xǐhuānjiāoshū yīnwèi tā cóngzhōng huòdéle *lèqù*→  
 Eileen enjoy teaching because she from it gain *pleasure*.  
 (Eileen enjoyed teaching because she gained pleasure from it.)

Eileen xǐhuānjiāoshū yīnwèi tā cóngzhōng huòdéle *shénme?*  
 Eileen enjoy teaching because she from it gain *what?*

(<sup>?</sup> Eileen enjoyed teaching because she gained what from it. / Because of what she gained from it, did Eileen enjoy teaching?)

However an element of an adjunct of an English sentence must not be extracted and fronted as shown in example 2-19.

## 2-19

Eileen enjoyed teaching because she gained *pleasure* from it. →

\**What<sub>t</sub>* did Eileen enjoy teaching very much because she gained *t* from it?

The word “pleasure” cannot be substituted by *what* and fronted because it is within the adjunct island “because she gained pleasure from it.” Therefore, the interrogative question “\**What<sub>t</sub>* did Eileen enjoy teaching very much because she gained *t* from it?” is ungrammatical.

In Chinese, if a question is raised to ask about an element within an adjunct, no movement or constraint is required. A wh-word will just take the questioned part to change a statement into an interrogative question as shown in example 2-18.

Or another part with the adjunct may be questioned as follows,

2-20

Eileen xīhuānjiāoshū yīnwèi tā cóngzhōng huòdéle lèqù→  
 Eileen enjoy teaching because she from it gain pleasure.

(Eileen enjoyed teaching because she gained pleasure from it.)

Eileen xīhuānjiāoshū yīnwèi shéi cóngzhōng huòdéle lèqù?  
 Eileen enjoy teaching because who from it gain pleasure? .

(<sup>?</sup> Eileen enjoyed teaching because who gained pleasure from it. / Because who gained pleasure from teaching, did Eileen enjoy it?)

However, it is assumed that while making an English interrogative question, Chinese EFL learners in this present study will not violate this constraint by extracting an element within the adjunct. L2 learners may not be able to explain it syntactically, but may sense the absurdness of adjunct island violation. The reason is that the subjacency principle governs language and is universal to all languages. Chinese speaking learners of English will not make questions that violate the principle, although there is no adjunct island constraint in Chinese.

#### 2.3.4.5 The Wh-Island Constraint

The wh-island constraint operates in English which means that an NP which is part of an indirect question cannot be questioned or extracted as illustrated in example 2-21.

2-21

Eileen asked who would give the speech at *the conference*.→

\*Where<sub>t</sub> did Eileen ask who would give the speech *t*?

The corresponding Chinese version is legitimate, on the other hand. A wh-word takes the position of the questioned element to make an interrogative question asking about the place of the speech as shown in example 2-22.

2-22

Eileen wèn shéi zài *huìyìshàng* zuò yǎnjiǎng. →

Eileen ask who at *conference* give speech.

(Eileen asked who would give the speech *at the conference*.)

Eileen wèn shéi zài *nǎr* zuò yǎnjiǎng.

Eileen ask who at *what place* give speech.

(Eileen asked who would give the speech *at what place*.)

In the above example, the wh-word *nǎr* (where) takes the position of *huìyìshàng* (at the conference) and stays in-situ to inquire about the place of the speech. However, Chinese wh-word *wèishénme* (why) is more complex than the other Chinese wh-words. It should not be treated simply as a wh-in-situ word. Different positions of the word *wèishénme* (why) may cause ungrammaticality as what is shown in ungrammatical example 2-23c), or grammaticality as shown in grammatical examples 2-23a and 2-23b which have exactly the same meaning.

2-23a)

*Wèishénme* [CP tāde míngzi búzài mīngdān shàng]?

Why [CP her name is not name list on]?

(Why isn't her name on the name list?)

=

2-23b)

Tāde míngzi *wèishénme* [CPbúzài mīngdān shàng]?

Her name *why* [CPis not name list on]?

(Why isn't her name on the name list?)

2-23c)

\*Tāde míngzi [CPbúzài *wèishénme* mīngdān shàng]?

\*Her name [CPis not *why* name list on]?

The reason for this phenomenon is that unlike wh-words inquiring information about nouns such as, *shénme* (what), *shéi* (who) (also referred as nominal wh-phrase (Tsai, 1994a, 1994b)), the Chinese word “*wèishénme* (why)” is a wh-word asking for reason, i.e. an adverbial wh-phrase (Ibid). And the answers to such questions normally start with the word “because”. In the above ungrammatical sentence c), the wh-adverb *wèishénme* is inside a VP, whereas in the grammatical sentences a) and b), the wh-adverb *wèishénme* is outside a CP, which suggests that movement of wh-word asking for reasons is involved in Chinese sentences.

### 2.3.5 Characteristics of Wh-movement by Chinese EFL learners

When an English interrogative question is asked, the questioned element

and the auxiliary verb should be fronted to the initial place of a sentence. When this question is changed into an indirect question, the fronted auxiliary verb should be moved back to its original place in the question. An example is shown as in 2-24.

2-24

Eileen was in her bedroom. (statement)→

Where was Eileen? (direct question)

Can you tell me where Eileen was? (indirect question)

While Chinese learners of English are learning how to make wh-questions, there is a phase of language learning during which there is no auxiliary fronting. Learners may ask questions as “\*Why Africa is poor?” due to the influence of their mother tongue. Chinese interrogative questions do not require the fronting of the questioned part and the auxiliary verb. For example, the Chinese version of the English simple statement “John kissed Mary.” in sample 2-8 is discussed here again as in example 2-25.

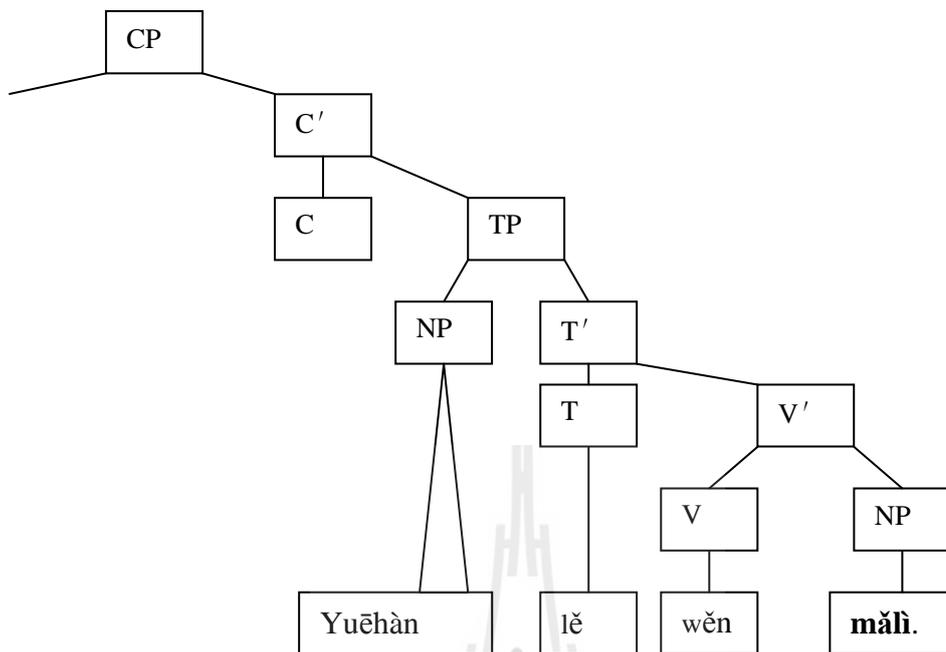
2-25

Yuēhàn            wěn        le (+INFL+past tense)            **mǎlì.**

John            kissed    **Mary.**

(John kissed Mary.)

The tree structure of the Chinese sentence is the same as the English version as shown in Figure 2.5.



**Figure 2.5 Tree structure of the Chinese simple statement**

When a Chinese question is asked about the receiver of John's kiss, there is either no wh-word fronting or T-to-C movement. In Chinese, a wh-word will just take the place of the questioned part in the sentence and stay in-situ as shown below.

2-26)

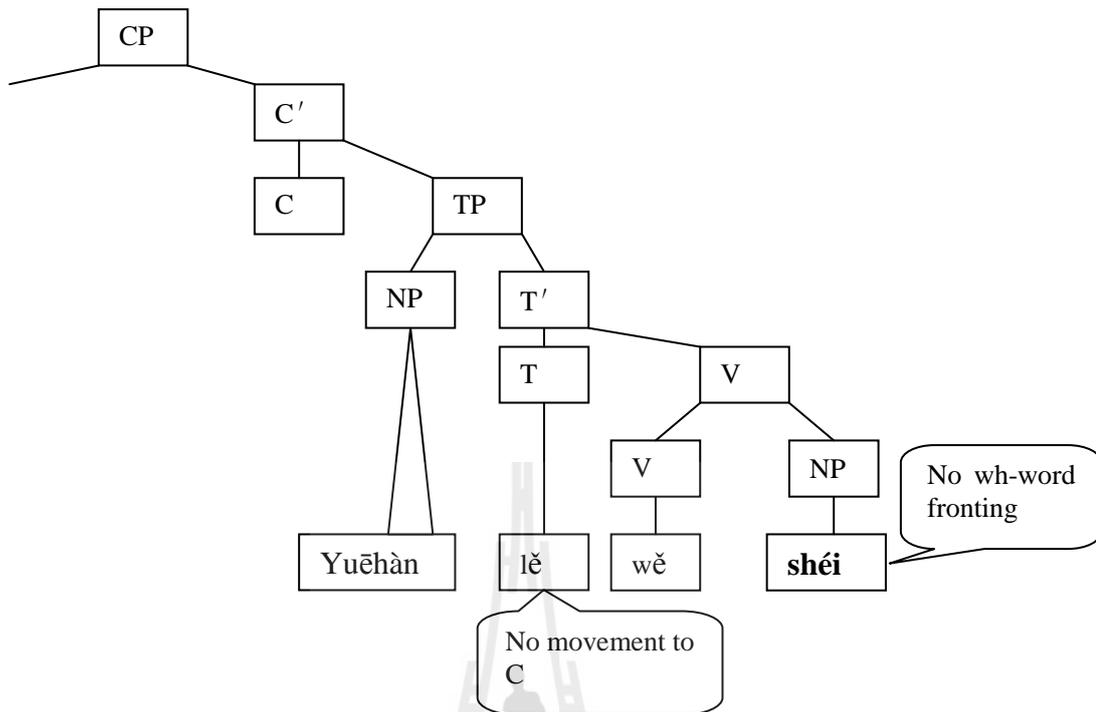
Yuēhàn            wěn        lě (+INFL+past tense)    *shéi?*

John            kiss        lě (+INFL+past tense)    *who?*

(Who did John kiss?)

The tree structure of the Chinese interrogative question is shown in Figure

2.6.



**Figure 2.6 Tree structure of Chinese wh-question**

The wh-words in Chinese embedded questions should not be moved to the beginning of the CP as shown in the following example.

2-27

Bèidì zhīdào yuēhàn wěn le (+INFL+past tense) *shéi*.

Betty know-ed John kiss -ed *whom*.

(Betty knew whom John kissed.)

When a question is made, the questioned part will only be substituted by a wh-word without any movement as shown in Figure 2.7.

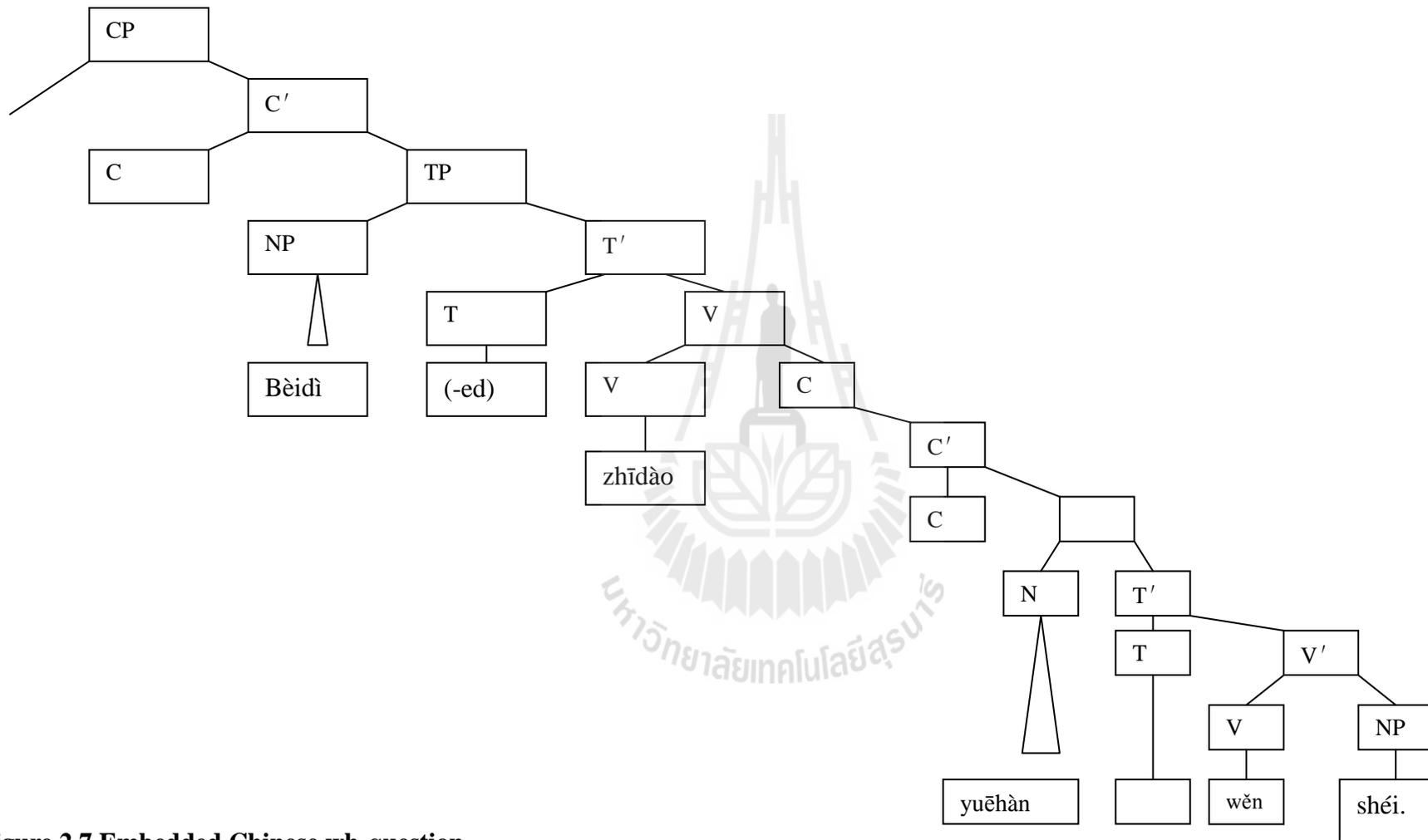


Figure 2.7 Embedded Chinese wh-question

The differences between English and Chinese parameters in the wh-movement may cause learning problems for Chinese EFL learners. They may make simple wh-questions with correct fronting of the interrogative phrase of the sentence but don't make T-to-C movement like 2-28a. Or they will make T-to-C movement when it should not be made as shown in 2-28b.

2-28a.

\*Who John kissed?

2-28b.

\*Betty knew who did John kiss.

After making wh-questions whose auxiliary verbs are not fronted, Chinese L2 English learners may be trained to make grammatical wh-component and auxiliary verb movement, such as “Who did John kiss?” Nevertheless, there may be the second phase while they are making embedded questions. The auxiliary verb may be left after the wh-word of an embedded interrogative question where it should be put back to its original place in the embedded question. An example is shown as:

2-29

\*Can you tell me what is your name?

(Can you tell me what you name is?)

Generally speaking, the different parameters of English and Chinese may cause learning difficulties for Chinese-speaking learners of English. It is necessary

to do some research about the wh-movement acquisition by Chinese EFL learners in order to provide proper pedagogies to overcome the problem.

Plenty of research on the wh-movement in English and Chinese has been carried out so far. However, the evidence and explanation of English embedded wh-question after acquiring direct wh-questions still need more consideration. It is assumed in this present research that there is an order of wh-movement acquisition. L2 learners with higher English level would be able to detect the Subjacency violation and may be able to produce more native-like interrogative questions.

## **2.4 Second Language Wh-movement Acquisition**

Research on the acquisition of wh-movement by Chinese speaking learners of English will be reviewed in this section. There will also be a brief review of the research on the acquisition of wh-movement by L2 learners with different first language backgrounds such as Japanese (R. Hawkins & Hattori, 2006; Kumagami, 2006), French and Bulgarian (Slavkov, 2009), Korean (Song & Schwartz, 2009), Thai (Ruangjaroon, 2005), German (Bursey, 2004), Egyptian Arabic (Lassadi, 2003, 2007), and Malay (Wong, 1999).

### **2.4.1 Xiaoli Li (1998)**

Li (1998) studied adult L2 accessibility to UG with special reference to the wh-movement. Two principles, Subjacency principle and Empty Category Principle, were concerned. The researcher studied the sensitivity pattern to different island conditions and structure types in order to see if L2 English learners and native speakers shared the same pattern. The study tested the sensitivity of limitations of extraction by adult Chinese learners of English. It also tested whether the

wh-nominals and wh-adjuncts were treated differently by the Chinese EFL learners.

It was hypothesized that Chinese L2 learners would allow wh-long-distance movement and they would reject sentences involving subjacency violations. It was also hypothesized that Chinese EFL learners would reject sentences with both subjacency and ECP violations more than they did with only subjacency violation. The researcher explored whether L2 learners behaved the same way as native English speakers did on the subjacency and the ECP tasks. It was observed whether both the L2 learners had the same degree of sensitivity to UG principles as the native speakers did, and they also had similar sensitivity pattern across different island types with the native speakers.

There were three groups in Li's research, including a group of 180 college students in China, 16 Chinese graduate students and visiting scholars studying in the United States, and 25 native English speakers as the control group. The researcher observed the non-native speakers' sensitivity to the subjacency violation and made comparison among the three groups. The purpose of dividing the non-native speakers into two groups was to find out whether it was maturation factor or language proficiency factor that influenced the L2 learners' performance in wh-movement judgment test.

The instrument in this research was grammaticality judgment task of subjacency which consisted of 34 sentences with 6 relating to CNPC, 6 to wh-island, 5 to SSC, and 5 to NP-island. There were another 12 control sentences, 6 of which involved complex sentences in yes/no question form and 6 of which were grammatical questions with wh-extraction from the lower clause.

It was found that in the Subjacency task, adult L2 learners showed

constraints on extraction from different island conditions. The researcher believed that the learners could only find that the innateness of UG principles may explain this phenomenon. It was concluded that the Subjacency principle was accessible to L2 learners once they reached a certain English proficiency level.

By comparing the results of the high and low English proficiency groups, the researcher believed that sophistication of English knowledge triggered UG to operate in second language acquisition, because the high-proficiency informants in this study were as sensitive as the native English speakers, whereas low-proficiency informants did not perform as the native speakers do.

The researcher concluded that UG rules such as Subjacency and the empty category principle (ECP) were accessible to adult L2 learners after they had reached a high proficiency level in the target language if their L1 and L2 had different parameters on these UG rules. If adult L2 learners' L1 and L2 shared the same parameters on certain rules, positive transfer was likely to happen. It was believed that when an L2 learner failed to have sensitivity to UG principles as native speakers do, it was not because s/he did not get access to UG, but because s/he needed more exposure to the target language until his/her language proficiency reached a certain degree which UG principles were accessible to him/her.

Li (1998) analyzed Chinese adult L2 English learners' sensitivity to the Subjacency violation and how they understood the ECP when they acquired English. However, there are several fallacies with this research.

The first fallacy is concerned with the informants of the study. The researcher divided the two groups of non-native speakers according to the locations of the informants. One group consisted of 180 college students who were learning

English as a foreign language in a university in China at the time of the study (Chinese Group 1). The other group consisted of 16 Chinese graduate students and visiting scholars in the US (Chinese Group 2). Then the researcher assumed that the Group 1 had lower language proficiency than Group 2 without providing solid evidence. There needs to be at least a language proficiency test to prove the informants in US are better than those in China, not to mention the unbalanced number of informants in each group. These two problems about the informants weaken the validity of the study. It could therefore be assumed there was researcher bias in the research.

The second fallacy is about the access to UG according to high or low language proficiency of L2 learners. According to Li (1998, p. 105), it is claimed that “only high proficiency L2 learners are as sensitive as the native English speakers”. However, there is a lack of sufficient data to support the degree of high proficiency. There is no clear classification of the language proficiency in the study. Therefore, a question is likely to be raised to ask how high or low language proficiency L2 learners should have in order to get access to UG. UG rules such as Subjacency and the ECP are available to L2 learners only after they reach a high proficiency level in the target language. In other words, UG is not accessible to lower-leveled L2 learners but to high-leveled ones. Then we would doubt how L2 learners acquire L2 before they reach a certain undefined degree of language proficiency.

Another fallacy of Li (1998) is about the degree of exposure to L2. There is not enough convincing evidence to prove that the students in Chinese Group 1 have less exposure to L2. In other words, it is hasty to claim that more language experience is a “critical factor (1998, p. 106)” for L2 learners to reach a higher

language level, though it sounds reasonable. And it is difficult to tell from the data collected in Li (1998) whether Chinese Group 1 does not perform as well as Chinese Group 2 does because they can not get access to UG or because they lack exposure to more L2. As a matter of fact, such a claim ignores L2 learners' active learning which is the major difference between L1 and L2 acquisition. While learning a language, L2 learners need to be notified of some linguistic phenomenon, whereas L1 learners just learn their mother tongue unconsciously and naturally. Therefore, we would question the emphasis on language experience as a critical factor in second language acquisition.

#### **2.4.2 White and Juffs (1998)**

White and Juffs (1998) studied whether learners who had never lived in an L2 country were at a disadvantage in second language acquisition by referring to the acquisition of wh-movement. The two research questions raised by White and Juffs (1998) were:

- a) whether the competence of adult learners shows evidence of unconscious knowledge of UG principles;
- b) whether living in the L2 country makes a difference to the ability to achieve success in the UG domain.

White and Juffs (1998, p. 115)

There were two groups of subjects in the research. The first group (China Group) consisted of 7 English teachers or postgraduate students and 9 specially trained doctors learning English. None of them had been to an English-speaking

country before the experiment. Another group (Canada Group) consisted of 16 Chinese students who had lived in Canada for 4.1 years on average. A test of English proficiency was given to all participants for the purpose of ensuring the result comparable.

The instruments adopted in the research were a timed grammaticality judgment (GJ) task and a question formation (QF) formation task. The GJ task was to test whether the participants had knowledge of restrictions on wh-movement. For the QF task, the participants were given several declarative sentences with one phrase underlined in each sentence. The participants needed to make English questions that asked for information about the underlined parts in the declarative sentences.

The results from the GJ task showed that adult learners achieved high scores in judging UG principle violation sentences and they were able to do so even if they had never been to an English-speaking country. Moreover, the two groups of non-native speakers were significantly slower than the native speakers in judging the sentences but not different from each other. The results from the QF task showed that the majority of the wh-questions made by the L2 learners were grammatical. It was assumed that the L2 learners in the research had wh-movement in their L2 grammars. What attracted the researchers' attention in the results was that although Chinese was a wh-in-situ language, only a small percent of the informants left the wh-component in-situ, 7% and 5% of interrogative questions produced by China Group and Canada Group respectively. In addition, the China Group performed similarly to the control group in many cases, and they even performed better than the Canada group, though these L2 learners had never been out of China.

It was concluded that adult learners could access island constraints even

though these adults did not live in a country where the target language was spoken. The researchers argued that processing difficulties rather than competence differences explained the phenomenon.

The research done by White and Juffs (1998) provided convincing data to prove that the location of language learning or the exposure to L2 was not the critical factor to learning a second language. However, some adjustments needed to be done to this research to explain how Chinese speaking learners of English acquired wh-movement.

First and foremost, White and Juffs (1998) do not examine the movement of wh-components and auxiliary verb when embedded questions are made. In other words, as what has been done by other researchers (Schachter, 1990; Schachter & Yip, 1990) they put attention to the fronting of wh-component whereas ignoring the movement of the auxiliary verbs when a direct question is involved in a matrix clause as a relative clause. It is uncertain whether L2 learners have the knowledge that the fronted auxiliary verb in a wh-question should be returned to its original position when it is changed into an indirect question.

Secondly, White and Juffs (1998) do not distinguish Chinese wh-nominal and wh-adverb. As what has been analyzed in the previous section, Chinese wh-adverbs should be moved out of a CP when a wh-question is raised to ask for the reasons of doing something. This special phenomenon is different from the traditional idea that Chinese is a wh-in-situ language. Therefore detailed study is needed to understand whether Chinese EFL learners can make the distinction between the wh-nominal and wh-adverb.

#### **2.4.3 R. Hawkins and Hattori (2006)**

R. Hawkins and Hattori (2006) studied the sensitivity of Japanese L2 learners of English to the wh-island violation. They assumed that wh-movement in English is required by the [-wh] feature. They also argued that uninterpretable wh-features would vanish when these features were not selected from UG inventory after the critical period. The subjects of their study were nineteen advanced Japanese L2 learners of English. They were chosen after correctly interpreting long-distance wh-questions in a syntax test. The measurement adopted in their research was question-matching multiple choice questions. The subjects needed to choose the best answer to a wh-question after reading a short story. They concluded that attention was required for both failure and success in acquisition.

However, the problem with Hawkins and Hattori (2006)'s research lies in the fact that all their subjects were advanced learners. We could hardly apply their results to lower proficiency learners because learners with a lower language level might not be able to judge ungrammatical sentences as advanced learners do.

#### **2.4.4 Kumagami (2006)**

This research is carried out within minimalist program (MP). It studied the strategies adopted by Japanese learners of English to acquire English wh-questions. Although the research was done within Minimalist Program, it was referential to the present study because Japanese and Chinese are both wh-in-situ languages. The two strategies discussed in this paper were “short movement strategy” and “detect nearest strategy”. According to Kumagami (2006), while Japanese L2 learners were learning English wh-movement, the strategies adopted by the learners differed between production and interpretation task.

The subjects of his research were thirteen Japanese learners of English. Two experiments were involved in their study. Experiment one included grammaticality judgment task and production task. The participants judged the acceptability of some long-distance wh-questions. In the production task, the participants were required to form wh-questions that asked the underlined parts in the given declaratives. Experiment two examined the extraction of wh-word from an embedded clause that violated wh-movement constraints. The task was a truth value judgment task. The participants needed to choose correct answers.

Kumagami (2006) assumed that Japanese learners of English used different strategies between production and interpretation tasks. The strategy for production was short movement strategy which meant a questioned phrase moves to Spec CP of an embedded clause to “check the uninterpretable wh-feature”. The interpretation strategy is the detect-nearest-strategy which means that the participants prefer the matrix interpretation.

Kumagami (2006) is relevant to this present study in terms of researching the topic. It suggests how English wh-movement is acquired by L2 learners of English speaking Japanese, which is also wh-in-situ as Chinese do.

What makes the present study different from Kumagami (2006) is that L2 learners’ awareness in learning English wh-movement will be involved. The researcher of the present study will observe the influence of L2 learners’ awareness to target linguistic phenomenon as well as the effect of enhanced input and corrective feedback on wh-movement.

#### **2.4.5 Slavkov (2009)**

The phenomenon under investigation was medial wh-constructions. It

discussed the development of long distance wh-movement questions acquisition by French and Bulgarian speaking learners of English. The researcher reported that wh-constructions had a learnability problem in second language acquisition. The question was how a learner knew something existing neither in his native or the target language but was allowed in other languages. The measurement taken by Slavkov (2009) was a written grammaticality judgment test and an oral elicited production task. The results of the grammaticality judgment test indicated that medial wh-constructions competed with the target English long-distance structure and coexisted with it at the beginning and intermediate stages of acquisition of the two groups of language speakers. Furthermore, when the two groups of language learners arrived at an advanced level, the medial wh-representations had been eliminated from the interlanguage grammar

In the oral elicitation experiments, the two groups of language speakers tended to resort to medial wh-representations to avoid long distance wh-movement because of derivational complexity as well as the high processing load with long-distance wh-movement.

The researcher concluded that L2 grammars had to be UG-constrained in order to solve the learnability problem. What's more, L2 acquisition must be strongly driven by the input because L2 learners needed to make full use of the learning mechanism which helped to eliminate the "competing representations unsupported by the L2 input".

Slavkov (2009) provided a guiding line to the present study, namely the function of input. As what has been discussed in the previous section, L2 input roles essentially in second language acquisition.

#### **2.4.6 Song and Schwartz (2009)**

Song and Schwartz (2009) examined the Fundamental Difference Hypothesis (FDH) (R. Bley-Vroman, 1986; R. Bley-Vroman, 1989; R. Bley-Vroman & Chaudron, 1990) in two ways. The first way was through second language poverty-of-the-stimulus (POS) problems, and the second one was through a comparison between adult and child L2 learners, who spoke the same language, in terms of developmental route. Korean wh-constructions which were investigated was also a wh-in-situ language as Chinese is. The instruments of their research were an elicited-production, an acceptability-judgment task and an interpretation-verification task. The results of Song and Schwartz (2009) indicated that advanced learners with high-proficiency could produce native-like L2 output due to the effects of L2 POS. The second conclusion drawn by Song and Schwartz (2009) was that L2 adult and child learners did not follow L1 child acquisition route but subsumed it. It was argued that the nature of language acquisition, L1 and L2, was similar to each other.

The practical significance with which Song and Schwartz (2009) provided this present study is the effects of L2 POS and similar L1 and L2 acquisition route. According to Song and Schwartz (2009), it may be assumed that, if L2 learners have enough L2 input, their language proficiency may be improved. Therefore, the author of this research would like to help L2 learners get contact to enhanced L2 input and try to highlight English wh-movement in the materials that the learners read.

#### **2.4.7 Tayyebi (2012)**

Tayyebi (2012) investigated the accessibility of UG to adult Persian learners of English, concerning the Empty Category Principle and the Subjacency. Similar to

Chinese, Persian is a wh-in-situ language.

The research purpose of Tayyebi (2012) was to investigate the availability of UG to L2 learners with Persian language background. It was hypothesized that in contexts constrained by the Subjacency and the ECP, advanced Persian learners of English would show convergent knowledge, although the construction under investigation was not instantiated in their L1. Accordingly, the research question was initiated as, “Will adult Persian learners of English show convergent knowledge in contexts constrained by the Subjacency and the ECP?”

The participants of the study were 35 advanced Persian-speaking learners of English from Iran. Thirty adult native speakers of English made up the control group of the study. They were given the same questionnaire and their responses served as the baseline which was used to measure the performance of L2 learners.

The instrument adopted by the researcher was a 5-point Likert scale acceptability judgment task. The participants were required to evaluate the acceptability of both grammatical and ungrammatical extractions.

The researcher argued that the Subjacency and the ECP results were compatible with the other studies on wh-movement as R. W. Bley-Vroman, Felix, and loup (1988); R. Hawkins and Hattori (2006) and White (1988). Persian speakers behaved like English natives did in discriminating between grammatical and ungrammatical wh-movements. Moreover, it was found that the Persian group did not perform significantly different from the English group in the ungrammatical construction. The research supported that if wh-movement had been acquired, adult Persian speakers of English were able to observe restrictions on wh-extraction, even though such restrictions were not demonstrated in their L1.

#### **2.4.8 Wh-movement Acquisition by L2 Learners from Other Languages**

Ruangjaroon (2005) examined Thai wh-expressions as variables. It was argued that wh-expressions were variables with no inherent interrogative forces. They received different interpretations in different contexts. In Thai, a goal (as a variable) is “underspecified” for featural content. A feature specified on the probe is copied onto the underspecified goal, thereby satisfying feature matching.

Burse (2004) examined three areas of wh-movement acquisition to give a more complete picture of wh-movement in L1 German learners. These areas of acquisition were: wh-words, short distance wh-movement (root questions, embedded clauses), and long distance wh-movement (this includes the language particular partial wh-movement). The research examined the process of acquiring wh-movement of the L1 German learners. A whole view of the acquisition process was described, and it was concluded that the acquisitional data coincided with the theoretical issues.

Hattori (2004) investigated interpretations of English multiple wh-questions in complex sentences by 19 post-childhood Japanese advanced learners of English (JLE), whose L1 lacked syntactic wh-movement. It was concluded that the learners had not acquired the same mental representations for wh-questions as native speakers did. The alternative but UG-constrained mental representations of JLE for wh-questions in English suggested that they had partial access to UG.

Yamane (2003) concluded that adult L2 acquisition moved on in accordance with parameter resetting, and its transition was UG-constrained. The results of the experiments showed that L1 transfer existed at language-specific phrase structure levels, while UG principles functioned even in the transitional representations of the adults' grammars.

Wong (1999) examined the acquisition of wh-movement in English questions and relative clauses by Malay learners of English in relation to the issues of development and parameter-(re)setting in SLA within the Principles and Parameters framework. Wong (1999) claimed that while the Malay informants were able to construct mental grammars for English which were not determined by their L1, the parameters were not reset by the learners. The learners made use of feature specifications of functional categories in Malay to realize successful language learning. Meanwhile, they “incorrectly associate Malay feature specifications with overt functional morphemes in English”, which made them unsuccessful in learning English as the second language.

## **2.5 Influence of UG on Classroom Learning**

The influence of UG in classroom teaching and learning was discussed in Felix and Weigl (1991). They examined whether there were factors that may promote or hinder UG-access and whether these factors were related to some properties of the learning environment. Felix and Weigl (1991) adopted a grammaticality contrast test to explore how 77 German high school students judged correctly items attributed to UG principles. The results of their study indicated that L2 learners did not have access to UG under liberal classroom circumstances. On the contrary, L2 learners in Felix and Weigl (1991) made use of some strategies that connect them to their L1 and prevented them from making generalizations beyond what was explicitly taught in the classroom.

By examining Felix and Weigl (1991), we may notice that the explicit instruction under classroom circumstances takes a leading role in grammar teaching.

However, Felix and Weigl (1991) focused on UG-access topic, as well as explicit instruction in grammar teaching. There was no significant evidence to prove the relationship between UG constrained grammar learning and explicit instruction. The participants' training and practicing were emphasized, whereas L2 learners' internal learning ability was ignored. In other words, as what was argued by Song and Schwartz (2009), L2 and L1 learning are similar. Therefore, L2 learners' language learning and deducing ability can not be eliminated from the research.

## **2.6 Summary**

In this chapter, comparison between L1 and L2 were reviewed. Then, relevant studies on the role of input, awareness and corrective feedback were illustrated and analyzed. The author attempted to provide background information to the present research topic.

After understanding how the applied linguists regarded the function of UG, language awareness, L1 input and corrective feedback while a second language was being acquired, the English and Chinese wh-movement parameters were illustrated in order to compare the two languages. The final section of this chapter provided some empirical studies on acquisition of wh-movement by L2 English learners from different language backgrounds.

So far, there has not been research on whether the L2 learners could move the extracted and fronted auxiliary verb back to its original place when a direct question is changed into an embedded question. The present study aims at filling that gap by exploring how the Chinese EFL learners move the wh-components and auxiliary verbs in direct questions as well as embedded questions. Chapter Three

will present the methodology used in this research and report the results of the pilot study.



## **CHAPTER 3**

### **METHODOLOGY**

This is an experimental study that aims at investigating the learning of the wh-movement and traces by Chinese speaking learners of English, the relationship between levels of grammatical knowledge of English and knowledge of wh-movement. This present research attempts to explore whether Chinese-speaking learners of English can realize the differences between English and Chinese wh-questions and then raise their language awareness to English wh-movement. The methodology employed in the present study will be explained in this chapter, including the subjects, the research procedure and the instruments.

#### **3.1 Subjects**

The L2 subjects of this study were eighty English majors, coming from four classes of first-year students enrolled in Guizhou University, China in the year 2011. Two classes, totaling 40 students, were the experimental group 1 which received instruction on wh-movement, and was named Treatment Group (TG). Another two natural classes, totally numbered 40, were designated to be experimental group 2 which received the same amount of linguistic materials as experimental group 1 from the researcher, but without instructions on wh-movement because this research aimed at observing the effect of special treatment to Chinese EFL learners, and this group was named Non-treatment Group (NTG). Therefore, one of the two experimental

groups needed to have special treatment whilst the other did not. The control group (CG) consisted of 10 native speakers. We assumed that the first-year English majors may be classified as intermediate-leveled learners of English. There were two reasons to support this assumption. First of all, according to the National Curriculum for College English Majors of Higher Education in P. R. China, the English proficiency that a student of English major should have was graded into eight degrees. Generally speaking, first-year students should reach Grade Two by the end of their first year of academic study. By the time this study was carried out, all the subjects had been trained as English majors for six months. It may be assumed that an average first-year student should reach the language level between grade one and two. According to the national curriculum, English majors of this level were graded as intermediate. The second reason to support this assumption was that all of the subjects had finished high school education in China and had learned English for about six or seven years.

The instruments adopted in the present study will be specified in the following sections.

## **3.2 Instruments**

This section explains the rationales of each instrument which was employed in the current study to collect the experimental data.

### **3.2.1 Grammaticality Judgment Test (GJT)**

The most frequently adopted methodology is grammaticality judgment test (GJT). Within the UG framework, a language speaker's linguistic competence is distinguished from his performance. Competence is the internal knowledge of a

language, whereas performance is what a speaker actually produces with possible errors, inconsistencies or sometimes slips of the tongue (Cook & Newson, 2000). Based on this distinction, it is believed that although the linguistic production may be flawed sometimes, a speaker of a language would know what is possible or impossible in this language.

However, the reliability of GJT is questioned by some scholars. Several criticisms target its capability of detecting a speaker's competence. The major criticism (R. Ellis, 1991; Gass & Selinker, 2008) is that a distinction should be made between acceptability and grammaticality. The former is connected with linguistic knowledge, i.e. competence that a speaker has, whereas the latter is more or less related to a speaker's performance which may be influenced by factors such as semantic naturalness or sentence complexity. Accordingly, the data collected by GJT is just indirect evidence to exhibit the internal knowledge of a language speaker, much less a second language speaker, due to the unavoidable influence of the mother tongue. Another criticism on the reliability of GJT focuses on the incompleteness of L2 acquisition. Gass and Selinker (2008, p. 65) points out that L2 learners are asked to make judgments about the grammaticality of sentences "at a stage in which their knowledge of that system is incomplete".

Some scholars did research on the reliability of GJT for the purpose of justifying whether or not it is an appropriate measure to test the learner's underlying syntactic competence. Mandell (1999) examined the reliability of GJT by comparing the data collected through GJT with those obtained through dehydrated sentence tests. Dehydrated sentences test means sentences with the movement of a verb to the beginning. Mandell (1999) concluded that the results of his research

suggested GJT data were reliable measures of linguistic knowledge. Leow (1996) hypothesized that there was a relationship between a learner's judgments on the grammaticality and their performance on production tasks. The results indicated that there was a significant relationship between the scores of GJT and the other two production tasks. Leow (1996) then concluded that GJT reflected behavioral patterns of L2 development.

Despite the arguments on the GJT, the present study adopted GJT as one of the measurements to test whether the subjects could make proper judgments. The reason of using GJT as the measurement was that it detected language learners' sensitivity of target language phenomenon. The reason of adopting GJT as the research instrument was to find out the subjects' wh-movement performance. The researcher needed GJT results collected from TG, NTG and CG in order to compare whether the grammar awareness-raising model (GARM) and L2 corrective feedback (CF) was effective in L2 wh-movement acquisition, and the score of GJT may be used as quantitative data to find out the differences among the three groups. GJT was applied to test whether L2 learners of TG surpassed those of NTG in detecting English wh-movement mistakes. The results of the two experimental groups were compared with the CG in order to figure out whether GARM was effective in English wh-movement acquisition. The reliability of GJT had been testified in previous studies (Leow, 1996; Mandell, 1999).

### **3.2.2 Question Formation Test (QFT)**

The question formation test (QFT) is frequently adopted in wh-movement studies in order to find out whether L2 learners are able to produce grammatical wh-questions. An example of a QFT item is shown here for the purpose of

clarifying the test format. As in the following statement 3-1, one part, the object, is underlined. The subjects will be expected to form a wh-question whose answer is this statement.

3-1 She submitted a research paper to the academy. (statement) →

What did she submit to the academy? (wh-question)

As in a sentence with subordinate clause, an embedded question should be raised to ask for information about the underlined part within the clause as shown in 3-2.

3-2 She said that she had submitted a research paper to the academy. →

(statement with subordinate clause)

Tell me what she had submitted to the academy.

(embedded question)

Hanaoka (2007) used GJT and QFT in their research on the acquisition of wh-movement by L2 learners. In their research, the subjects needed to judge whether some given wh-questions were grammatical, and they were also required to form questions to ask for information about the underlined part in the given declaratives. The results showed that high intermediates performed as well as the native speakers in accepting grammatical wh-questions, rejecting ungrammatical ones, and avoiding violations when forming questions.

White and Juffs (1998) carried out a study on the influences of formal

language learning and age limitations on access to UG. The instruments they adopted were timed GJT and QFT. For the QFT, participants were presented with declarative sentences, each containing an underlined item. They were required to form a grammatical English interrogative question (IQ) asking information about the underlined part of each declarative. If the subjects did not observe the UG constraints on wh-question, a violation of wh-movement would appear in the L2 output. Results of the experiment showed that the majority of the questions formed by the participants were grammatical. And it was thus concluded that L2 learners could detect island constraints even if they did not live in a country where the L2 was spoken.

In their research, White and Juffs (1998) argued that the supplementary function of QFT over GJT was that it may demonstrate how L2 learners produced wh-questions, and possible grammar mistakes in producing wh-questions. They believed that by observing the wh-questions, both grammatical and ungrammatical, produced by L2 learners, whether or not L2 Subjacency parameters were successfully set or not could be determined.

The purpose of adopting QFT in this present study was to test whether L2 learners were able to produce proper English direct and indirect questions with wh-movement. The data of the two experimental groups were analyzed and compared in order to answer research question three. The scores of pretest and posttest of the experimental groups were analyzed for the purpose of proving the effectiveness of GARM in English wh-movement acquisition. By comparing the scores at two different stages, pretest and posttest, the researcher expected to test whether the teaching model works efficiently in teaching L2 learners to produce

wh-movement. By comparing the scores of pretest and posttest, the researcher hoped to find out the effectiveness of GARM in English wh-movement production.

### **3.2.3 Semi-structured Interview**

According to Robson (2002), interviews may provide the researcher opportunities to ask participants directly what happens to them during an experiment, and thus may help the researcher seek answers to his/her research questions. Cannel and Kahn argue that an interview is a face-to-face conversation initiated by the interviewer to the interviewee in order to obtain research-relevant information. They also argue that the content of the interview is “specified by research objectives of systematic description, prediction or explanation” (Cannel and Kahn, cited in Robson (1993, p. 229)).

The first set of interviews in this present study was administered after the pretest for the purpose of gaining more detailed information about why some subjects were able to judge whether a given wh-question was rule-obeyed while others were not able to do so in GJT and why they thought some underlined parts of a statement may be questioned while some could not. Random sampling method was used to choose five students from each of the non-native groups for the interview. Statistically speaking, five subjects chosen from each class of 40 members were enough to provide qualitative research data. Each student was interviewed about the problems appearing in their pretest paper, how they came to know the rules of making interrogative questions, what kinds of exercises they did in order to make grammatical output and what problem about English wh-question they had when they raised questions to ask for information in English.

The second set of interviews was carried out after the posttest in order to

clarify the vague answers occurring in the questionnaires completed by the participants. Another purpose of the second set of interviews was to gain participants' opinions toward the wh-movement instruction. The interviews were carried out in Chinese to assure the participants' complete understanding of the questions asked by the interviewer, namely the researcher. In the case of extreme answers, such as "I just don't know", "I feel like it" in GJT and QFT, the researcher also interviewed those who provided such kinds of answers.

Again, the second interviews was done in Chinese to assure that the participants understood the questions and expressed their opinions freely without feeling pressured of speaking the second language.

### **3.3 Variables**

As viewed in the previous chapters, this research focuses on the impact of GARM on L2 English learners' performance in GJT and QFT. The independent variable of the present study is the teaching models, namely GARM. The dependent variables of the present study are the subjects' scores on GJT, QFT and frequencies of wh-movement mistakes in pretest, posttest and delayed posttest.

### **3.4 Research Instruments**

This section involved the instruments which were employed in the present study.

#### **3.4.1 Grammaticality Judgment Test (GJT)**

The GJT consisted of 20 ungrammatical and 10 grammatical sentences. The ungrammatical sentences were 2 subject wh-questions, 2 object wh-questions, 6

adjunct wh-questions, 2 embedded subject wh-questions, 2 embedded object wh-questions and 6 embedded adverb wh-questions, with 10 grammatical ones, one for each type as control sentences. The ungrammatical sentences involved ungrammatical fronting of an auxiliary verb in subject wh-questions, object wh-questions, adjunct wh-questions and embedded wh-questions. The control sentences had the same structures with the ungrammatical ones but with different contents. The sentence types are illustrated in Table 3.1.

**Table 3.1 Question Types in GJT**

Question types	Question subtypes	Sample ungrammatical questions
Direct questions	Subject	*Who did watched a movie?
	Object	*What Eileen wrote in the letter?
	Adjunct	*Why Africa is so poor? *Where she put the birthday cake? *When she will go to see the doctor?
Indirect (embedded) questions	Subject	*Could you tell me did who give that book to you?
	Object	*Can you tell me what is your name?
	Adjunct	*The doctor told me why was he so sick. *Eileen sent a letter telling me when would she arrive at Beijing. *Eileen argued with us where should we hold the ceremony.

There were three questions, including two ungrammatical ones and one grammatical one of each subtype. The purpose of the ungrammatical sentences was to test whether the participants were able to detect violations of wh-movement. The

grammatical questions were designed as control sentences in order to find out whether wh-movement parameters were set in the Chinese participants' minds. The grammatical and ungrammatical sentences were presented to the participants in random order for the purpose of investigating whether Chinese L2 English were able to distinguish questions that violated wh-movement from grammatical wh-questions as native speakers do.

In order to validate the contents of the GJT, a total of 35 sentences for pretest and 35 for posttest were given to 2 native speakers in order to assure the consistency of grammaticality, the appropriateness of the content and validity of the tests. Thirty suitable and appropriate GJT sentences for each test were then chosen as the final items appearing in the test papers.

### **3.4.2 Question Formation Test (QFT)**

For the question formation test (QFT), the participants were presented with 15 declarative sentences, each containing an underlined component. The participants were instructed to form grammatical wh-questions to ask for information about the underlined part so that the declarative sentences should be the answers to the questions. If the participants did not front the auxiliary verbs or tense indicators to the right position when moving was necessary, or extract the auxiliary verbs or INFL when they should not be moved, this would result in violations of the wh-movement constraints.

The QFT involved fifteen declaratives, both grammatical and ungrammatical, extracted from authentic English written contexts. The tested constraints are, CNPC, SSC, CSC, adjunct and wh-islands as reviewed in section 2.3. There were two sentences for each type of constraints. Another 5 declaratives which

resulted in grammatical extraction were also designed in the QFT for the purpose of testing whether the participants were able to distinguish sentences violating with those obeying wh-movement constraints. At the same time, the researcher wanted to observe whether the participants could make proper movements while making a wh-question. The participants needed to judge whether the underlined part within a declarative sentence may be extracted or not before they raised a wh-question asking for information. Samples of wh-movement constraint violations are shown in Table 3.2, together with wh-movement constraints obeying declarative.

**Table 3.2 Sample Declarative Sentences in QFT**

Constraint types	Constraint violating	Constraint obeying
CNPC	Eileen told a story that was written by <u>Anderson</u> to the kids in the kindergarten.	Eileen has gone through <u>all the difficulties that she met</u> .
SSC	That he had gone through <u>all the difficulties</u> inspired us.	<u>That our best friend won the game</u> encouraged us so greatly.
CSC	Eileen received an A in listening but <u>a C in writing</u> .	Uncle Bill sent <u>a toy and a book</u> to me.
Adjuncts	Eileen quit her job in the school because she received <u>a higher position</u> in the government.	Eileen told a story to the kids <u>in the kindergarten</u> .
Wh-island	Eileen wondered who would send her a letter <u>in a week</u> .	Greg has informed me <u>when the movie will be shown in the town</u> .

The QFT items were also validated by 2 native speakers of English at Guizhou University. All together, 20 sentences for pretest and posttest respectively were given to the native speakers to examine the grammaticality of the items, the appropriateness of the contents and testability of the tests. Fifteen items most suitable and appropriate for QFT were chosen from 20 sentences for the pretest and

posttest respectively.

### **3.4.3 Semi-structured Interviews**

Some of the randomly sampled subjects were interviewed on how they made judgment in GJT, how they raised questions in QFT and the subjects' opinions towards instructions on wh-movement. Six students from each subject group were randomly chosen for the semi-structured interview for the purpose of acquiring qualitative data and clarifying unclear answers in GJT and QFT. All interviews were tape-recorded, transcribed and translated by the researcher into English.

## **3.5 Procedures**

This research was conducted in a normal English grammar learning setting, where two experimental groups, Treatment Group (TG) and Non-treatment Group (NTG) enrolled in the English Grammar Course in the English Department, Gui Zhou University, took part in the study.

### **3.5.1 Research Plan**

This is a pretest-treatment-posttest research investigating the role of UG in SLA concerning the wh-movement. Meanwhile, the roles of enhanced input, grammar awareness and corrective feedback are studied.

The purposes of the research phases, the schedule of each phase, the assignments that were fulfilled at each phase are shown in Table 3.3.

**Table 3.3 Research schedule of the learning of wh-movement by Chinese EFL****learners**

	Sessions	Purpose	Assignments	Results
Phase I pretest	1	To obtain GJT and QFT data to describe the starting states of all the subjects	1. GJT 2. QFT 3. Analyzing performances 4. Interview	1. GJT and QFT scores 2. Category of wh-movement errors 3. Frequency of wh-movement errors
Phase II treatment	2~14	To provide special treatment to experimental groups	Special training on wh-movement	TG became aware of the wh-movement and wh-movement constraints
Phase III posttest	15	To obtain GJT and QFT data to compare with data from the pretest; To find out differences in performance among three groups in pretest and posttest	1. GJT 2. QFT 3. Analyzing mistakes 4. Interview	1. GJT and QFT scores 2. learning hierarchy of wh-movement

**3.5.2 Teaching Plan**

Based on the review of relevant literature on wh-movement problems that Chinese learners of English have (J. A. Hawkins, 2004; R. Hawkins & Chan, 1997; R. Hawkins & Hattori, 2006; Li, 1998; White & Juffs, 1998), and the conceptual framework raised by Song and Schwartz (2009), the researcher studied the national curriculum for university level of English Grammar, combined the teaching materials from the textbook provided by the English Department with relevant wh-movement

parameters and wh-movement constraints, and finally conducted the teaching plan for the TG and NTG of this present study.

In order to validate the contents of the teaching plan, the researcher presented it to 6 Chinese EFL teachers who were all university teachers of English and who had been teaching English for over 5 years. Their suggestions were taken into consideration to improve the validity of the teaching plan. The teaching plan is enclosed in Appendix A.

The procedures of the three phases in the experiment will be discussed in the next section.

### **3.5.3 Procedures**

The three phases of the experiment were pretest, treatment period and posttest. Each phase will be described with details in the following sections.

#### **3.5.3.1 Phase I: Pretest: Initial State**

In this phase, all of the subjects participated in GJT and QFT. There were 30 GJT items and QFT 15 items. After the two tasks were completed, the scores were compared and analyzed statistically, using t-test, in order to find out the differences among the three groups of subjects.

In the GJT, the non-native speakers (NNS) subjects, i.e. TG and NTG needed to judge whether the sentences were grammatical or not, and then made necessary corrections to those which they believed were ungrammatical. The NNS were expected to recognize the ungrammatical wh-questions and corrected them as the native speakers did.

The scoring standard of GJT is shown as follows,

Judge “grammatical” to grammatical interrogative question IQ	2 pt
Judge “ungrammatical” to ungrammatical IQ	1 pt
Judge “yes” to ungrammatical IQ	0 pt
Judge “no” to grammatical IQ	0 pt
Correctly make corrections to ungrammatical IQ	1 pt
Make unnecessary corrections to the grammatical sentence	0 pt

In the QFT, the NNS subjects were expected to distinguish those which could be questioned from those which could not. The subjects were supposed to consider firstly whether or not the underlined component could be questioned and fronted. Secondly, if the underlined component did not violate the island-constraints as explained in Chapter 2 (Section 2.3.4), the subjects needed to make wh-questions asking information about the underlined component. If the underlined component violated the wh-constraints, they were supposed to leave the underlined declarative as it was, and should not try to make wh-questions about the underlined component.

The wh-questions made by the participants were evaluated according to the following standard.

To recognize the underlined part which should be questioned. 1 pt

To make grammatical IQs asking information about the underlined part. 1 pt

e.g. His name is Mike. →

*What is his name?* (1+1 points)

To recognize the underlined part which violates the island constraints. 2 pt

Not to make IQs which violate the island constraints. 2 pt

e.g. She gave me a cake that was baked by her mother. →

*The underlined part can not be questioned because it violates CNPC constraints.*

(2 points)

To make IQs which violate the island constraints. 0 pt

e.g. She gave me a cake that was baked by her mother. →

\**Who did she give me a cake?* (0 point)

To make IQs without proper movement. 0 pt

e.g. The English teacher highly praised her students because they made few mistakes in the examination. →

\**Why the English teacher highly praised her students?* (0 point)

Since this research concerned the wh-movement, any grammatical mistakes other than wh-movement and island constraint violations, such as tense and aspect were not counted.

After the QFT, the grammatical errors made by the subjects were coded and categorized. There were two reasons for doing so. Firstly, the researcher compared the subjects' ungrammatical output with their first language, namely Chinese, in order to observe whether they were influenced by their L1 or they had improperly reset the L2 wh-movement parameters. The second reason was that the researcher wanted to describe how the subjects acquired the English

wh-movement by providing qualitative data. In other words, the researcher hoped to compare the subjects' performance before and after GARM based instructions.

### 3.5.3.2 Phase II: Instructions on Wh-movement

In this phase, the researcher was the instructor who explained wh-movement parameters in English to the subjects.

During every class of wh-movement, the subjects watched ten plots taken from an English movie containing the target linguistic phenomenon that were explained to the subjects. The plots were chosen on three criteria:

1) A plot containing direct questions or indirect questions that would be explained to the subjects in that session in order to raise learner's awareness to wh-questions;

2) A plot containing a complete conversation in order to help the subjects understand the contents;

3) A scene was taken from a movie relevant to school life or teenage life in order for the students to be familiar with the background.

A sample plot taken from *Twilight (2008)* (White, 1985) is provided below. For the reason of convenience, subtitles are included in the picture, whereas in actual class the subjects did not watch the scenes with subtitles.

Bella: How did you get over to me so fast?

Edward: I was standing right next to you Bella.

Bella: No, you were next to your car..... Across the lot.

Edward: No I wasn't.

Bella: Yes you were.

Edward: Bella, you hit your head...I think you're confused.

Bella: I know what I saw.

Edward: **What exactly was that?**

Bella: You...You stopped the van. You pushed it...away with your hand.

Edward: Well nobody's gonna believe you so...

(*Twilight* 2008)

After watching this plot, the subjects were required to figure out the direct wh-questions in this plot.

Then the researcher explained how the wh-word, *what*, and the auxiliary verb, *was*, are fronted to the beginning in order to transform a declarative sentence into a direct question in English.

After explaining the movement of wh-component, the subjects understood that the wh-component, *what*, in an English interrogative sentence was moved from its original place 3-3a to the beginning of the direct question, and left a trace behind indicated by an italicized *t*. 3-3b as shown below.

3-3a That was exactly what. (Chinese wh-question wording)

3-3b What<sub>*t*</sub>, exactly was that *t*? (English wh-question wording)

What makes GARM different from traditional grammar teaching method and the reasons for providing the subjects with plots containing English wh-questions taken from English movies are as follows. First, the content in which a

conversation happens helps the subjects understand how native speakers ask for information using wh-questions. This audio-visual method is different from reading written forms, such as textbooks and articles in raising learners' awareness to target language grammar, because to directly watch how things going on visually may highlight L2 learners' impression on how a language is used in real life (Alanen, 1995). Second, this GARM encourages L2 learners to observe how language is used by native speakers in real life before the learners start to produce their own sentences. Although what has been done by the other grammar teachers is also to provide grammatical L2 sentences, this teaching model places more value on making L2 learners noticing the target language phenomenon in real situations by listening and seeing. Thirdly, audio-visual method is adopted in this research for the purpose of raising L2 learners' awareness, which is different from a traditional English grammar course using mainly written forms. In traditional English teaching, audio-visual teaching method is normally used in listening or conversation courses, whereas grammar teaching mainly focuses on pencil and paper practice. Grammar teachers prescribe to L2 learners what should be done in order to make grammatical sentences. However, the present model guides learners to firstly observe L2 sentences in real situations, and then provides explanations on why English wh-questions are produced this way instead of Chinese wh-question wording. In other words, GARM emphasizes the meta-linguistic method in teaching L2 grammar.

After watching all the English scenes, the subjects of this study received an article containing target linguistic phenomenon, such as direct subject question or direct object question. Sentences containing wh-questions were required to be underlined by the subjects for the purpose of reminding them how grammatical

L2 wh-questions were formed. The learners were reminded to notice the wh-questions in the article, and reviewed how an English wh-question was made by fronting the wh-component and auxiliary verb, including INFL tense indicator -es or -ed. When the subjects noticed the underlined wh-questions, they were asked to make sentences following the underlined questions. And at the same time, the researcher provided corrective feedback to the subjects once there appeared ungrammatical sentences.

The articles for the in-class instruction were chosen based on the following criteria.

- 1) An article containing linguistic structures as wh-movement or wh-movement constraints;
- 2) A medium-leveled article being suitable for the subjects;
- 3) An article concerning campus life or teenager stories.

The positive evidence of this research was the explanation of the syntactic structures to the subjects and encouraged them to make wh-questions, and proper feedback and corrections on the wh-questions were the negative evidence provided to L2 learners.

After receiving instructions on wh-movement, the subjects needed to finish after-school assignments. The assignment required the subjects to find wh-questions sentences according to what they learned during that session from materials written in English and to make corresponding sentences according to the syntactic structure of the identified English sentences. The subjects needed to hand in their assignment before they took part in next session on wh-movement. Moreover, their assignment was graded by the researcher and corrective feedbacks

were returned to the subjects. For the purpose of controlling the amount and range of the subjects' input, the researcher appointed three medium-leveled journals and one news-paper that were easy for the subjects to get access to from the university library. The number of the sentences that they were required to collect and hand in was limited to 10~15 due to the difficulties and complexities of the exercises.

The wh-movement training covered the movement of the auxiliary verb, such as *have* and *can*, as well as INFL tense indicators such as, *-es* and *-ed* in making English wh-questions and embedded wh-questions, the CNPC, SSC, CSC, adjunct-island and wh-island constraints. The researcher helped the participants understand the differences between English and Chinese wh-questions. The movement of the auxiliary verb (including tense indicators) and constraints on wh-movement were explained to the participants in order to help them understand how and why or why not to produce certain wh-movements. The schedule of instruction on wh-movement was shown in Table 3.4.

**Table 3.4 Schedule of Instructions on Wh-movement**

Session	Content
1	Direct subject questions
2	Direct object questions
3	Direct adjunct questions: why; how
4	Direct adjunct questions: where; when
5	Indirect subject questions
6	Indirect object questions
7	Indirect adjunct questions: why; how
8	Indirect adjunct questions: where; when
9	Wh-movement constraints: CNPC
10	Wh-movement constraints: SSC
11	Wh-movement constraints: CSC
12	Wh-movement constraints: Adjunct Island
13	Wh-movement constraints: Wh-Island

The input that TG received was wh-movement highlighted in both written and audio-visual forms in order to make them notice the target linguistic phenomenon. Then explicit instructions as positive evidence were provided to them. Moreover, negative evidences as corrective feedback in the trial-out step were offered by the researcher. The corrective feedbacks were delivered according to the errors made by the subjects in the trial output section. Therefore, the errors were coded and categorized by the researcher. After the corrections and modifications made by the subjects, the terminal wh-movement output were collected and analyzed.

As for the wh-movement constraints training, the subjects of TG and NTG firstly collected sentences involving those constraints from the movies, secondly analyzed the sentence structures, and finally made sentences with their own content following the sample structures. An example is shown below to illustrate how subjects of two groups did such practice.

Billy: Actually we came to visit your flat-screen. First Mariners game of the season. Plus Jacob keeps bugging me about seeing you again.

Jacob: Great dad... Thanks.

Billy: Just keeping it real son.

Charlie: Pale Ale.

Billy: Well done Chief. Harry Clearwater's homemade fish fry.

Charlie: Good.

Billy: Any luck with that Waylon case?

Charlie: **Well I don't think it was an animal that killed him.**

Billy: I never thought it was.

Charlie: You spread the word out at the rez huh? Keep the kids out of the wood.

Billy: Will do. Don't want no one else getting hurt do we?

*(Twilight, 2008)*

The subjects of TG were required to analyze the structure of this sentence and find out that there was a CNPC "an animal that killed him." They should make some other sentences following the structure of this sample sentence

with their own content. A subject's sentence is shown below.

*My brother was assured that he was awarded the top scholarship of this year.*

The researcher read this sentence and provided feedback by pointing out that this sentence did not match the sample sentence though it was grammatical. The subject needed to make a sentence with CNPC. And the subject rewrote a sentence as below.

*She didn't believe that it was a stranger who saved her.*

To those in NTG, the researcher did not provide explicit guidance to analyze the sentence structures. Instead, NTG subjects were provided implicit instructions to comprehend the meaning of this plot and deal with this plot by translating and back-translating. The subjects may compare their translated sentences and back-translated sentences with the movie subtitles after doing the exercise. But they were not reinforced in dealing with wh-movement constraints.

### **3.5.3.3 Phase III Posttest**

During this phase, all the participants in the TG, NTG and CG took a GJT and a QFT again for the purpose of observing whether there were any differences of making wh-question after receiving instructions on wh-movement. The papers were evaluated by the researcher based on the same standard in the pretest. The results of the two tasks were analyzed statistically using *t*-test to compare both

between groups and between tests. Table 3.5 illustrates how the data were compared and analyzed. Table 3.6 shows the comparison of each group's GJT and QFT scores in pretest and posttest.

**Table 3.5 Comparison between groups in pretest and posttest<sup>7</sup>**

	GJT	QFT
Pretest	TG Vs. NTG	TG Vs. NTG
	TG Vs. CG	TG Vs. CG
	NTG Vs. CG	NTG Vs. CG
Posttest	TG Vs. NTG	TG Vs. CG
	TG Vs. CG	TG Vs. CG
	NTG Vs. CG	NTG Vs. CG

**Table 3.6 Comparison of each group's GJT and QFT scores in pretest and posttest**

	GJT	QFT
TG	Pretest Vs. Posttest	Pretest Vs. Posttest
NTG	Pretest Vs. Posttest	Pretest Vs. Posttest
CG	Pretest Vs. Posttest	Pretest Vs. Posttest

The frequencies of wh-movement errors were also considered in this period. Meanwhile the error frequencies in pretest and posttest by each group were compared for the purpose of observing whether there were any divergences between pretest and posttest.

<sup>7</sup> GJT=grammaticality judgment test; QFT=question formation test; TG=treatment group; NTG=non-treatment group; CG=control group

The statistical analyzing methods that were used in this present study will be presented in the next section.

### **3.6 Data Analysis**

This section describes the statistic methods that were applied to analyze the quantitative data obtained from GJT and QFT. These quantitative data were analyzed by using the Statistical Package for the Social Science (SPSS) version 16.0 software. Data obtained from the subjects' semi-structured interview will be reported as qualitative data.

#### **3.6.1 Independent-samples *t*-Test**

The subjects' mean scores in GJT and QFT in every test were compared by running the independent-samples *t*-test for the purpose of observing the performance differences between TG and NTG, TG and CG, as well as NTG with CG in every test.

#### **3.6.2 Paired-samples *t*-Test**

Paired-samples *t*-test was used to compare the subjects' mean scores on GJT and QFT pretest and posttest when the third phase of the study was completed. The purpose of comparing the mean scores was to identify the divergence before and after the intervention.

#### **3.6.3 Pearson's Chi-square Test**

The L2 learners' errors on wh-movement were coded, categorized, analyzed statistically and reported as research results.

There are two main purposes to take frequencies of wh-movement errors into consideration. The first one is to detect the problems that Chinese EFL learners may have when they make wh-questions. And then, the frequencies in the pretest

and posttest may be analyzed and compared so that the variations of the three groups in the two tests may be reported quantitatively.

#### **3.6.4 Qualitative Analysis**

Data collected from the semi-structured interview were recorded, transcribed and translated into English to find out how the subjects did in the tests and the TG subjects' opinions towards the instructions on wh-movement. This research focused on how L2 learners acquired wh-movement. Data obtained through interviews would help support the numerical data.

### **3.7 Summary**

This chapter described the research methodology employed in the present study. It was conducted with 80 first year English majors taking the English Grammar Course at Guizhou University in China. The subjects were evenly divided into a treatment group (TG) and a non-treatment group (NTG). The control group (CG) consisted of 5 native speakers. The instruments in this research included a grammaticality judgment test (GJT), question formation test (QFT) and semi-structured interview. Then the data collection procedures were introduced and data analyzing methods were described. After that the pilot study and its implications for the main study were illustrated.

The next chapter will present the results of the data analyses.

## CHAPTER 4

### RESULTS OF DATA ANALYSIS

In this chapter, the data collected from the grammaticality judgment test (GJT) and the question formation test (QFT) will be presented. Besides the quantitative data, the qualitative data collected from the GJT and QFT, as well as the semi-structured interview data will also be introduced and analyzed. This study adopted t-test to analyze the scores of the treatment group (TG), non-treatment group (NTG) against the control group (CG) before and after the experiment. The purpose of doing this is to identify whether there are significant differences among the groups in order to prove the efficiency of the grammar awareness-raising model (GARM) designed by the researcher.

#### 4.1 Results of the Grammaticality Judgment Test (GJT)

In response to the first research question, “Are there any differences among Chinese second language (L2) learners in detecting wh-movement errors before and after GARM based explanations on wh-movement? If yes, what are they?” the analysis of the results of the GJT was considered as results to the question.

The descriptive data of GJT in pretest and posttest are shown in Table 4.1.

**Table 4.1 Descriptive data of GJT**

	Group	N	Min.	Max.	Mean	Std. Deviation	Std. Error Mean
Pretest	TG	40	13	58	40.35	13.38	2.11
	NTG	40	16	58	38.45	11.85	1.87
	CG	10	54	60	57.8	2.39	0.75
Posttest	TG	40	20	58	45.25	9.05	1.43
	NTG	40	18	52	36.15	9.49	1.5
	CG	10	57	60	58.8	1.23	0.39

#### 4.1.1 A Comparison of the Pretest among Groups

For the purpose of detecting the differences between TG and NTG with CG respectively in the GJT pretest, the mean scores of these three groups were compared using independent samples t-test. The comparison of the pretest mean scores in GJT of each group seemed to indicate that there were no significant differences between the TG and the NTG. The mean scores of these two groups were compared with the CG for the purpose of determining how different the nonnative speakers were from the native speakers. The results of the comparisons are illustrated in Tables 4.2 4.3 and 4.4.

**Table 4.2 Comparison of GJT between treatment group (TG) and control group (CG) in the pretest**

Group	N	Mean	Std. Deviation	Std. Error Mean	t	df	Sig. (2-tailed)
TG	40	40.3	13.38	2.11483	-4.079*	48	.000
CG	10	57.8	2.39	0.75719			

\*t value is significant at the 0.05 level (two-tailed)

**Table 4.3 Comparison of GJT between non-treatment group (NTG) and CG in the pretest**

Group	N	Mean	Std. Deviation	Std. Error Mean	t	df	Sig. (2-tailed)
NTG	40	38.45	11.85	1.87355	-5.100*	48	.000
CG	10	57.8	2.39	.75719			

\*t value is significant at the 0.05 level (two-tailed)

**Table 4.4 Comparison of GJT between TG and NTG in the pretest**

Group	N	Mean	Std. Deviation	Std. Error Mean	t	df	Sig. (2-tailed)
TG	40	40.35	13.38	2.11483	.672*	78	.503
NTG	40	38.45	11.85	1.87355			

\*t value is significant at the 0.05 level (two-tailed)

The results shown in Table 4.2 and 4.3, indicated that the TG and NTG performed significantly different from the CG in the pretest respectively ( $t=-4.079$ ,  $p=0.00<0.05$  for the TG;  $t=-5.100$ ,  $p=0.00<0.05$  for the NTG). However, Table 4.4 indicated that there was no significant difference between the TG and NTG in the pretest ( $t=0.672$ ,  $p=0.503>0.05$ ), which meant that both non-native speakers, i.e. TG and NTG, performed similarly in the pretest.

#### **4.1.2 A Comparison of the Posttest among Groups**

The comparison of the posttest mean scores in GJT of each group was conducted to determine whether there were any changes to the subjects after the GARM based instruction on wh-movement. Independent samples t-test was adopted to compare the TG with the NTG in order to find out if the former significantly

performed differently from the latter in the posttest. At the same time, the results of the two non-native speaker groups were also compared with those of the CG to observe the extent to which the non-native speakers were different from the native speaker subjects. The results of the comparisons are illustrated in Tables 4.5, 4.6 and 4.7

**Table 4.5 Comparison of GJT between TG and CG in the posttest**

Group	N	Mean	Std. Deviation	Std. Error Mean	t	df	Sig. (2-tailed)
TG	40	45.25	9.05	1.43	-4.686	48	0.000
CG	10	58.8	1.23	0.39			

\*t value is significant at the 0.05 level (two-tailed)

**Table 4.6 Comparison of GJT between NTG and CG in the posttest**

Group	N	Mean	Std. Deviation	Std. Error Mean	t	df	Sig. (2-tailed)
NTG	40	36.15	9.49	1.50	-7.48	48	0.000
CG	10	58.8	1.23	0.39			

\*t value is significant at the 0.05 level (two-tailed)

**Table 4.7 Comparison of GJT between TG and NTG in the posttest**

Group	N	Mean	Std. Deviation	Std. Error Mean	t	df	Sig. (2-tailed)
TG	40	45.25	9.05	1.43	4.39	78	0.000
NTG	40	36.15	9.49	1.50			

\*t value is significant at the 0.05 level (two-tailed)

According to the results shown in Table 4.5 and Table 4.6, the TG performed differently from the CG ( $t=-4.686$ ,  $p=0.000<0.05$ ), which meant that this group of subjects, who were L2 English learners, performed statistically different

from the native speakers. Moreover, there was also significant difference between the NTG and the CG ( $t=-7.48$ ,  $p=0.000<0.05$ ), which indicated that the NTG subjects performed significantly different from the CG subjects. Meanwhile, the means of the TG was statistically different from that of the NTG ( $t=4.389$ ,  $p=0.000<0.05$ ), which seemed to indicate that the TG improved their performance in making judgments on the grammaticality of the wh-moment, whereas the subjects of the NTG remained at the same level as they had in the pretest.

#### **4.1.3 A Comparison of the Pretest and Posttest within Groups**

According to the raw data collected from the GJT, for the purpose of finding out whether the GARM took effect in the instruction, the mean scores of the pretest and posttest were compared using paired samples t-test. The results are illustrated as follows.



**Table 4.8 Paired samples t-test results of GJT scores between pre- and posttest of each group**

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
TG	Pre GJT – Post GJT	-4.9000 0	12.15456	1.92180	-8.78722	-1.01278	-2.550*	39	.015
NTG	Pre GJT – Post GJT	2.30000	8.21880	1.29951	-.32850	4.92850	1.770*	39	.085
CG	Pre GJT – Post GJT	-1.0000 0	2.26078	.71492	-2.61726	.61726	-1.399*	9	.195

\* t value is significant at the 0.05 level (two-tailed)



According to the data in Table 4.8, the TG exhibited a significant difference between pretest and posttest ( $t=2.55$ ,  $\text{sig.}=0.015<0.05$ ), whereas the results of the NTG showed no significant difference ( $t=1.77$ ,  $\text{sig.}=0.085>0.05$ ). It may be observed from Table 4.8 that the subjects in the TG achieved better results in the posttest than in the pretest. Therefore, it could be inferred that the GARM helped the subjects understand how to move the *wh*-component, as well as INFL within a sentence in order to make an English *wh*-question. There was no significant difference in the CG because the native speakers' language level remained consistent in the pretest and posttest.

#### **4.2 Results of the Question Formation Test (QFT)**

In response to the second research question, "Are there any differences for Chinese L2 learners in detecting *wh*-movement constraint violations before and after GARM based explanations on *wh*-movement island constraints?" the scores of the question formation test were compared and the results may be presented in the following parts.

The descriptive data of QFT is shown in Table 4.9.

**Table 4.9 Descriptive data of QFT**

	Group	N	Min.	Max.	Mean	Std. Deviation	Std. Error Mean
Pretest	TG	40	2	26	10.73	5.83	0.92
	NTG	40	2	22	8.98	4.61	0.73
	CG	10	26	30	28.6	1.51	0.48
Post-test	TG	40	2	28	18.4	7.56	1.20
	NTG	40	4	18	9.53	3.85	0.61
	CG	10	27	30	29	1.05	0.33

#### 4.2.1 A Comparison of the Pretest among Groups

The mean scores of the TG, the NTG and the CG were compared for the purpose of analyzing whether there were differences in forming wh-questions without violating wh-island constraints between the pairs of groups, i.e. TG vs. NTG, TG vs. CG, and NTG vs. CG. The two non-native speaker groups were compared with the CG in order to observe how second language learners obeyed wh-movement constraints differently from the native speakers before the instructions on the violation of those constraints (see section 2.3.4). The results of the comparisons are illustrated in Tables 4.10, 4.11 and 4.12.

**Table 4.10 Comparison of QFT between TG and CG in the pretest**

Group	N	Mean	Std. Deviation	Std. Error Mean	t	df	Sig. (2-tailed)
TG	40	10.73	5.83	0.92	-9.553	48	0.000
CG	10	28.6	1.51	0.48			

\*t value is significant at the 0.05 level (two-tailed)

**Table 4.11 Comparison of QFT between NTG and CG in the pretest**

Group	N	Mean	Std. Deviation	Std. Error Mean	t	df	Sig. (2-tailed)
NTG	40	8.98	4.61	0.73	-13.195	48	0.000
CG	10	28.6	1.51	0.48			

\*t value is significant at the 0.05 level (two-tailed)

**Table 4.12 Comparison of QFT between TG and NTG in the pretest**

Group	N	Mean	Std. Deviation	Std. Error Mean	t	df	Sig. (2-tailed)
TG	40	10.73	5.83	0.92	1.49	78	0.140
NTG	40	8.98	4.61	0.73			

\*t value is significant at the 0.05 level (two-tailed)

According to the above data, the TG and NTG performed significantly differently from the CG ( $t=-9.553$ ,  $p=0.00<0.05$  for the TG and  $t=-13.195$ ,  $p=0.00<0.05$  for the NTG). This may be explained by the fact that non-native speaker subjects did not show enough understanding on the wh-movement constraints in the QFT. Therefore, they made incorrect wh-movement in those sentences that could not be questioned. At the same time, there was no significant difference between the mean scores of the two non-native speakers groups ( $t=1.49$ ,  $p=0.14>0.05$ ), which could be interpreted as evidence that the two groups had more or less the same understanding towards the English wh-movement constraints in the pretest.

#### **4.2.2 A Comparison of the Posttest among Groups**

The mean scores of the posttest taken by the three groups of subjects were analyzed and compared for the purpose of determining whether the instruction based on GARM may have any effect on the second language learners. The independent

samples t-test was adopted to compare the differences between pairs of groups, i.e. TG vs. CG, NTG vs. CG and TG vs. NTG, and the results are illustrated as follows.

**Table 4.13 Comparison of QFT between TG and CG in the posttest**

Group	N	Mean	Std. Deviation	Std. Error Mean	t	df	Sig. (2-tailed)
TG	40	18.4	7.56	1.19	-4.387	48	0.000
CG	10	29	1.05	0.33			

\*t value is significant at the 0.05 level (two-tailed)

**Table 4.14 Comparison of QFT between NTG and CG in the posttest**

Group	N	Mean	Std. Deviation	Std. Error Mean	t	df	Sig. (2-tailed)
NTG	40	9.53	3.85	0.61	-15.739	48	0.000
CG	10	29	1.05	0.33			

\*t value is significant at the 0.05 level (two-tailed)

**Table 4.15 Comparison of QFT between TG and NTG in the posttest**

Group	N	Mean	Std. Deviation	Std. Error Mean	t	df	Sig. (2-tailed)
TG	40	18.4	7.56	1.19	6.613	78	0.000
NTG	40	9.53	3.85	0.61			

\*t value is significant at the 0.05 level (two-tailed)

According to the above data, both the TG and the NTG seemed to behave differently from the CG ( $t=-4.387$ ,  $p=0.00<0.05$  for TG and  $t=-15.739$ ,  $p=0.00<0.05$  for NTG). Moreover, what differed from the pretest was that there was significant difference between the mean scores of the TG and NTG ( $t=6.613$ ,  $p=0.00<0.05$ ). This may be because those subjects who received instructions on wh-movement constraint understood the rules better than those who didn't. However, compared

with the CG, the TG subjects could not obey the wh-movement constraints as the CG subjects did.

#### **4.2.3 A Comparison of the Pretest and Posttest within Groups**

In order to find out whether the instructions on wh-movement constraints based on GARM were effective or not, the mean scores of the TG, the NTG and the CG were compared using paired samples t-test, and the results are shown as follows.



**Table 4.16 Paired samples t-test results of QFT scores between pre- and posttest of each group**

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
TG	Pre QFT - Post QFT	-7.67500	8.87054	1.40256	-10.51194	-4.83806	-5.472	39	.000
NTG	Pre QFT - Post QFT	-.55000	3.22610	.51009	-1.58176	.48176	-1.078	39	.288
CG	Pre QFT - Post QFT	-.40000	1.71270	.54160	-1.62519	.82519	-.739	9	.479

\* t value is significant at the 0.05 level (two-tailed)

Observing the data in Table 4.16, we may see that the TG significantly improved in the performance in the posttest compared to that in the pretest. The mean scores of the pretest and posttest is significantly different ( $t=-5.472$ ,  $p=0.00<0.05$ ). In contrast to the TG, the NTG did not show much improvement in the posttest compared to the pretest ( $t=-1.078$ ,  $p=0.288>0.05$ ), which seemed to indicate that the NTG did not perform differently in judging the wh-movement constraints in the pretest and posttest. As for the CG, the mean scores remained still in the pretest and posttest, which meant that the native speakers' understanding of the wh-movement island constraints did not change in the pretest and posttest ( $t=-0.739$ ,  $p=0.479>0.05$ ).

### **4.3 Errors in the Grammaticality Judgment Test (GJT)**

In response to the third question, "What are the grammatical errors made by L2 English learners concerning wh-movement before and after GARM based explanations on wh-movement? And what are the frequencies?" the major types of movement errors were counted and compared quantitatively and qualitatively so as to reflect the influence of the instruction of wh-movement based on GARM. As a result, Hypothesis 2, "it is hypothesized that L2 learners' grammar errors concerning the movements of wh-components as well as auxiliary verbs or tense indicators and wh-movement constraints may be abated if they become aware of how and why English wh-components are moved back and forth" can be testified accordingly.

According to the test papers completed by the subjects, the errors in the GJT may be generalized and categorized as follows.

**Table 4.17 Types of errors in GJT**

No.	Types of errors	Meaning	Examples & explanations
1	No movement	The subjects made incorrect judgment to grammatical wh-questions but made no correction to them.	For what reason did he give up this project? (× <sup>8</sup> ) <i>The subject judged the grammatical sentences as ungrammatical but didn't make any correction to it.</i>
2	Double tense indicator	The subjects didn't notice there was more than one auxiliary verb or INFL.	*Please tell me who did sent him an email to explain the situation. (√) <i>The subject judged the ungrammatical sentence as grammatical and made no correction because he didn't know that the words "did" and "sent" involved two INFL-past tense indicators which should not coexist. This sentence should be marked with "×" and corrected into "Please tell me who sent him an email to explain the situation".</i>
3	No movement forward	The subjects didn't front the auxiliary or the tense indicator to form a direct wh-question.	*To whom John gave a glass of water? (√) <i>The subject believed that this wh-question was correct. But actually he needed to front the INFL-past to be after the wh-word. This sentence should be marked with "×" and corrected into "To whom did John give a glass of water?"</i>

<sup>8</sup> The correction marks √ or × in the parenthesis were what the subjects marked on the test paper.

**Table 4.17 Types of errors in GJT (continued)**

No.	Types of errors	Meaning	Examples & explanations
4	No movement backward	The subjects didn't move the auxiliary or the tense indicator while making	<p>*Could you tell me which bus should I take to get to the hospital? (√)</p> <p><i>The subject judged the ungrammatical sentence as grammatical and made no correction to it.</i></p> <p><i>But the auxiliary verb "should" was incorrectly fronted and should be moved back to be after the subject of the relative clause as, "Could you tell me which bus I should take to get to the hospital?"</i></p>
5	Over generalization	The subjects front some parts that should not be fronted.	<p>Who on earth made a promise to Eileen? (×) → Who made a promise on earth to Eileen?</p> <p><i>The subject judge a grammatical wh-question as ungrammatical and made unnecessary movement to the phrase "on earth".</i></p>
6	Other minor errors	The subjects made errors such as deletion, adding unnecessary word or making unnecessary corrections.	<p>David proposed to the committee when they would be able to finish the project. (×) → David proposed to go to the committee when they would be able to finish the projects.</p> <p><i>The subject judged the grammatical sentence as ungrammatical and added unnecessary information to the sentence. The indirect wh-question was thus changed into an adjunct clause.</i></p>

### 4.3.1 Frequencies of GJT Errors in Pretest

For the purpose of observing the differences of the grammar errors in the pretest and posttest, the frequencies of the grammar errors made by the subjects of the TG and NTG were compared, and the results may be shown in Table 4.16.

**Table 4.18** Frequencies of grammar errors in GJT pretest

	TG	NTG
1. No movement	26	27
2. Double tense indicator	33	35
3. No movement forward	148	156
4. No movement backward	140	171
5. Over generalization	33	35
6. Other minor errors	50	51
N=	430	475

According to the data in Table 4.16, the third and fourth errors appeared much more often in the non-native speaker groups. Comparatively speaking, the subjects in the TG achieved more correct items than those in the NTG. The NTG made more errors in moving the auxiliary verb forwards and backwards in the direct and indirect wh-questions. Pearson chi-square was used to compare the relationship between the frequencies of the grammar errors of the two groups in the pretest. It was reported that there was significant relationship between the TG and NTG in the pretest ( $P=4.8$ ,  $\text{sig.}=0.57 > 0.01$ ), which indicated that the TG and NTG made nearly the same number of errors.

### 4.3.2 Frequencies of GJT Errors in Posttest

In order to find out whether the instruction on the wh-movement had any influence on the subjects to move the auxiliary verbs or tense indicators while making direct and indirect wh-questions, the frequencies of the errors in the posttest were analyzed and the results may be illustrated in the following table.

**Table 4.19** Frequencies of grammar errors in GJT posttest

	TG	NTG
1. No movement	22	36
2. Double tense indicator	36	69
3. No movement forward	159	220
4. No movement backward	106	252
5. Over generalization	6	7
6. Other minor errors	59	64
N=	388	648

From the Table 4.17, we may see that the subjects of the TG made more correct judgment than those of the NTG. Compared to the NTG, the TG subjects achieved more successfully while making judgments on the movement of the auxiliary verb or INFL in a direct or indirect wh-question. Pearson's chi-square was used to compare the relationship between the frequencies of the grammar errors of the two groups in the posttest and the result showed that there was no correlation between the frequencies ( $P=132.9$ ,  $\text{sig.}=0.00<0.01$ ).

#### 4.4 Violations in the Question Formation Test (QFT)

In response to the third research question, “What are the grammatical errors made by L2 English learners concerning wh-movement before and after GARM based explanations on wh-movement? And what are the frequencies?” the major types of errors made by the subjects in the QFT were coded, counted and analyzed.

Observing the test papers done by the subjects in pretest and posttest, the researcher categorized the grammar errors into four types. The explanations and examples of each type of errors may be presented in Table 4. 18.



**Table 4.20 Types of errors in QFT**

No.	Types of errors	meaning	examples
1	Wh-movement Constraint violation	The subjects broke any constraints on wh-movement and made an ungrammatical wh-question.	The little boy gave up his favorite toy because <u>his mother</u> bought him a new toy. → *Who did bought the little boy a new toy so that he gave up his favorite? (Adjunct island constraint violation)
2	Incorrect question formation	The subjects failed to raise questions when there was no wh-movement constraint.	The director suggested that the examination be postponed to <u>next year</u> . → *When would the examination be postponed the director suggested?
3	Incorrect tense indicator movement	The subjects raised wh-questions without correctly moving the auxiliary verbs or the INFL.	Sara quit her job here <u>because she received a higher position in the government</u> . → *Why Sara quit her job?
4	No response	The subjects did not make any questions and left the items unsolved without providing any explanation.	That he has gone through all the difficulties inspired <u>us</u> . → The subjects didn't answer this item and left it blank.

#### 4.4.1 Frequencies of QFT Errors in Pretest

Based on the errors made by the subjects in the question formation test, the frequencies of the errors were coded and counted and the results of TG and NTG are presented in the following Table 4.19.

**Table 4.21** Frequencies of errors in pretest

	TG	NTG
1. Wh-movement Constraint violation	243	256
2. Incorrect question formation	56	59
3. Incorrect tense indicator movement	46	56
4. No response	60	49
N=	405	420

From Table 4.19, it may be observed that in the pretest the nonnative speakers made errors in detecting the wh-movement constraints in the statement. Pearson Chi-square was applied to analyze the relationship between the frequencies of the grammar errors made by TG and NTG in the pretest. The results indicated that there was significant correlation between the frequencies of the two groups ( $P=3.1$ ,  $\text{sig.}=0.54 > 0.01$ ). This may be interpreted that the subjects of TG and NTG made statistically no differences in the number of the errors in the pretest. The reasons for why the subjects made such errors will be discussed with details in the next chapter.

#### **4.4.2** Frequencies of QFT Errors in Posttest

For the purpose of observing the effects of the instruction on wh-movement constraints on the subjects in the TG, the subjects were given a posttest after being instructed when and how to make a wh-question based on the GARM.

The frequencies of errors made by the subjects of both the TG and NTG were counted and analyzed. The results are illustrated in Table 4.20 as follows.

**Table 4.22** Frequencies of errors in posttest

	TG	NTG
1. Wh-movement Constraint violation	123	268
2. Incorrect question formation	36	94
3. Incorrect tense indicator movement	59	43
4. No response	0	23
N=	218	428

Observing from the above table, we could see that the TG achieved more correct items than the NTG. Moreover, the first and second types of errors, i.e. Wh-movement Constraint violation and incorrect question formation, appeared less often in the TG than in the NTG. The frequencies of the grammar errors made by the TG and NTG were compared using Pearson Chi-square for the purpose of determining the relationship between the results of the two groups. The result showed that the frequencies of the grammar errors made by the TG and NTG in the posttest were not significantly related to each other ( $P=184.7$ ,  $\text{sig.}=0.00<0.01$ ).

#### **4.5 Opinions towards GARM**

To answer the fifth question, “What are the effects of GARM in English wh-movement acquisition by L2 learners?” the researcher randomly chose five subjects from the TG to take part in the semi-structured interview about their opinions towards the wh-movement instruction based on the GARM.

The interview questions are as follows and will be presented in Appendix D,

1. Have you noticed any differences in your performance when you were

dealing with wh-questions?

2. What do you think of the teaching method used in the instruction of wh-movement?
3. What do you think is the effect of the instruction in facilitating your performance in making wh-questions?

#### **4.5.1 Differences in Performance**

As for the first interview question, four of the subjects provided positive answers. They held that they knew how to make interrogative questions because they were taught so when they were in middle school. However, they did not know why the questioned part needed to be fronted when a wh-question was made and how to make proper movement. But after the instruction, the subjects understood the rules of moving the questioned part and the tense indicators when they generate wh-questions.

On the contrary, the last subject provided different answers. He claimed that he depended on his previous knowledge to deal with the test items in both the pretest and the posttest. He did not recognize any changes before and after the instruction.

#### **4.5.2 Comments on Teaching**

There were two aspects in the response to question two. For one aspect, the subjects reported that the instruction helped them set up a grammar system in their minds, so that they learned to deal with problems in a logical way instead of depending on their sense of language as before. Generally speaking, they thought the effect of the grammar-awareness was good. They learned a great deal during the instruction and they would keep on using similar methods in learning language in the

future.

For another aspect, the subjects argued that some improvement could be made to the GARM to make it more effective. Some of them hoped that the negative feedbacks given by the teacher during instruction could be flexible and easily understandable. They tried hard to improve their understanding of the wh-movement, though sometimes grammar errors were unavoidable.

The subjects wished that more forms of wh-questions related activities would be involved in the instruction. Though they were adult learners, they still needed some fun in learning as young learners do.

#### **4.5.3 Opinions about GARM**

When asked about the impression on the GARM, all interviewees agreed that this way of teaching was effective in their learning. However, they held opposite opinions towards what was taught through the model, namely the wh-movement.

Two of the interviewees reported that they had to endure the complexity of the rules of moving the questioned parts and the tense indicators when they learned how to make proper wh-questions. Fortunately, they understood the rules and they could make proper judgment and generate grammatical wh-question after the instruction.

However, three of the subjects did not agree with their group mates. They claimed that they were not accustomed to either the new way of teaching or what was taught through the instruction.

They explained that the rules of movement were very abstract and logical for them to understand. They felt more comfortable using their previous knowledge

to deal with the problems. They were not used to applying a logical method to analyze the test items. Instead, they preferred their traditional rule-memorizing ways to solve those test items in the GJT and QFT.

#### **4.6 Summary**

In this chapter, the raw data collected from the pretest and posttest were reported and analyzed. Firstly, the GJT scores of the TG, the NTG and the CG in the pretest and posttest were presented and compared. Generally speaking, the TG performed better than the NTG after they received instructions on the wh-movement, though they needed more improvement to perform more closely to the native speakers.

The second section presented the data from QFT. The mean scores of the three groups in the pretest and posttest were compared and analyzed, and it was found that though the TG made improvement in the posttest compared to the pretest, they still formed wh-questions with wh-components and INFL stay-in-situ.

Thirdly, the types of the errors in the GJT were categorized and generalized. It was reported that there existed basically six types of errors while the subjects were judging the grammaticality and correcting the ungrammatical test items. The frequencies of each type of error were also reported and compared among three groups.

The fourth section of this chapter reported the errors made by the subjects in the question formation test. Four types of errors were reported and the frequencies of each type of mistake made by the subjects were also compared.

Lastly, the subjects opinions towards the instruction on wh-movement based

on the GARM were summarized and reported. Generally speaking, most of the subjects held positive attitudes towards the instruction, whereas some of them provided their suggestions on improving the model.

Chapter 5 will explain the data presented in this chapter with details. The research hypotheses proposed in Chapter 1 will be discussed by referring to the quantitative and qualitative data.



## **CHAPTER 5**

### **DISCUSSION**

This chapter will discuss the results of data analysis presented in Chapter Four in four parts. The first part, which deals with Research Hypothesis 1, corresponding to Research Questions 1 and 2, will provide reasons to illustrate whether there are possibilities to improve second language (L2) learners' accuracy of wh-questions with the help of the grammar awareness-raising model (GARM). The second part will answer Research Question 3 and deal with Research Hypothesis 2 by discussing the major types of errors in grammaticality judgment test (GJT) and question formation test (QFT). The third part mainly concerns the effectiveness of the awareness raising and corrective feedback in English wh-movement acquisition by L2 learners. The last part summarizes the whole chapter.

#### **5.1 Research Hypothesis 1**

As hypothesized in Chapter 1, L2 learners would improve their accuracy of wh-questions with the help of the GARM. The data reported in sections 4.1 and 4.2 will provide the answers to Research Questions 1 and 2 considering the GJT. Research Hypothesis 1 and Research Questions 1 and 2 were presented in Table 1.1 and are repeated here in Table 5.1.

**Table 5.1 Research Hypothesis 1, Research Questions 1 and 2**

Research Hypothesis 1	Research Questions 1 and 2
<p>It is hypothesized that if Chinese-speaking learners of English are constrained by L1 Chinese grammar rules of making wh-questions, they would not move the wh-word to the beginning of a direct wh-question and the auxiliary verb, such as “can” and “will”, or the tense indicator (INFL), such as -es and -ed, will also remain unfronted due to the Chinese wh-question parameters.</p>	<p>1. Are there any differences among Chinese L2 learners in detecting wh-movement errors before and after GARM based explanations on wh-movement?</p> <p>2. Are there any differences for Chinese L2 learners in detecting wh-movement constraint violations before and after GARM based explanations on wh-movement constraints?</p>

### 5.1.1 Grammaticality Judgment Test (GJT)

In response to the first research question (see Table 5.1), the GJT mean scores of each group in the pretest and posttest were compared in Chapter 4 (see section 4.1). The results of the comparison will be discussed in the following three parts.

#### 5.1.1.1 A Comparison of the Pretest among Groups

In the pretest, both the treatment group (TG) and non-treatment group (NTG) performed significantly different from the native speaker group, namely control group (CG) ( $t=4.079$ ,  $p=0.00<0.05$  for TG;  $t=5.100$ ,  $p=0.00<0.05$  for NTG),

and the two groups of non-native speakers had similar results in the pretest ( $t=0.672$ ,  $p=0.503>0.05$ ). This may be interpreted that in the pretest, the subjects of the TG and NTG had almost the same level in judging the grammaticality of the wh-questions. They maintained low accuracy in making proper judgment to those items with improper auxiliary verb movements compared to that of the native speakers. The subjects' judgment exhibited characteristics of Chinese word order. Take item 4 in the pretest as an example numbered here as 5-1.

5-1. \**Why Africa is so poor?*  
*Wèishénme fēizhōu shì rúcǐ pínqióng?*

Fifteen out of 40 in the TG and 20 out of 40 judged this wh-question grammatical. The reason was that the English wh-question followed the same order as the corresponding Chinese question. Therefore, their L2 output exhibited Chinese wh-question orders. 62.5% of the subjects from the TG and 50% of the subjects from the NTG did not notice that the auxiliary verb should be after the wh-word “why”. On the contrary, the native speakers judged this wh-question ungrammatical because the verb “is” should be repositioned to be after the wh-word “why”. The characteristics of the three groups of subjects in the pretest will be generalized and compared in Table 5.2 as follows.

**Table 5.2 A comparison of the GJT pretest results among groups**

G <sup>10</sup> \ C <sup>9</sup>	a. Chinese parameters auxiliary verbs remain in-situ
CG	<p>All the native speakers in this current study were fully developed L1 English speakers. They did not know any Chinese. Their performance in the pretest was adopted as the baseline data of the experiment.</p> <p>e.g. *Why Africa is so poor? → Why is Africa so poor?</p> <p>Fifteen out of 40 in the TG and 20 out of 40 judged this wh-question grammatical.</p>
TG	<p>The subjects were all L1 Chinese speakers. Before they took part in the current research, they had studied English for six years. Their L1 has been fully developed when they started to learn the L2. Therefore the already-set L1 parameters should not be ignored while an L2 was learned. They learned how to make English wh-questions in middle schools. Their performance exhibited Chinese parameters where the auxiliary verb was unfronted.</p> <p>Fifteen of 40 subjects judged this question as grammatical and made no correction to it.</p>
NTG	<p>The subjects of this group were also fully L1 Chinese developed adult students. Same as those in the TG, they had studied English for six years after their L1 was learned. How to make English interrogative questions was taught when they were in middle schools.</p> <p>Their performance in the pretest exhibited a Chinese characteristic, i.e. “the auxiliary verb remained unfronted”.</p> <p>Twenty of 40 subjects judged this question as grammatical and made to correction to it.</p> <p>There was no significant difference between TG and NTG (P=0.26&gt;0.05).</p>

<sup>9</sup> C=Characteristics, similarly hereinafter.

<sup>10</sup> G=Groups, similarly hereinafter.

**Table 5.2 A comparison of the GJT pretest results among groups (continued)**

G \ C	b. English parameters wh-components fronting
CG	<p>The native speakers of English demonstrated English wh-movement parameters as wh-components fronted to the beginning of an interrogative question.</p> <p>e.g. For what reason did he give up this project?</p> <p>All native speakers judged this wh-question as grammatical and did not make any corrections to it.</p>
TG	<p>Since all subjects were intermediate L2 learners as reported in section 3.1, due to the already reset L2 wh-movement parameters about how to make an English wh-question, the performance of the subjects did not demonstrate Chinese wh-in-situ parameters. They fronted the wh-component when an interrogative question was raised. They did not make changes to wh-components in the item to match Chinese parameters.</p> <p>Twenty-seven out of 40 subjects judged this wh-question as grammatical, 5 subjects moved the INFL “did” to be with the verb “give”, 1 changed “give” to “gave” and 7 deleted “did”.</p>
NTG	<p>Similar to the subjects in TG, those in NTG fronted the wh-component to generate an English wh-question. No subject replaced the wh-component in the GJT to be wh-in-situ, which was Chinese parameter but they made other errors.</p> <p>Twenty-one out of 40 subjects judged this wh-question as grammatical, 10 subjects moved the INFL “did” to be with the verb “give”, 2 changed “give” to “gave” and 7 deleted “did”.</p> <p>There was no significant difference between the experimental and the NTG (<math>P=0.432&gt;0.05</math>).</p>

**Table 5.2 A comparison of the GJT pretest results among groups (continued)**

G \ C	c. English parameters auxiliary verbs (including INFL) moving forwards
CG	<p>The native speakers' performance demonstrated that the English auxiliary verbs (including INFL) should be fronted to be after the wh-component.</p> <p>e.g. *In which room the conference will be held? → In which room will the conference be held?</p>
TG	<p>Although the subjects did not exhibit Chinese wh-in-situ parameters in making English interrogative questions as described before, their English auxiliary verbs (including INFL) exhibited L1 characteristics. Their performance differed from what was performed by the native speakers in deciding the position of the auxiliary verbs (including INFL) in English direct questions.</p> <p>There appeared unfronted auxiliary verbs (including INFLs) in the GJT where the verbs should be moved to be after the wh-word at the beginning of an interrogative question.</p> <p>Nine out of 40 subjects judged this wh-question as grammatical, 30 subjects did not move the auxiliary verb "will" to be with the wh-component "which room", and 1 deleted "be".</p>
NTG	<p>Same as the subjects in the TG, the subjects of the NTG kept the English auxiliary verbs (including INFL) remained unfronted.</p> <p>The mean scores of the GJT in the pretest didn't show statistically significant differences in the performance of the TG and NTG.</p> <p>Compared to the TG, 16 out of 40 subjects judged this wh-question as grammatical and 24 subjects did not move the auxiliary verb "will" to be with the wh-component "which room".</p> <p>There was no statistical significance between the TG and NTG (<math>P=0.163&gt;0.05</math>).</p>

**Table 5.2 A comparison of the GJT pretest results among groups (continued)**

G \ C	d. English parameters auxiliary verbs (including INFL) moving backwards
CG	<p>The native speakers' performance shows that auxiliary verbs in English indirect questions remain in the positions as the auxiliary verbs in embedded clauses in declarative sentences. All native speakers made corrections to this sentence as follows.</p> <p>e.g. *Please tell me what is your name. → Please tell me what your name is.</p>
TG	<p>In the indirect wh-question, where the auxiliary verbs (including INFL) need to remain unfronted, the subjects tended to accept the ungrammatical fronting.</p> <p>Sixteen out of 40 subjects made correct judgment on this indirect question, 24 subjects believed that this judgment was correct and did not move the auxiliary verb "is" to be after "name".</p>
NTG	<p>The performance of the NTG in the pretest exhibited similar characteristics with that of the TG. The subjects judged the ungrammatically fronted auxiliary verbs (including INFLs) as grammatical and made no corrections to the errors in the test items.</p> <p>Nine out of 40 subjects made correct judgment on his indirect question, 31 subjects believed that this judgment was correct and did not move the auxiliary verb "is" to be after "name".</p> <p>There was no statistically significant difference between the performance of the experimental and NTG (<math>P=0.09&gt;0.05</math>).</p>

### 5.1.1.2 A Comparison of the Posttest among Groups

Statistically significant changes occurred among the TG, the NTG and the CG in the posttest after the instruction. After the TG received the instructions on the wh-movement, the mean score of the TG was highly improved and they performed significantly different from those in the NTG ( $t=4.389$ ,  $p=0.000<0.05$ ), which means that the NTG remained unchanged compared to their performance on the pretest. However, there were also statistical differences between the TG and the CG. The reasons of this may be explained from two aspects.

The first aspect is concerned with the input that the subjects receive. The NTG received the same L2 materials as the TG. The researcher helped them understand the general meaning of the passages, and they could read them without any pressure of time limit or vocabulary. Meanwhile, the researcher avoided emphasizing the direct and indirect wh-questions in those reading materials. The subjects of the TG received what those in the NTG did. The researcher helped them understand the general meaning of those passages and analyze the sentence structures of the direct and indirect wh-questions in the reading materials. They were reminded to observe the movement of the wh-components and auxiliary verbs (including INFL) for the purpose of making them aware of the movement of those components while an English question was generated. Then the researcher provided explanations on why those components moved forwards and backwards. Therefore, the awareness to the target language phenomenon was crucial in second language acquisition, and that explained why the NTG performed differently from the TG.

Secondly, the form of the feedback differentiated the accuracy of the judgment of the wh-movement of the TG. Although the L2 learners of the TG

improved their accuracy in the posttest, there was still a gap to fill if they wanted to produce native-like grammaticality judgment. Some subjects were able to understand the explanation to the movement of the auxiliary verbs when their errors were pointed out, whereas some other subjects could not understand where their problems were and did not know how to grammatically move the wh-components and INFL when they came across wh-movement. They just depended on their so-called “sense of language” to make judgment on the grammaticality items instead of applying English wh-movement rules. This can be supported by the semi-structured interview data.

*Researcher: You were able to make correct judgment on some of the items in the pretest. But why couldn't you judge correctly in the posttest?*

*Subject: I had never experienced things like this. In the pretest, I just did the items..... When I was in the middle school, my English teacher just taught me to recite the texts and make wh-questions as what was in the text. When you explained the rules of wh-movement and corrected our errors, I got very confused because I was not good at logical thinking or rule understanding. So when I was doing the posttest, the rules distracted me.*

The characteristics of the three groups of subjects in the posttest are generalized and compared in Table 5.3 as follows.

**Table 5.3 A comparison of the GJT posttest results among groups**

G \ C	a. Chinese parameters auxiliary verbs remain in-situ
CG	<p>The performance of the native speakers was adopted as the baseline to that of the non-native speakers. For the question below, the native speakers judged it as ungrammatical and made correction to it as follows. e.g. *Where we could escape after being told that the virus existed everywhere in the air? → Where could we escape after being told that the virus existed everywhere in the air?</p>
TG	<p>The subjects made more correct judgments in the posttest. They corrected the positions of the auxiliary verbs when these words should be fronted. The Chinese auxiliary verbs remaining in-situ parameter appeared less often compared to the NTG.</p> <p>32 out of 40 subjects judged this question as ungrammatical and made proper correction to it by fronting the auxiliary verb “could” to be after “where”. 7 out of 40 subjects judged it as grammatical. 1 out of 40 subjects judged it as ungrammatical but made improper correction to it. She deleted the auxiliary verb “could” and plus INFL -ed to the verb “escape”.</p>
NTG	<p>Compared to the TG, the NTG tended to retain the auxiliary verb in-situ. Their performance indicated Chinese auxiliary verb in-situ parameters, which may be explained that their L2 parameters were not successfully reset.</p> <p>18 out of 40 subjects judged this question as ungrammatical and made proper correction to it by fronting the auxiliary verb “could” to be after “where”. 20 out of 40 subjects judged it as grammatical. 2 out of 40 subjects judged it as ungrammatical but made improper correction to it. They incorrectly deleted the auxiliary verb “could” and added INFL -ed to the verb “escape”.</p>

**Table 5.3 A comparison of the GJT posttest results among groups (continued)**

G \ C	b. English parameters wh-components fronting
CG	<p>The native speakers' performance demonstrated how English wh-components were raised to the beginning of an interrogative question in order to ask for information. All native speakers judged the question below as grammatical because it exemplified the English wh-movement parameters. The word "who" was the object of the verb defend as shown below.</p> <p>We should defend who even if it means devoting our youth.</p> <p>When a wh-question was raised to ask for information about the recipient of the action "defend", the wh-component was fronted to the beginning of the question and the auxiliary verb "should" was fronted consequently, as shown below.</p> <p>e.g. Who<sub>i</sub> should we defend t<sub>i</sub> even if it means devoting our youth?</p>
TG	<p>The subjects accepted the fronted wh-components in English direct wh-questions and no one corrected questions by moving the fronted wh-components back into the sentences. Moreover, in the indirect wh-questions, the wh-components were not fronted to the beginning but the clause of the matrix.</p> <p>30 out of 40 subjects judged it as grammatical, 3 judged it as ungrammatical but no corrections were made, 3 judged it as ungrammatical and moved "should" to be after "we", and 4 subjects judged it as ungrammatical but improperly deleted the auxiliary verb "should".</p>
NTG	<p>The subjects seemed to have no problem with this question since it was grammatical. There was no significant difference between the TG and the NTG in judging the grammaticality of wh-components fronting parameters.</p> <p>28 out of 40 subjects judged it as grammatical, 5 judged it as ungrammatical but no corrections were made, 5 judged it as ungrammatical and moved "should" to be after "we", and 2 subjects judged it as ungrammatical but improperly deleted the auxiliary verb "should".</p> <p>There was no statistic difference between the two groups (P=0.629&gt;0.05).</p>

**Table 5.3 A comparison of the GJT posttest results among groups (continued)**

C G	c. English parameters auxiliary verbs (including INFLs) moving forwards
CG	<p>The native speakers' performance demonstrated that the auxiliary verbs or INFLs should be fronted to be after the wh-word when an English direct question was raised to ask for information.</p> <p>e.g. *What the hell you two have done to that poor dog? → What the hell have you two done to that poor dog?</p>
TG	<p>Some of the subjects were able to judge the ungrammatical positions of auxiliary verbs (including INFL) when the words needed to be moved forward in direct English wh-questions. Take the above question as an illustration. The subjects judged it as ungrammatical and corrected it by fronting the word "have" to be before "you"</p> <p>e.g. *What the hell you two have done to that poor dog?</p> <p>15 out of 40 subjects made proper judgment and correction, 22 did not front the auxiliary verb, 2 changed "have done" to "did" and 1 incorrectly deleted "the hell".</p>
NTG	<p>Those who could make proper judgment to auxiliary verbs fronting items were less than that of the TG.</p> <p>e.g. *What the hell you two have done to that poor dog?</p> <p>4 out of 40 subjects made proper judgment and correction, 2 added a verb "is" after the wh-word "what", 32 did not front the auxiliary verb and 2 changed "have done" to "did".</p> <p>The frequency of the errors made by the TG was significantly different from that of the NTG. (P=0.024&lt;0.05)</p>

**Table 5.3 A comparison of the GJT posttest results among groups (continued)**

C G	d. English parameters auxiliary verbs (including INFLs) moving backwards
CG	<p>The native speakers could make correct judgments on the ungrammatical positions of the auxiliary verbs or INFLs. And when they made corrections to the ungrammatical indirect questions, they were able to return and combine the INFLs with the main verbs.</p> <p>e.g. *You are wondering why of course did I bring you here tonight.→ You are wondering why of course I brought you here tonight.</p>
TG	<p>In the indirect wh-questions, some subjects were able to figure out the forward-moved auxiliary verbs after the instructions on wh-movement.</p> <p>19 out of 40 subjects made correct judgment and proper corrections, 15 did not move back the fronted INFL “did”, 3 moved “did” back but did not combine it with the verb “bring” and 3 improperly delete the INFL “did”.</p>
NTG	<p>The subjects’ performance showed that most of them did not figure out the misplaced INFLs or auxiliary verbs and therefore failed to make appropriate judgments.</p> <p>Four out of 40 subjects made correct judgment and proper corrections, 29 did not move back the fronted INFL “did”, 5 moved “did” back but did not combine it with the verb “bring” and 2 improperly delete the INFL “did”.</p> <p>The frequency of the errors made by the TG was significantly different from that of the NTG. (<math>P=0.002&lt;0.05</math>)</p>

### 5.1.1.3 A Comparison of the Pretest and Posttest within Groups

Based on the analyzed data in Section 4.1.3, the mean scores of the TG in the pretest and posttest were significantly different ( $t=2.55$ ,  $\text{sig.}=0.015<0.05$ ), nevertheless the NTG maintained a steady level ( $t=1.77$ ,  $\text{sig.}=0.085>0.05$ ) (Table 4.7). Three reasons to explain this may be illustrated as follows.

Firstly, the authentic target language input with underlined target structure triggered the subjects to notice what was intentionally required to learn from the materials. As what was supported by Krashen (1981, 1994) and R. Ellis (2005), the researcher of this present study agreed that enhanced L2 input took positive effect in learning an L2. R. Ellis (2005) stated that L2 input should be understandable, extensive and with large quantity. In this study, all the sentences with wh-movement in the materials that the subjects received were underlined to guide them to attend to the target structure. Meanwhile the researcher introduced why those sentences needed to be underlined during every session of wh-movement instruction and provided assistance to the subjects in comprehending the sentences. The authentic target language input provided by the researcher reminded the subjects to notice the difference between English and Chinese in making wh-questions. The TG received special instructions designed according to the GARM on how to make proper wh-questions. In each section of the instruction, the researcher provided English wh-questions taken from real L2 context, so that the subjects could observe how native speakers generate questions to ask for information. The subjects were also required to take down the direct and indirect questions while they were watching English movies.

Secondly, the subjects of the TG became aware of the fronting of the

questioned part and the auxiliary verbs or INFL while raising a wh-question to ask for information. As suggested by R. Ellis (2005), the researcher extended the assignment in this research requiring the subjects to find out more wh-questions on their own from those English reading materials that they could get access to. And they needed to make their own sentences following the extracted English questions. For example, a student searched in a journal in English and took out a direct wh-question as follows,

5-2a. *How could you ignore such a big error?*

And then he made his own wh-question following the structure of above one as,

5-2b. *How would Mr. Smith solve this problem?*

5-2c. *How did Michael send this package to his girlfriend?*

The subjects also took out an indirect wh-question as follows,

5-3a. *You must tell me where she is.*

And then he made his own wh-question following the structure as,

5-3b. *Zeke has pointed out where the problem is.*

5-3c. *Chad didn't explain why he was late for class.*

The purpose of assigning so was to encourage the subjects to enlarge the input with wh-movement and then to comprehend. By requiring such exercise, the researcher intended to raise the subjects' awareness of the target structure and then further understand how to make wh-question and move the auxiliary verb or INFL in the wh-question.

Thirdly, the researcher provided corrective feedbacks to the subjects of the TG, which was designed to help them correct the errors in their homework. During the experiment after every lecture on the wh-movement, the subjects of the TG extracted wh-questions, both direct and indirect, from natural language contexts and made their own wh-questions following the structure. The researcher read through all their sentences and provided written corrective feedbacks to them for the purpose of observing to what extent they understood and applied the rules. At the same time, the subjects of the NTG did not receive corrective feedbacks on their performance in making wh-movement. For example one of the subjects handed in his assignment like this,

5-4a. *Extract: Part of me wanted to confront him and demand to know what his problem was (White, 1990, p. 14).*

5-4b. *Subject's work: \*My mother want to congratulate me and encouraged to find out what is the truth.*

The researcher provided comments on this indirect sentence by writing,

*The verb “want” should be past tense. The clause “what is the truth” was embedded in a main clause. So it should be an indirect question. Firstly the verb “is” should be changed into past tense to make the whole sentence coordinate in tense. Secondly it should be returned to its original place as in the statement “the truth was ...”.*

In summary, the TG performed better in the posttest because they received wh-movement focused L2 input, and they were reminded to become aware of the rules of fronting the wh-components, the moving of the auxiliary verb or INFL back and forth and they received corrective feedbacks. The reasons that have explained the differences between the TG and NTG are generalized and synthesized in Table 5.4 as follows.

**Table 5.4 Factors that influenced subjects' performance in GJT**

F <sup>12</sup> \ G <sup>11</sup>	TG	NTG
Input	The input that the subjects received was reading materials with English direct and indirect wh-questions extracted from English article written by native speakers.	The NTG received the same materials as the TG.
Notice	The wh-questions in the materials were underlined for the purpose of reminding the subjects to notice the target language phenomenon. The purpose of reminding the subjects of the direct and indirect wh-questions was to encourage them to observe the differences between English and Chinese interrogative questions so that they may become aware of the wh-movement, including the movement of the auxiliary verbs.	The subjects were not reminded of the wh-questions. Unlike L1 acquisition, if the L2 learners do not notice the target language phenomenon, they were not able to intake the rules subconsciously and naturally.
Awareness	Once the subjects noticed the wh-movement, they were aware of how wh-components and the auxiliary verbs including INFLs were moved back and forth	The subjects of the NTG were not reminded of the existence of the wh-movement. They may read the interrogative questions but the extent of their awareness of the wh-movement was not as high as that of the TG subjects.

<sup>11</sup> G=Groups, similarly hereinafter.

<sup>12</sup> F=Factors, similarly hereinafter.

**Table 5.4 Factors that influenced subjects' performance in GJT (continued)**

F \ G	TG	NTG
Under- standing	After the subjects become aware of the wh-movement, the researcher instructed them on the rules of generating English direct and indirect questions and guided them how and why to move the wh-components and auxiliary verbs including the INFLs.	The subjects may understand the meaning of the wh-questions. However, the sentence structure of the wh-questions were not clearly analyzed and understood by the subjects. Therefore, their mean score in posttest GJT was lower than that of the TG.
L2 parameter resetting	After understanding the rules of wh-movement, the subjects' output indicated that the L2 parameters were successfully reset.	The performance of the subjects exhibited that their accuracy in GJT was not as high as that of the TG.

Being contrastive to Gil et al. (2011) who suggested no positive effect of negative evidence, the researcher of the present study believed that the negative evidence were positively influential to the subjects' output. As proposed by Swain and Lapkin (1995), the output functioned as a trigger of noticing the target linguistic phenomenon. The corrective feedback that the subjects of TG received helped them notice the differences between their outputs and grammatical L2 sentence. In other words, the corrections to L2 learners' output reminded them to notice the mismatch between their performance and grammatical sentences.

As defined in Chapter 1, L2 parameters resetting indicated the subjects' accuracy in making proper judgment to wh-movement. It may be concluded that the subjects' accuracy in judging wh-movement was improved under the influence of enhanced L2 input, awareness of the target linguistics phenomenon and corrective feedback.

### 5.1.2 Question Formation test (QFT)

In response to the second research question, “Are there any differences for Chinese second language learners in detecting wh-movement constrain violation before and after the instruction based on the grammar-awareness raising model?”, the QFT mean scores in the pretest and posttest were compared in the previous chapter. According to the results of the comparison the reasons of the differences may be discussed in the following three parts.

#### 5.1.2.1 A Comparison of the Pretest among Groups

According to the data presented in chapter four, in the pretest, both the TG and NTG performed significantly different from the native group ( $t=9.553$ ,  $p=0.00<0.05$  for TG and  $t=13.195$ ,  $p=0.00<0.05$  for NTG) (see Table 4.8 and Table 4.9 ). Meanwhile these two non-native speaker groups’ mean QFT scores did not show a statistically significant difference ( $t=1.49$ ,  $p=0.14>0.05$ ) (see Table 4.10). Two possible reasons can explain these results.

First of all, their already reset L2 parameters may explain why the two groups performed differently from the native speakers. Before the subjects were instructed on the wh-movement constraints in the experiment, they were trained to raising English wh-questions by fronting the wh-components to the beginning of a sentence because that obviously differed from Chinese. However, such training made the students front the wh-component whenever they needed to ask for information. They were not aware that when the questioned part was within wh-movement constraints, no wh-component, the auxiliary verbs or the INFL should be moved out of the island constraints as viewed in chapter two. They fronted the wh-components and the auxiliary verbs or INFL to form a wh-question when the

underlined part was in the wh-movement constraint islands. A subject's response may be provided as follows.

*Researcher: Did you notice that the underlined part within this sentence belonged to a clause led by a wh-word?*

*Subject: Yes, I knew that.*

*Researcher: Why did you move the auxiliary verb out of the wh-clause when you made a wh-question?*

*Subject: Isn't it necessary to raise the auxiliary verb of the questioned part to the beginning of the sentence?*

A statement with an adjunct island was presented to the subjects. An element in the island was underlined and the subjects needed to judge first whether this sentence could be questioned and then raise a question to ask information so that the provided sentence should be the answer to the wh-question.

*5-5a. Eileen enjoyed teaching very much because she gained great pleasure from it.*

The subjects believed that the information in the underlined sentence may be asked by the following question.

*5-5b. \*What did Eileen gained made she enjoyed teaching very much?*

Before the researcher provided the TG with the instructions on the constraints that banned wh-movement, the subjects in the TG and NTG had similar understanding on making wh-questions. Therefore the subjects in the TG and NTG had similar performance in the pretest and they achieved lower scores than the native speakers do.

Secondly, the subjects' L1 parameters influenced their performance in making wh-questions. When the subjects dealt with some statements with some underlined parts that did not break the wh-movement constraints, they generated wh-questions with fronted wh-components but unmoved INFL. For example,

5-6a. *Sara quit her job here because she received a higher position in the government.*

The native speakers raised questions to ask the reason of Sara's quitting as follows,

5-6b. *Why did Sara quit her job?*

The subjects, who were L2 learners, raised the question below to ask for information about the underlined part.

5-6c. *\*Why Sara quit her job?*

This is exactly the same word order as the Chinese version of this

question.

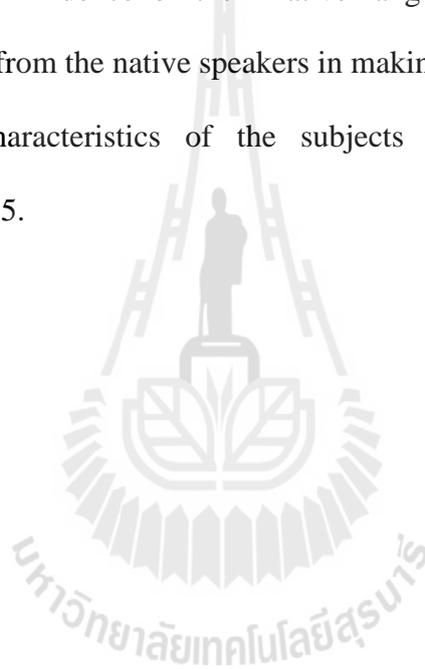
5-6d.

\**Why Sara quit her job?*

*Wèishénme Sara cíqù tāde gōngzuò?*

Therefore, it may be explained that the subjects of both the TG and NTG were under the influence of their native language Chinese, and thus, they performed differently from the native speakers in making wh-questions.

The characteristics of the subjects in QFT was analyzed and generalized in Table 5.5.



**Table 5.5 A comparison of the QFT pretest results among groups**

G \ C	a. The complex noun phrase constraint
CG	<p>The native speakers left this question unquestioned because the underlined part violated the complex noun phrase constraint and no part should be raised beyond the complex noun phrase.</p> <p>e.g. He stole the necklace that <u>my mother</u> made for me.</p>
TG	<p>The subjects' already reset L2 parameters helped the subjects believe that to make wh-questions asking for information needed to front the wh-components. Therefore when they encountered a statement with one word of the complex noun phrase underlined, they substituted the word with wh-word and then fronted it to the beginning of the sentence. The L2 subjects' errors are listed below to show how they generate a wh-question even if the underlined part with a sentence could not be questioned.</p> <p>e.g. *Who made for me the necklace that he stole?</p> <p>*Who did make the necklace for me which was stolen by him?</p>
NTG	<p>The subjects' already reset L2 parameters influenced their performance. The subjects of the NTG fronted the wh-word whenever they needed to make a wh-question. Therefore, they fronted the wh-part as well as the main verb to the beginning of a sentence and changed the structure of the sentence without considering whether it was grammatical or not. The error made by the subjects of NTG is shown below.</p> <p>e.g. *Who made the necklace that he stole for you?</p>

**Table 5.5 A comparison of the QFT pretest results among groups (continued)**

C G	b. The sentential subject constraint
CG	<p>The native speakers' performance showed that the sentential subject constraint should not be broken, and the underlined part within a sentence should not be moved out of the constraint.</p> <p>e.g. That <u>our best friend</u> won the game encouraged us so greatly. → Who won the game encouraged us so greatly.</p>
TG	<p>The output of the subjects demonstrated Chinese characters, which indicated that the subjects' L2 parameters were not yet successfully reset. One of the subjects' output sentences is illustrated below.</p> <p>e.g. That who won the game encouraged us so greatly.</p> <p>Some subjects substituted the underlined part with a wh-word "who" and didn't front "who" to the beginning. This exhibited the Chinese wh-in-situ parameter.</p>
NTG	<p>The errors of the NTG demonstrated that the subjects chose to front the wh-part together with the auxiliary verb, which indicated that the subjects were influenced by L1 parameter.</p> <p>e.g. *Who did win the game to encouraged us so greatly?</p>

**Table 5.5 A comparison of the QFT pretest results among groups (continued)**

G \ C	c. The coordinate structure constraint
CG	<p>The native speakers believed that the components of a coordinate structure constraint should not be questioned. Therefore, the underlined part in the sentence below should not be substituted by a wh-component and fronted to the beginning of a sentence.</p> <p>e.g. The pretty girl gave me a big smile and helped me <u>get on the bus</u>.</p>
TG	<p>The subjects' L2 parameters took positive effect because they formed wh-questions by substituting the questioned part with a wh-word and then fronting the wh-word. The performance of the subjects did not exhibit Chinese wh-in-situ parameters. However, their performance broke the wh-movement constraint and presented ungrammatical wh-question. Therefore, the researcher believed that the L2 learners' L2 parameters were not successfully reset. An example of the subjects errors is shown below.</p> <p>e.g. *What did the pretty girl help me and gave me a big smile?</p>
NTG	<p>The subjects of the NTG performed similarly with those of the TG. Their performance of the subjects did not exhibit Chinese wh-in-situ parameter, but the auxiliary verbs were lost and their output broke the coordinate structure constraint.</p> <p>e.g. *What the girl help me?</p>

**Table 5.5 A comparison of the QFT pretest results among groups (continued)**

G \ C	d. The adjunct constraint
CG	<p>The native speakers believed that when a component within an adjunct was underlined, it should not be substituted by a wh-component and fronted beyond the adjunct constraint to make a wh-question.</p> <p>e.g. Eileen enjoyed teaching very much because she gained <u>great pleasure</u> from it.</p>
TG	<p>The subjects' performance showed that although they found it hard to question the underlined part which was a component in the adjunct clause underlined, they still made a wh-question in order to ask for some information. It indicated that the subjects' L2 parameters were not unsuccessfully reset. A wh-question matching the above statement made by the subjects is shown below.</p> <p>e.g. What's the advantage about teaching for Eileen?</p> <p>It may be observed that although the wh-question itself was grammatically acceptable, it did not match the statement.</p>
NTG	<p>The performance of the subjects exhibited that their L2 parameters had significant influence on in making wh-questions. The subjects did not notice that the underlined part of a statement was within an adjunct. And they chose to generate a wh-question to ask for information about the underlined part. A wh-question matching the above statement made by the subjects is shown below. The adjunct wh-movement constraint was broken.</p> <p>e.g. *What did Eileen gain from teaching made she enjoy teaching so much?</p>

**Table 5.5 A comparison of the QFT pretest results among groups (continued)**

G \ C	e. The wh-island constraint
CG	<p>For the native speakers' group, they thought that a sentence with a wh-question should not be asked. And therefore, they did not raise questions to ask for information about the statement with wh-island.</p> <p>e.g. Eileen wondered who would deliver the speech <u>at the conference</u>.</p>
TG	<p>The subjects' performance indicated that they substituted the underlined part with a wh-word and then fronted the wh-word and the auxiliary verb to the beginning of a sentence in order to generate a wh-question. However, they did not avoid fronting the question part beyond the wh-island constraint. This explained why the subjects fronted the questioned part no matter it violated the constraint or not. An example of the subjects' output is shown below.</p> <p>e.g. *Where would Eileen wonder delivering the speech?</p>
NTG	<p>The subjects did not realize that the underlined part within a statement was under the control of the wh-island. The wh-island constraint should not be violated.</p> <p>For the above statement with an underlined part, most subjects believed that the underlined part should not be questioned and the reason they gave was that there were two wh-questions in a sentence.</p>

### 5.1.2.2 A Comparison of the Posttest among Groups

In the posttest, the TG and the NTG also performed differently from the native speakers ( $t=4.387$ ,  $p=0.00<0.05$  for TG and  $t=15.739$ ,  $p=0.00<0.05$  for NTG) (see Table 4.11 and Table 4.12) as in the pretest. However, there was a significant difference between the mean scores of the TG and NTG ( $t=6.613$ ,  $p=0.00<0.05$ ) (see Table 4.13). The mean scores of the TG in the post question formation test were promoted to a statistically meaningful stage, though the TG still performed not as well as the native speakers. The next paragraph will explain this result with details.

After the instructions on the wh-movement island constraints as viewed in section 2.3.4, the TG were able to notice that there was some kind of constraint in a statement, and when a component within the constraint was underlined, they knew that a wh-question inquiring information about the underlined part should be unacceptable. After noticing the target, the subjects became aware of the islands within English statements. In the posttest on the wh-movement, the subjects understood that when an English wh-question was raised, it should not violate the wh-movement constraints; otherwise the wh-questions were ungrammatical. Take a statement in the posttest as an example,

5-7. *I will not answer your questions for I don't know the reason either.*

A subject in the TG were able to judge that the underlined part “the reason” should not be questioned and fronted, which may be supported by the written explanation given by the subject as follows,

*It can not be questioned because the underlined part is within an adjunct clause. So it is constrained. No question could be raised to ask for information about the object of the verb “know”.*

The characteristics of the TG, NTG and CG in the posttest QFT were analyzed and generalized in Table 5.6 as follows.



**Table 5.6 A comparison of the QFT posttest results among groups**

G \ C	a. The complex noun phrase constraint
CG	<p>The native speakers thought if the underlined part included the whole complex noun phrase, then the statement was questionable.</p> <p>e.g. A precious stone was found by <u>a wise woman who was traveling in the mountains.</u>→</p> <p>By whom was a precious stone found?</p>
TG	<p>After receiving the instructions on the wh-movement constraints the subjects understood that a wh-question should be generated to ask for information about the whole complex noun phrase instead of a component of it. Moreover, the subjects were able to make proper judgment when the questioned part did not break wh-movement constraint,</p> <p>e.g. By whom was a precious stone found?</p> <p>Nevertheless, 2 out of 40 subjects judged the above statement as unquestionable.</p>
NTG	<p>The subjects did not receive the instructions on the wh-movement constraints. While the underlined part within a sentence did not break the wh-movement constraints, they were able to raise a question to ask for information about the underlined part. However, their output exhibited Chinese wh-in-situ parameters. The two types of ungrammatical wh-questions were cited below.</p> <p>e.g.*A precious stone was found by whom?</p> <p>*Who's help the stone be found?</p>

**Table 5.6 A comparison of the QFT posttest results among groups (continued)**

C G	b. The sentential subject constraint
CG	<p>The native speakers believed that a component within a sentential subject constraint should not be fronted out of the constraint to make a wh-question. However, 2 out of 5 native speakers believed that a stay-in-situ wh-component was acceptable, but just not formal enough.</p> <p>e.g. That many children in the rural areas cannot have <u>enough education</u> has become more and more discussed.→</p> <p>That many children in the rural areas can not have what has become more and more discussed.</p>
TG	<p>Although the subjects' mean score were statistically higher than that of the NTG, there appeared some ungrammatical wh-questions that represented Chinese wh-in-situ parameter.</p> <p>e.g. *That many children in the rural areas cannot have what has become more and more discussed.</p> <p>The reason was that the subject failed to reset her language parameters from Chinese to English. 1 out of 40 subjects produced such sentence.</p>
NTG	<p>The subjects of the NTG were not able to distinguish the difference between the sentential subject constraint and subject without constraint. Their output exhibited the characteristics of unsuccessfully reset L2 parameters, namely to front the wh-word and auxiliary verb to the beginning of a sentence no matter whether there was wh-movement constraint or not.</p> <p>e.g. *What has become more and more discussed for those in rural areas children?</p>

**Table 5.6 A comparison of the QFT posttest results among groups (continued)**

G \ C	c. The coordinate structure constraint
CG	<p>The native speakers substituted the underlined part with wh-component but did not front it to the beginning. The wh-question formed by the native speakers showed that the wh-component may stay in-situ so long as it did not break the coordinate structure constraint.</p> <p>e.g. Those who are obedient normally become the followers but <u>those who are creative</u> normally turn to be leaders. →</p> <p>Those who are obedient normally become the followers but who normally turn to be leaders?</p>
TG	<p>The subjects' output demonstrated that after the instructions, most of them understood that the coordinate structure constraint should not be overcrossed. The underlined component of the coordinate structure should not be substituted by a wh-word and fronted to the beginning of the sentence. However, the wh-word may stay-in-situ.</p> <p>e.g. Those who are obedient normally become the followers but who normally turn to be leaders?</p>
NTG	<p>The subjects may understand the general meaning of the given statement in the posttest. However, when a component of the coordinate structure was underlined and needed to be questioned, the subjects were confused of the sentence structure. Some of the ungrammatical wh-question reflected that the subjects did not understand the movement of auxiliary verbs and wh-movement constraint.</p> <p>e.g. *Who are normally turning to be leaders?</p>

**Table 5.6 A comparison of the QFT posttest results among groups (continued)**

G \ C	d. The adjunct constraint
CG	<p>The native speaker believed that if a component within an adjunct was underlined, no wh-question may be raised to ask for information about the underlined component. However, a wh-in-situ may be acceptable only when a listener was confirming the information.</p> <p>e.g. The brutal monster killed my mother because she tried to <u>stop him from killing me</u>. → The brutal monster killed my mother because she tried to do what?</p>
TG	<p>The subjects understood the reason why a component within an adjunct constraint should not be questioned and fronted to the beginning of a sentence. They were able to judge whether the underlined part of a statement was a component of the adjunct constraint or the whole adjunct, and thereafter generated proper wh-questions.</p> <p>Most subjects responded to this item by writing “This can not be questioned because it is within because-clause.”</p>
NTG	<p>The subjects understood the sentence structure of a statement with a component of the adjunct underlined. However, it was difficult for them to make a wh-question to ask for information about the underlined part. They were trained to raise questions for those that did not break any constraints. Therefore, they lacked the experience of dealing with such circumstance.</p> <p>e.g. *What’s things my mother do?</p>

**Table 5.6 A comparison of the QFT posttest results among groups (continued)**

C G	d. the adjunct constraint (continued)
CG	<p>The native speakers were able to understand that the underlined part within a sentence involved the whole adjunct. Therefore, they produced wh-questions by substituting the questioned part and fronting it to the beginning of the question together with the auxiliary verb.</p> <p>e.g. There broke out a storm of cheering and stamping in the hall <u>as soon as the exciting news was announced.</u>→</p> <p>When did there break out a storm of cheering and stamping in the hall?</p>
TG	<p>Moreover, the subjects were able to initiate wh-questions when the underlined part involved the whole adjunct constraint.</p> <p>e.g. When did there break out a storm of cheering and stamping in the hall?</p>
NTG	<p>When the underlined part was the whole adjunct constraint, the subjects were also able to initiate wh-questions as their counterparts</p> <p>e.g. When did there break out a storm of cheering and stamping in the hall?</p>

**Table 5.6 A comparison of the QFT posttest results among groups (continued)**

C G	e. the wh-island constraint
CG	<p>The native speakers stated that the underlined part of the statement should not be substituted by a wh-word and fronted to the beginning of a sentence to form a wh-question. But a wh-in-situ was acceptable only when someone needed to confirm the information.</p> <p>e.g. If an employee was having a bad day, Michael was there telling the employee how to look on the positive side of the situation.→</p> <p>If an employee was having a bad day, Michael was there telling the employee how to look on what?</p>
TG	<p>Most subjects were able to judge whether the underlined part was within a wh-island constraint or not. If the underlined part was within a wh-island, they made proper response by providing explanations.</p> <p>e.g. The subject responded to this item by writing “This can not be questioned because it is within a how-phrase.”</p>
NTG	<p>The subjects’ output demonstrated that the underlined component within a wh-island made it difficult to understand the structure of the sentence. Therefore, they had to make their own wh-question.</p> <p>e.g. *Which sides was told the employee by Michael?</p> <p>From the above wh-question, it may be observed that the subject created the question forcefully by breaking the wh-island constraint.</p>

### 5.1.2.3 A Comparison of the Pretest and Posttest within Groups

According to the data presented in 4.2.3, the TG significantly promoted their mean scores in the post QFT ( $t=-5.472$ ,  $p=0.00<0.05$ ) (see Table 4.14) comparing to the pre QFT, whilst the NTG remained at a comparatively steady level in the two tests. There are three reasons that may explain this result.

The first reason was related to the input. Though both the experimental and NTG were provided the same reading materials during the wh-movement constraints instruction, the TG were required to observe and underline the wh-questions and later translated them into Chinese. They learned to find out the differences between English and Chinese wh-questions through analyzing and translating the sentences. However, the NTG treated the materials as a reading assignment for them, so they read through the materials without an explicit requirement from the researcher to analyze, translate or compare. The different ways of dealing with the input caused different degrees of attention to the target linguistic phenomenon and thereafter differentiated the results of understanding wh-movement constraints.

The second reason that may be ascribed to the improvement of the TG in the QFT was the awareness of the target structure in learning an L2. When the subjects of TG received L2 input within which the wh-movement was required to be underlined, they had explicit instruction from the researcher as what was suggested by Gil et al. (2011). When the researcher helped the subjects read the materials, they were reminded to notice how a wh-component and INFL was moved back and forth in direct and indirect wh-questions. At the same time, the subjects of NTG had implicit instructions from the researcher to comprehend the reading materials. The subjects

of TG noticed the differences between L1 and L2 wh-questions and became aware of the wh-movement constraints when they were taking the post QFT. Their counterparts comprehended the meaning of the materials that they received but did not focus on the wh-movement-targeted structures.

Thirdly, the researcher provided corrective feedbacks to the subjects of the TG for the purpose of helping them understand when and why or why not a wh-question could be raised. After lectures on the wh-movement constraints, the researcher assigned the subjects to extract English sentences from native speaker writing materials that included the constraints, to make sentences with their own words following the sentence structures of the extracted English sentences and then to translate it into Chinese. As corrective feedback, the researcher read through the subjects' assignments and corrected the grammar errors by pointing out what should not be done and providing reasons. An example taken from a subject's assignment is shown below to illustrate the corrective feedbacks.

5-8. *Extract: Maybe it was just a very convincing dream that I'd confused with reality.*

*Subject's translation:* 或许那只是个非常真实的梦, 让我将它与现实世界混淆了。

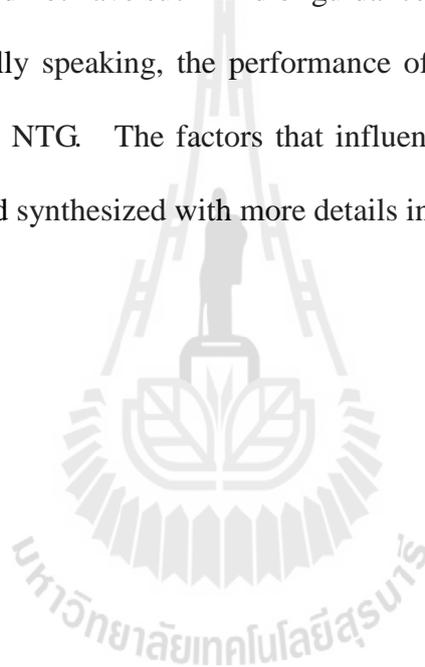
*Subject's sentence:* \**Perhaps he is the most intelligent student that the school had.*

The researcher corrected this sentence by providing comments,

*The tense should keep constant. The verb in the complex noun phrase constraint (CNPC) should be in present tense.*

By this means, the subjects understood the relationship among different parts within a complex English sentence. Therefore, they should be able to determine which part may or may not be questioned and fronted, whereas, the subjects of the NTG did not have such kind of guidance in reading English materials.

Generally speaking, the performance of the TG in QFT posttest was better than that of the NTG. The factors that influenced the output of the subjects will be generalized and synthesized with more details in Table 5.7 as follows.



**Table 5.7 Factors that influenced subjects' performance in QFT**

F \ G	TG	NTG
Input	The subjects were provided with articles with English direct and indirect wh-movement constraints. The articles were written by native speakers of English instead of those written by speakers of Chinese in English.	The input that the NTG received as same as that of the TG.
Notice	The constraints were required to be underlined for the purpose of guiding the subjects to notice that no English wh-questions should be raised beyond the constraints. The subjects were reminded to realize that in natural English materials there were no such wh-questions raised out of the wh-movement constraints.	There was no special treatment to the materials delivered to the subjects of the NTG. The researcher helped them understand the general meaning of the English materials but did not remind them to notice that no English wh-question was raised by breaking the boundary of constraints.

**Table 5.7 Factors that influenced subjects' performance in QFT (continued)**

F \ G	TG	NTG
Awareness	The subjects were required to translate the English sentences with wh-movement constraints for the purpose of making them compare the two languages. At the same time, the researcher provided instruction on the wh-movement constraints to the subjects and helped them understand that unlike Chinese, English wh-components should neither remain in-situ nor break the wh-movement constraints.	The subjects of the NTG did not receive instruction on wh-movement constraints. While they were reading the materials, they could consult the researcher if they had any problems with understanding the articles. But they were not reminded to notice that in English no wh-questions were raised by breaking the boundary of the constraints.
Understanding	After the subjects became aware of the wh-movement constraints, the researcher instructed them on how to judge wh-movement constraints and how to make wh-questions with the constraints unbroken.	The subjects were able to understand the meaning of the sentences in the reading materials whereas they did not realize what was unacceptable in making English wh-questions.
L2 parameter resetting	The performance of the TG in the posttest revealed that the L2 parameters were successfully reset.	The accuracy of the subjects of the NTG was significantly different from that of the TG.

## 5.2 Research Hypothesis 2

In this present research it was hypothesized that L2 awareness of the target structure, wh-movement, may facilitate L2 learners in producing direct and indirect wh-questions. According to the data reported in sections 4.3 and 4.4, the answers to Research Question 3 will be provided in the following sections.

Research Hypothesis 2 and Research Questions 3 were presented in Table 1.1 and are repeated here in Table 5.8.

**Table 5.8 Research Hypothesis 2 and Research Question 3**

Research Hypothesis 2	Research Questions 3
It is hypothesized that L2 learners' grammar errors concerning the movements of wh-components as well as auxiliary verbs or tense indicators (INFLs) and wh-movement constraints may be abated if they become aware of how and why English wh-components are moved back and forth.	What are the grammatical errors made by L2 English learners concerning wh-movement before and after GARM based explanations on wh-movement? And what are the frequencies?

### 5.2.1 Types of Errors in the Grammaticality Judgment Test (GJT)

According to the data presented in the previous chapter, there were mainly six types of errors in the GJT (see Table 4.15) repeated as follows,

1. No movement when it is necessary;
2. Double INFLs;
3. No movement forward when the auxiliary verb or INFL should be fronted

to make a direct wh-question;

4. No movement backward when the auxiliary verb or INFL should not be fronted when making an indirect wh-question;

5. Overgeneralization when some part was unnecessarily fronted;

6. Some other unnecessary adding or deletions.

The frequency of each type of errors in the pretest and posttest will be analyzed in details in the following sections.

#### **5.2.1.1 Frequencies of Errors in Pretest**

Based on the data reported in section 4.3.1, the two errors which most frequently occurred were Error 3, no movement forward, and Error 4, no movement backward in the pretest for the TG.

As for the Error 3, no movement forward error, the subjects either judged the grammatical ones as ungrammatical as 5-9a below, and fronted the auxiliary verb; or judged the ungrammatical ones as grammatical as 5-9b below.

5-9a. *On what day will they leave for Shanghai?*

5-9b. *\*Why Africa is so poor?*

3 out of 40 from the TG and 2 out of 40 from the NTG judged 5-9a as ungrammatical but left it with no correction. 13 out of 40 from the TG and 15 out of 40 from the NTG judged it ungrammatical and corrected this question into the following wh-question as 5-9b.

5-9c. *\*On what day they will leave for Shanghai?*

Both the TG and the NTG had 26 out of 40 subjects who judged the direct wh-question as 5-10a below as grammatical and therefore did not make any corrections to it though it was judged ungrammatical by the native speakers and made corrections to it as 5-10b.

5-10a. *\*To whom John gave a glass of water.*

5-10b. *To whom did John give a glass of water.*

The reason of such no movement forward was that the subjects' L1 parameters requiring no INFL movement, prevented them from moving the INFL. As what was discussed in section 2.3.1 in chapter 2, the English subject-verb-object wording was same to that of the Chinese. So the subjects just made judgment by reading the sentences and felt comfortable to judge questions like 5-10a with unfronted INFL as grammatical. This explanation may be supported by the interview data as one of the subjects reported,

*Researcher: How did you judge that this question was right?*

*Subject: I just read it. And this sentence looks ok.*

*Researcher: Did you notice that when you ask a question, the verb "gave" should be split into "give and -ed", and the INFL "-ed" should be moved to the front of the sentence after the wh-word"*

*Subject: Oh, sorry. I didn't notice that. I should have done that but I forgot.*

As for the Error 4, no movement backward errors, when the subjects were taking the pretest, both the TG and the NTG made errors in judging the grammaticality of the indirect wh-questions. They seemed to have no problems with the positions of the wh-components but they did experience problems in judging the positions of the auxiliary verbs or the INFL in the indirect questions. Take the following 5-11a extracted from the pretest as an example.

5-11a. *\*The tiger searched everywhere in order to find out where had the rabbit gone.*

5-11a is a statement with an embedded wh-question, which is termed indirect wh-question in this present research. 16 out of 40 subjects from the TG and 18 out of 40 subjects from the NTG believed it was grammatical and made no corrections to it, though it was judged ungrammatical by the native speakers. The corrected version of 5-11a is 5-11b as follows.

5-11b. *The tiger searched everywhere in order to find out where the rabbit had gone.*

Such auxiliary verb misplaced error was related to unsuccessfully reset L2 parameters. Those who judged 5-11a as grammatical had reset their L1 Chinese wh-in-situ parameter to L2 wh-component fronted parameter. However, the L2 parameter was partially reset because the auxiliary verb's position was mistakenly judged, as English requires the auxiliary verb be moved back in the relative clause

while making indirect wh-questions. The L2 learner subjects knew the rules of fronting wh-word and auxiliary verb to make wh-questions. But when the wh-questions were embedded in a main clause, the auxiliary verb was neglected to be repositioned to its original place so that their indirect wh-questions appeared with direct question characteristics. Before the subjects took this present research they had learned English for six years starting from the first year of middle school. They were able to front the wh-word to the beginning of a question because that was overtly different from their L1 and therefore their L2 teachers emphasized the fronting over and over. However, things were different in making indirect questions. L2 teachers helped them understand the structures of the embedded clause, which was another point overtly different from Chinese. But the positions of English auxiliary verb or INFL were less frequently corrected by the teachers because they did not semantically influence comprehending an English sentence. Consequently, the L2 learners received less training on returning the auxiliary verbs to their original place while making indirect questions. This gives more evidence to support the importance of language awareness in L2 learning, which will be discussed with more explanation in the next section. The interview data supported the function of corrective feedback in learning auxiliary verb movement as follows.

The tiger searched *everywhere* in order to find out where had the rabbit gone.

*Researcher: Can you look at above sentence please.*

*Subject: Yes. Anything wrong?*

*Researcher: You judged it grammatical in the test.*

*Subject: Yes. I did not find any improper point in the sentence.*

*Researcher: If you want to know someone's current position, what will you ask?*

*Subject: Where has she gone?*

*Researcher: How about someone in the past asked?*

*Subject: Where had she gone?*

*Researcher: How do you describe Rose asked Kate about Jessie's position?*

*Subject: Rose asked Kate where had Jessie gone.*

*Researcher: Just now you said "Rose asked Kate where had Jessie gone". But did you notice that you were saying an indirect question?*

*Subject: Oh, I should say "Rose asked Kate where Jessie had gone".*

*Researcher: Yes, that's right. Now please look at your answer in the test.*

*Subject: Oh, I see. This is ungrammatical. It should be "The tiger searched everywhere in order to find out where the rabbit had gone."*

*Researcher: That's right. Why didn't you notice that just now and when you took the test?*

*Subject: I don't know. I didn't have training like this before. When I was in high school, no such mistake was severely pointed out by the teacher. So I didn't force myself to check this point when I wrote sentences.*

The interview data suggested that the subjects made such errors as no auxiliary verb moving backwards because the corrective feedback that she received was not solid enough to call on her awareness of the movement of the auxiliary verb.

### 5.2.1.2 Frequencies of Errors in Posttest

According to the data presented in section 4.3.2, the number of the Error 3, namely the no movement forward, made by the TG were less than that of the NTG. Generally speaking, the TG made all together 159 Error 3 whilst the NTG made 220. In other words, after receiving the instruction on the wh-movement rules in the posttest, the subjects of the TG were able to make fewer errors in moving forward the wh-components and the auxiliary verbs or INFL than their counterparts though there were still some problems.

Previously, the subjects had difficulties in moving the auxiliary verbs or INFL in questions with complex wh-component. Take item 1 in the post GJT as an example repeated here as 5-12a below.

5-12a. *\*What the hell you two have done to that poor dog?*

Twenty-two out of 40 from the TG and 32 out of 40 from the NTG judged this question as grammatical and left it without any correction. On the contrary, the native speakers judged this wh-question as ungrammatical and corrected as 5-12b below.

5-12b. *What the hell have you two done to that poor dog?*

Another example of such error was item 26 repeated as 5-13a below.

5-13a. *\*How soon he is about to become the king?*

Six out of 40 from the TG and 18 out of 40 from the NTG judged this question as grammatical whereas it was judged as ungrammatical by the native speakers and corrected it as 5-13b below.

5-13b. *How soon is he about to become the king?*

The reason that the subjects failed to make proper judgment on these ungrammatical wh-question was that the complexity of the wh-components, “what the hell” as in 5-12a and “how soon” as in 5-13a, interfered with their judgment. They had difficulties in placing the auxiliary verb. In other words, though they were able to move the auxiliary verb or INFL to be after wh-word in direct wh-questions, they were confused about where to put the auxiliary verbs when the wh-component had more than one word. This easily-being-interfered phenomenon indicated that the L2 parameters may not be fully reset by the L2 learners while they were learning the second language.

Another example that demonstrated the unsuccessful L2 parameter resetting was the second type of error in GJT, i.e. double INFL error. Take item 18 in the post GJT as an illustration and repeated below as 5-14a.

5-14a. *\*What did struck the man-eating monster in the chest?*

Thirty-two out of 40 from the TG and 35 out of 40 from the NTG believed that this wh-question was grammatical and left it with no corrections. But

the native speakers judged this one ungrammatical because the verb “struck” should be its original form “strike”, and the corrected sentence is as 5-14b below.

5-14b. *What struck the man-eating monster in the chest?*

The L2 learner subjects made such error due to their level of vocabulary knowledge. They judged 5-6a as grammatical because they could not remember the correct verb form of the word “struck”. And this may be supported by the interview data as follows.

*Researcher: Please look at item 18 of the grammaticality judgment test. You judged it as grammatical, right?*

*Subject: Yes. Anything wrong with it?*

*Researcher: Can you tell me the past tense and past participle of the word “strike”?*

*Subject: Is it strike, struck, stroken?*

*Researcher: No. Do you have a dictionary? Why don't you look up the past tense of “strike” in the dictionary?*

*(The subjects looked up the dictionary.)*

*Subject: Oh, sorry. I was wrong. The past tense and past participle of “strike” should be “struck” and “struck”. So this item should be ungrammatical. It should be “What struck the man-eating monster in the chest?” Am I right?*

*Researcher: Yes.*

From above data, it could be concluded that after the subjects of the TG received the instructions on the movement of the wh-components and the auxiliary verbs or INFL, the subjects may have some L2 parameters unsuccessfully reset though the mean scores of the TG was significantly higher than that of the NTG.

As for the fourth type of error, i.e. no movement backward, the frequencies of this type of error made by the TG were significantly reduced compared to that of the NTG. Generally speaking, the fourth type of error appeared 106 times in the post GJT of the TG, whereas 252 times in the post GJT by the NTG. In other words, the TG significantly improved the accuracy in judging the grammaticality of the wh-movement, as well as the movement of the auxiliary verbs or INFLs.

### **5.2.2 Violations in the Question Formation Test (QFT)**

As what was presented in section 4.4 (see Table 4.18), there were all together four types of errors in QFT repeated here as follows.

1. Constraint violation;
2. Incorrect question formation;
3. Incorrect INFL movement;
4. No response.

The frequency of each type of errors in the pretest and posttest of QFT, as well as the reasons of these errors will be analyzed with more details in the following sections.

#### **5.2.2.1 Frequencies of Errors in Pretest**

Based on Table 4.19, the most frequently occurring error was type one error, namely the constraint violation. Take item 10 of the QFT as an example repeated as 5-15a below.

5-15a. *He stole the necklace that my mother made for me.*

Thirty one out of forty from the TG and twenty nine out of forty from the NTG judged this statement as questionable. The subjects replaced the underlined part with “who” and then fronted it to the beginning of the sentence and made the following wh-question as 5-15b.

5-15b. *\*Who made the necklace that he stole for you?*

In fact, the sentence 5-15a was judged unquestionable by native speakers. And they provided the reason by saying “I don’t know why. Just feel weird.”

Take item 3 of the QFT as another an example here repeated as 16a below.

5-16a. *Eileen enjoyed teaching very much because she gained great pleasure from it.*

The subjects considered that the object of the verb “gained” may be questioned so that they made the following wh-question as 5-16b and 5-16c.

5-16b. *\*Eileen enjoyed teaching very much what did she gain from it?*

5-16c. *\*What did she gained from teaching?*

On the contrary, the native speakers judged sentence 5-16a as unquestionable and left the sentence unquestioned.

The reasons that the non-native speakers made errors as 5-16b and 5-16c may be illustrated as follows.

Firstly, the subjects' L2 parameters were not successfully reset from those of L1. The error as 5-16b exhibited that the subject was aware of the movement of the wh-component "what". Nevertheless, the position of the INFL, "did" was not put back to the word "gain" and changed into "gained", which showed that the subject' wh-movement parameter was partially reset. He believed that when a question was formed, the auxiliary verb or INFL should be moved forward, whereas he didn't realize that when a direct wh-question became an indirect wh-question, the forward-moved auxiliary verb or INFL should be moved backward.

Secondly, the subject' L2 parameters were incompletely reset because the sentence 5-16c indicated that the subject was not aware of the wh-movement constraint. He violated the constraint to make a direct wh-question in order to inquire information about the action receiver, "she" in the relative clause, which broke the sentence structure of the original statement. He believed whenever a sentence was underlined and asked to raise a question, the wh-component must be fronted in order to make a question whether the underlined part was questionable or not.

Thirdly, the 5-16b demonstrated that the subject was under the influence of his L1 wh-movement parameters. The subject did not front the wh-word "what" to the beginning of the sentence but simply left it with the sentence to be in-situ. The subject knew what could be questioned and how to raise English

wh-questions, but did not know what to do when an underlined part was within an adjunct clause. In other words, he didn't realize the wh-movement island constraints.

This may be supported by the interview data as follows,

*Researcher: Please take a look at item 3 in the question formation test.*

*Have you ever seen any sentences with underlined part like this?*

*Subject: No. I felt weird when I read the sentence with only part of the "because" clause underlined. Before, I only saw sentences with the whole clause underlined. And that was easy to raise questions. But this time, I thought it over for a long time. I really did not know how to ask question. I thought perhaps my English was not good enough so I could not do this item.*

Another frequently occurring error in the pretest was Error 3, namely the incorrect question formation errors. The subjects judged the sentence as questionable, which was true, but when they were raising questions to ask for information about the underlined part, they incorrectly analyzed the structure of the sentences and raised the wrong auxiliary verb or the INFL. Take the following sentence as an example.

*5-17a. The director suggested that the examination be postponed to next year.*

No wh-movement constraint was involved in this sentence so that the

underlined part may be questioned. And the wh-question which was raised by the native speakers is as 5-17b.

5-17b. *To what year did the director suggest that the examination be postponed?*

However, 15 out of 40 subjects from the TG and 18 out of 40 subjects from the NTG judged sentence 5-17a as questionable but the questions they formed were ungrammatical as shown in 5-17c and 5-17d.

5-17c. \* *Did the director suggested when the examination was postponed?*

The first reason of this result may be ascribed to unsuccessful L2 parameter resetting. While the subjects were generating wh-questions to ask for information, they were thinking about the wh-movement rules, which was what they were supposed to do. However, they did not fully understand the rules. In other words, the L2 parameters were not successfully reset in L2 learning, so that they made English wh-questions with both English and Chinese characteristics. In 5-17c the INFL “did” was fronted to the beginning of a sentence and at the same time the wh-word “when” was fronted to the beginning of the embedded clause, which seemed like English parameters. But the subject forgot that the INFL had already been fronted so he put the INFL again after the verb “suggest”. Therefore the L2 learners made a question with two INFLs, which is defined as unsuccessful L2 parameter

resetting in the current research.

Besides the unsuccessful L2 parameters resetting, the second reason explaining this result was that the L2 learners were under the influences of their L1. Take the same sentence 5-17a as an illustration. A subject raised a wh-question to ask information about the underlined part as 5-17d.

5-17d. *\*When would the examination be postponed the director suggested?*

The wh-word “when” was fronted to the beginning of the question, and at the same time, the L2 learners invented an auxiliary verb “would” and moved it to be after “when”. This fronting activity suggested that the L2 learners understood the movement of the wh-component and auxiliary verb to some extent. Nevertheless, the English wh-question 5-17d had a word order similar to the corresponding Chinese sentence as follows.

5-17d.

*\*When would the examination be postponed the director suggested?*

Kǎoshì tuīchí dào shénme shíhòu, zhǔrèn shuō

Examination postpone to what time direct suggested?

### 5.2.2.2 Frequencies of Errors in Posttest

As what was presented in Table 4.20 in section 4.4.2, the frequencies of the Error 1 and Error 2 for the TG were less than that of the NTG. Error 1, i.e.

constraint violation, appeared 123 times for the TG and 268 times for the NTG. Meanwhile, Error 2, i.e. incorrect question formation, appeared 36 times for the TG and 94 times for the NTG. This may be explained that after the subjects of TG received the instruction on the wh-movement constraints, the subjects' errors were reduced compared to that of the NTG. However, the TG subjects still made some errors that need discussion with more details.

While the subjects came across a statement with one part underlined, some of them could judge the wh-move constraints violations but failed to make proper wh-questions. Take the test item 9 in the posttest as an example and repeat here as 5-18a.

5-18a. *My mother handed the boy a sandwich made from thick slices of bread.*

Five out of 40 from the TG and 17 out of 40 from the NTG judge it as questionable and formed a wh-question based on this statement. On the contrary, 5-18a was judged unquestionable by native speakers. The subjects' sentences are listed below as 5-18b and 5-18c.

5-18b. *What did my mother use to make a sandwich?*

5-18c. *\*From what did my mother handed the boy a sandwich?*

The reasons why the subjects made the error as 5-18b and 5-18c may be explained from two aspects. Firstly, in 5-18b, the subjects' L2 parameters were

not successfully reset. Those who generated 5-18b seemed to know that an English wh-component should be fronted to the very beginning of a question and at the same time, the INFL-past tense, -ed should follow the movement of the wh-component. Therefore, in 5-18b, the noun phrase “thick slices of bread” was substituted by the word “what” and then moved to be the first word of the sentence. At the same time, the INFL, -ed was also moved with the wh-component. Although the subjects followed the L2 movement parameters, their wh-movement constraints parameters were not successfully reset because the subjects broke the CNPC island, a sandwich made from thick slices of bread, in 5-18a and moved what should be kept within an island to be out of the constraint. If the L2 parameters about making wh-questions were successfully reset, the subjects should be able to judge unquestionably underlined parts from questionably underlined ones.

Secondly, in 5-18c the subjects’ L1 parameters were influencing their L2 performance. As discussed in the above point, besides the unsuccessfully reset L2 parameters, the subjects’ output 5-18c exhibited Chinese no-movement parameter. As discussed in section 2.3.1, Chinese does move the components within a sentence to mark a question. Therefore, although those who made 5-18c noticed that they should move the INFL -ed to make a question, as “From what *did*.....”, the INFL -ed appear again later in the sentence as “.....my mother handed.....”. Such phenomenon showed that the Chinese no-movement parameter was in effect while they were producing 5-18c.

Comparatively speaking, the subjects of the TG made more Error 3, incorrect INFL movement, than Error 2, incorrect question formation, in the posttest, while in the pretest, they made more Error 2 than Error 3 (see Table 4.18). This

change may be ascribed to the error's sensitivity to the interference of the GARM.

Firstly, Error 2 happened because the subjects' L2 parameters were not successfully reset. Error 2 was made when there was no wh-movement constraint, and the sentence was questionable but the subjects judged it as unquestionable. After the GARM based instruction on the wh-movement constraints, the subjects were able to reduce such errors by figuring out where the wh-movement constraints were.

Secondly, Error 3 took place when the subjects were under the influence of L1 no-movement parameter. The subjects made Error 3 when they did not move the auxiliary verb or INFL because their L1 did not require the movement of these parts. After the GARM based instruction on the wh-movement, the subjects made fewer such errors. But the frequency of Error 3 was lower than that of Error 2 in the posttest.

By comparing the frequencies of Error 3 and Error 2 in the pretest and posttest, it may be concluded that the GARM based instruction was more effective in reducing the errors that were caused by unsuccessfully reset L2 parameters.

### **5.3 Research Hypothesis 3**

In this present study, as what was mentioned in chapter one, it was hypothesized that the awareness-raising as well as the corrective feedback on wh-movement may significantly improve L2 learners' performance on judging wh-movement errors and wh-movement constraint violations. According to the data presented in the previous chapter, Research Questions 4 and 5 will be answered in this section.

Research Hypothesis 3 and Research Questions 4 and 5 were presented in

Table 1.1 and repeated here in Table 5.9

**Table 5.9 Research Hypothesis 3, Research Questions 4 and 5**

Research Hypothesis 3	Research Questions 4 and 5
It is hypothesized that GARM designed within UG paradigm may facilitate L2 learners in understanding and generating English wh-questions.	What triggers L2 grammar awareness, and how is it related to L2 wh-movement performance?
	What are the effects of GARM in English wh-movement acquisition by L2 learners?

As what was proposed in chapter one, GARM was designed and adopted in the research for the purpose of raising the L2 learners' awareness of the movement of the wh-components and the auxiliary verbs or the INFLs while an English question was generated to ask for information, in the hope that the L2 learners' performance in making English wh-questions may be improved. The following three sections will focus on the three key factors of the GARM, namely the input, the awareness of the language as well as the corrective feedback, and discuss the effectiveness of the model.

### **5.3.1 The Role of Input**

As what was discussed in 5.1.1.3, the mean scores of the TG in the pretest and posttest of the grammaticality judgment test were significantly different. The L2 input in the current study effected the improvement of the L2 learners' performance in three areas.

Firstly, the L2 input in this study was taken from real L2 language situations, which was different from the traditional artificial sentences. The materials that the

subjects received included plots taken from English movies, news reports taken from English newspapers such as The New York Times, and articles taken from English magazines such as The Reader's Digest. The purpose of extracting materials from real situations with contexts was to ensure that the L2 learners may observe how the language was used by the native speakers in a natural way.

Secondly, the wh-movement in L2 input of the current study was emphasized. What was different from the traditional grammar teaching was that the input with wh-questions and auxiliary verb movement was required to be highlighted in written form, or pointed out in oral form. The purpose of highlighting the wh-questions was to enable the subjects get contact with real language context and to raise their awareness of the wh-movement as well as the movement of the auxiliary verb or INFL, so that the input may become intake.

Thirdly, the amount of the L2 input was different from the traditional grammar text book. The present research required the subjects of the TG to read materials in English and watch English movies after each period of instruction. The subjects also needed to underline those that included wh-movement, fronting or returning of auxiliary verbs or INFLs. At the same time, they also needed to create their own sentences following the underlined sentences. The purpose of making this assignment was to enlarge the amount of L2 input that involved target language phenomenon so that they may have more experience in observing how L2 was used by native speakers.

### **5.3.2 The Role of Corrective Feedback**

In response to the fourth research question, "What is the relationship between L2 corrective feedback in the instruction and L2 learners' wh-movement

performance?” the role of corrective feedbacks was considered and evaluated in the current study, and effects of corrective feedback may be illustrated from three aspects.

For the first aspect, the corrective feedback took effect in differentiating grammatical and ungrammatical wh-movement including the movement of the auxiliary verbs or INFL. The corrective feedback informed the L2 learners what was permitted or forbidden in L2. As viewed in 2.3.3, repeated here, what distinguished L1 from L2 learning was the effect of correction. When the researcher corrected the subjects' grammar errors, they became aware that such errors as no moving forward of INFL, or no moving backward were not allowed in English. Though they could not make a sudden change in their behavior while making English wh-questions, they could eliminate such kinds of errors gradually. Therefore, the corrective feedback reminded the L2 learners not to make those grammatical errors in future generating L2 wh-question.

Secondly, the corrective feedback triggered the resetting of L2 parameters as proposed by White (1991). She provided evidence to show that those whose L1s did not include adverbial placement rules may successfully learn the rules in L2 through formal instruction. In this present research, corrective feedback was provided by the researcher to the L2 learners in order to ensure that they may adjust to L2 parameters. The corrective feedback took a role of “attention-trigger” in guiding L2 learners to become aware of the target structure. As argued by Schmidt (1992, 1994, 1995, 2001, 2010), an L2 learner becomes aware of the target structure when he pays attention to it. The researcher of the present study provided the corrective feedback to urge the subjects of the TG to start noticing the wh-movement in English. The subjects' awareness of the wh-movement may be raised after they noticed how an

English wh-question was generated. After they raised the awareness toward the target linguistic phenomenon, they could start to reset L2 parameters or refine their unsuccessfully reset L2 parameters.

Thirdly, the corrective feedback functioned as a reminder to the L2 learners to avoid making grammar errors. During the instruction, the researcher read through the subjects output in class, and after-school assignments. While grading those wh-questions made by the subjects, the researcher marked out all the grammar ones and gave comments to those ungrammatical parts for the purpose of reminding the subjects to pay special attention to those errors and tried to avoid making similar errors when they made wh-questions again. Thereafter, the subjects practiced making proper movements with their minds being alert to possible errors.

### **5.3.3 The Role of Awareness and Noticing**

As what was discussed in 5.2.1.1, the awareness of the target structure is essential in L2 learning. R. Ellis (1994, p. 643) suggested that in consciousness-raising activities, the learners were expected to understand the targeted structure by “formulating some kind of cognitive representation of how it works”. In the present study, the subjects of the TG received input emphasizing the structure of wh-questions and at the same time, their output with wh-questions was corrected by the researcher with feedback. The purpose of doing this was to arouse the subjects’ awareness of the targeted wh-movement structure, so that they could become aware of the movement of the auxiliary verbs or the INFLs when they were making English wh-questions. From the data discussed previously, it may be concluded that the awareness of the targeted language structure took effect in L2 learning when L2 learners convert input into intake.

## 5.4 Summary

This chapter mainly discusses the research results in response to the three research hypotheses. First of all, the data that supported Research Questions one and two referring to Research Hypothesis one was discussed. It was concluded that the instructions on wh-movement and wh-movement constraint designed according to the GARM was positive effective in L2 learning. Secondly, the second Research Hypothesis that L1 transfer and unsuccessful L2 parameter resetting led to wh-movement errors was proved. The most frequently occurring errors in GJT were about the movement of the auxiliary verbs or INFLs in a wh-question, and the most frequently occurring errors in QFT were also connected to the movement of the INFLs in generating a wh-question to ask for information. It was concluded that after the instruction on wh-movement and movement constraints, the frequency of the errors were reduced. Thirdly, the roles of input, corrective feedback as well as the awareness and noticing in L2 wh-movement learning were discussed. A conclusion was drawn that these three factors were of vital importance in L2 learning.

## **CHAPTER 6**

### **CONCLUSIONS**

In this chapter, firstly, the research findings will be summarized and the conclusions will be drawn according to the results presented in the previous chapters. Secondly, the pedagogical implications will be provided. Finally, the suggestions for the future study will be provided in detail.

#### **6.1 Summary of the Study**

In line with the research results and discussion presented in the previous chapter, the present research adopted the grammaticality judgment test (GJT) and question formation test (QFT) to examine the effectiveness of the proposed grammar awareness-raising model (GARM). It applied these two instruments to test the students' abilities of understanding English wh-movement rules and making wh-questions at the beginning and the end of the pedagogical intervention. Meanwhile, this present study proposed GARM to guide the pedagogical intervention, for the purpose of improving the subjects' performance in making wh-movement as well as the movement of the auxiliary verbs or the tense indicators (INFL) in an English sentence. In the current study, the following research questions were examined and answered.

1. Are there any differences among Chinese L2 learners in detecting wh-movement errors before and after GARM based explanations on wh-movement?
2. Are there any differences for Chinese L2 learners in detecting

wh-movement constraint violations before and after GARM based explanations on wh-movement constraints?

3. What are the grammatical errors made by L2 English learners concerning wh-movement before and after GARM based explanations on wh-movement? And what are the frequencies?

4. What triggers L2 grammar awareness, and how is it related to L2 wh-movement performance?

5. What are the effects of GARM in English wh-movement acquisition by L2 learners?

Broadly speaking, the effect of GARM took positive effect in facilitating the L2 learners moving the wh-components and auxiliary verbs (including tense indicators). For the purpose of testing the hypothesis, an experiment consisting of pretest-treatment-posttest was designed by using the GJT and QFT as major data collection instruments. The pedagogical intervention, namely the instruction on wh-movement, this study aimed at improving the subjects' performance in judging the grammaticality of both the direct and indirect wh-questions. Another part of the instruction focused on wh-movement constraints aimed at promoting the subjects' achievement in making direct and indirect wh-questions. The eighty subjects of this research came from two natural classes who were enrolled in the Grammar Course at Guizhou University, China, in the first semester of the academic year 2011.

In order to answer the first two research questions, the mean scores of the subjects in the pretest were firstly compared and analyzed. By comparing the mean scores, it was reported that the subjects of the treatment group (TG) had similar performance with those of the non-treatment group (NTG). Both groups performed

significantly different from the native speakers. After the instructions on the wh-movement and wh-movement constraint violations, the subjects were required to take the posttest of the GJT and QFT. The mean scores of the TG and NTG exhibited statistically meaningful differences, which may indicate the effectiveness of the instructions designed according to GARM. These findings could positively support Hypothesis 3. That is, L2 learners will improve their accuracy of wh-questions with the help of the language awareness-raising model.

In response to research question three, what are the grammatical mistakes made by L2 English learners concerning wh-movement, the errors made by the subjects in the GJT and QFT were categorized and analyzed. There were totally six types of errors in the GJT reviewed here as follows.

1. No movement when it is necessary;
2. Double tense indicators;
3. No movement forward when the auxiliary verb or tense indicator should be fronted to make a direct wh-question;
4. No movement backward when the auxiliary verb or tense indicator should not be fronted when making an indirect wh-question;
5. Overgeneralization when some part was unnecessarily fronted;
6. Some other unnecessary adding or deletions.

The frequencies of each type of errors in the pretest and posttest were compared. The most frequently occurring errors were the third and fourth ones. The reasons to explain this phenomenon were that the L2 learners were under the

influence of their L1, and therefore made English wh-questions with Chinese characteristics. It was reported that the frequencies of these two types of errors of the TG were lessened after the pedagogical intervention.

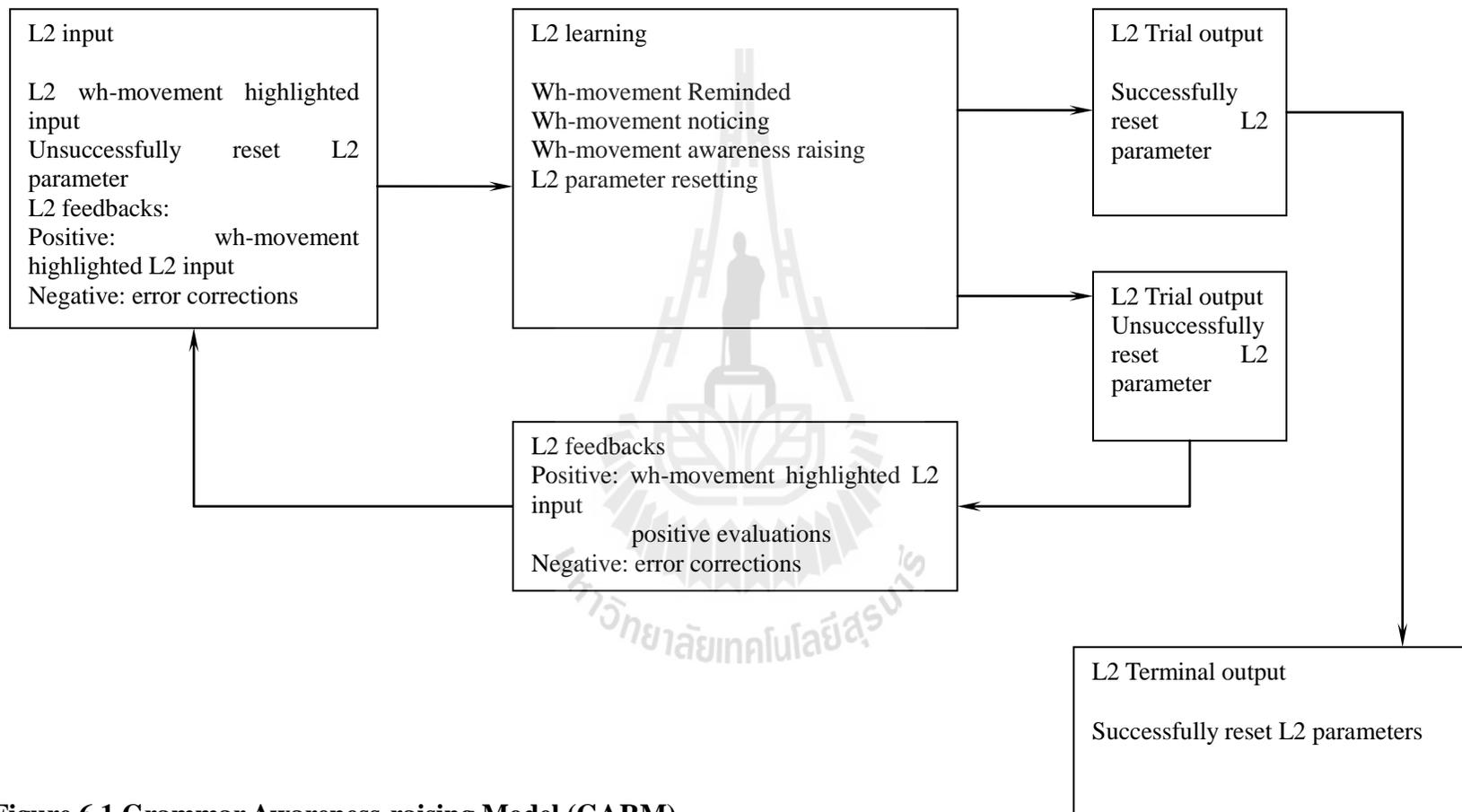
There were totally four types of errors in the QFT reviewed as follows.

1. Constraint violation;
2. Incorrect question formation;
3. Incorrect tense indicator movement;
4. No response.

According to the frequencies counted after the pretest and posttest, for the experimental group the most frequently occurring errors in the pretest QFT was the first one. The reasons proposed to explain this result was that the L2 learners were influenced by the previous learning experience because no instructions on the wh-movement constraints were provided by their previous teachers. After the subjects received the pedagogical intervention, the frequencies of the first type of error were lowered because the subjects understood that an English wh-question should be made without violating the wh-movement constraints. Another frequently occurring error in the QFT was the third type of error, namely the wrong movement of the auxiliary verb (including the tense indicator i.e. INFL). The reason for this phenomenon was that the L2 learners knew the rules on one hand but were not able to apply them while using the language. In this present research, this was ascribed to unsuccessfully resetting L2 parameters because the performance of the L2 learners exhibited incomplete L2 characteristics.

After discussion on the data collected from the experiment, the effect of the grammar awareness-raising model (GARM) was proved to be affirmative. As a result, the model is repeated here as follows.





**Figure 6.1 Grammar Awareness-raising Model (GARM)**

## 6.2 Pedagogical Implications

Based on the results of the present study, it was concluded that the instructions designed according to GARM was effective in facilitating L2 learners learning of wh-movement. The implications to the pedagogy can be summarized in the following aspects.

Firstly, teachers of L2 should be aware of the characteristics of L2 learning and provide L2 input extracted from authentic language context. L2 teachers should encourage their students get more access to L2 input so that the learners are able to enlarge the amount of the L2 input. The input with specific targeted linguistic phenomena should be highlighted in both written and oral form for the purpose of raising the L2 learners' awareness of the phenomena.

Secondly, the awareness of the target linguistic feature is vital in converting input into intake. When an L2 grammar is taught, explicit, instead of implicit, explanations need to be provided to the specific grammatical features isolated from the context.

Thirdly, negative evidences are essential in learning an L2. Unlike what's in L1 acquisition, negative evidences are of key importance in L2 learning because they inform L2 learners of what is grammatical and ungrammatical. Being provided negative evidences, the L2 learners may try to avoid making mistakes. L2 teachers should provide quality corrective feedback to their students to ensure that the targeted L2 grammar rules may be applied in appropriate way.

### 6.3 Suggestions for Further Research

The present study proposed a grammar awareness-raising model (GARM) to observe how Chinese-speaking L2 learners of English acquire the wh-movement, which is not required in Chinese. The results of the experiment proved GARM to be positively effective in learning English movement of wh-component and auxiliary verbs or tense indicators (INFL). However, due to some limitations of the present study, some factors may not have been considered in the experiment. The following factors may be taken into consideration for further study.

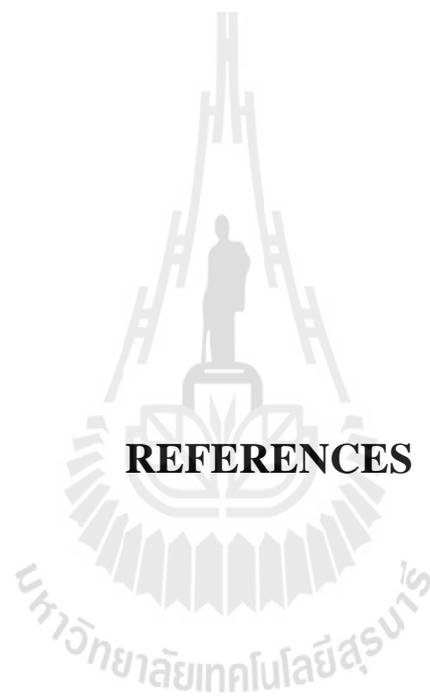
Firstly, how L2 learners acquire other targeted linguistic features should be studied based on GARM in order to prove its appropriateness and applicability. Besides wh-movement, there are other linguistic features that exist positively in English but negatively in Chinese that could be studied using GARM to observe the effectiveness of quality L2 input, language awareness and negative evidences in L2 learning.

Secondly, the sample size of further study may be enlarged for the purpose of observing whether the GARM may be introduced into real classroom language teaching. The sample size of the present study was 40 from the TG, 40 from the NTG and 5 from the CG. It is recommended that more subjects be involved in further study in order to observe whether the proposed model is also positively effective in larger scale.

Thirdly, the language level of L2 learners in further study need to be differentiated so as to observe whether the GARM is applicable to learners of various levels. The subjects of the present study were first year English majors, which meant that it was assumed that the participants had some knowledge about the

wh-movement. If it is possible, future study may involve L2 learners of low level, medium level, and high level, so that the efficiency of GARM to different levels of learners may be testified.





**REFERENCES**

## REFERENCES

- Adams, R. (2003). L2 output, reformulation and noticing: implications for IL development. *Language Teaching Research*, 7(3), 347-376. doi: 10.1191/1362168803lr127oa
- Al-Hejin, B. (2005). Attention and awareness: Evidence from cognitive and second language acquisition research. *Teachers College, Columbia University Working Papers in TESOL & Applied Linguistics*, 4(1).
- Alanen, R. (1995). Input enhancement and rule presentation in second language acquisition. In R. Schmidt (Ed.), *Attention and awareness in foreign language learning* (pp. 259-302). Hawai'i: University of Hawai'i Press.
- Allport, A. (1988). What concept of consciousness? In A. J. Marcel & E. Bisiach (Eds.), *Consciousness in Contemporary Science* (pp. 159-182). London: Clarendon Press.
- Bitchener, J. (2008). Evidence in support of written corrective feedback. *Journal of Second Language Writing*, 17(2), 102-118.
- Bitchener, J., & Knoch, U. (2010). Raising the linguistic accuracy level of advanced L2 writers with written corrective feedback. *Journal of Second Language Writing*, 19(4), 207-217. doi: 10.1016/j.jslw.2010.10.002
- Bley-Vroman, R. (1986). Hypothesis testing in second language acquisition theory. *Language Learning*, 36(3), 353-376.
- Bley-Vroman, R. (1989). What is the logical problem of foreign language learning. In S. M. Gass & J. Schachter (Eds.), *Linguistic perspectives on second language acquisition* (pp. 41-68). Cambridge: the Press Syndicate of the University of

Cambridge.

- Bley-Vroman, R., & Chaudron, C. (1990). Second Language Processing of Subordinate Clauses and Anaphora—First Language and Universal Influences: A Review of Flynn's Research\*. *Language Learning*, 40(2), 245-285. doi: 10.1111/j.1467-1770.1990.tb01335.x
- Bley-Vroman, R., & Yoshinaga, N. (2000). The acquisition of multiple wh-questions by high-proficiency non-native speakers of English. *Second Language Research*, 16(1), 3-26.
- Bley-Vroman, R. W., Felix, S. W., & Ioup, G. L. (1988). The accessibility of Universal Grammar in adult language learning. *Second Language Research*, 4(1), 1-32. doi: 10.1177/026765838800400101
- Burse, A. (2004). *Acquisition of Wh-movement in German*. Newfoundland and Labrador: Memorial University of Newfoundland.
- Carroll, S. E. (1995). The irrelevance of verbal feedback to language learning. In L. Eubank, L. Selinker, W. E. Rutherford & M. S. Smith (Eds.), *The current state of interlanguage: Studies in honor of William E. Rutherford* (pp. 73-88). Amsterdam: John Benjamins Publishing.
- Carter, R. (2003). Key Concept in ELT: Language awareness. *ELT*, 57(3), 4-5.
- Cheng, L. L. S., & Corver, N. (2006). *Wh-movement: Moving on* (Vol. 42): The MIT Press.
- Choi, Y.-S. (2007). Intervention effect in Korean wh-questions: Indefinite and beyond. *Lingua*, 117(12), 2055-2076.
- Chomsky, N. (1965). *Aspects of the Theory of Syntax* (Vol. 119). Massachusetts: The MIT press.

- Chomsky, N. (1975). *Reflections on Language*. New York: Pantheon.
- Chomsky, N. (1981). *Lectures on Government and Binding*. Foris: Dordrecht.
- Chomsky, N. (1986). *Knowledge of Language: Its nature, origin, and use*. Westport: Praeger Publishers.
- Chomsky, N. (1993). *Lectures on government and binding: The Pisa lectures* (Vol. 9). Berlin: Walter de Gruyter.
- Cook, V. (1991). The poverty-of-the-stimulus argument and multicompetence. *Second Language Research*, 7(2), 103-117.
- Cook, V., & Newson, M. (2000). *Chomsky's Universal Grammar: An Introduction*. Beijing: Foreign Language Teaching and Research Press.
- Doughty, C. J. (2003). Instructed SLA: constraints, compensation and enhancement. In C. J. Doughty & M. H. Long (Eds.), *The handbook of second language acquisition*. Oxford: Blackwell Publishing Ltd.
- El Tatawy, M. (2006). Corrective feedback in second language acquisition. *Teachers College, Columbia University Working Papers in TESOL & Applied Linguistics*, 2(2).
- Ellis, N. C. (2002). Reflections on frequency effects in language processing *Studies in second language acquisition*, 24(02), 297-339.
- Ellis, R. (1991). Grammatical Judgments and Second Language Acquisition. *Studies in second language acquisition*, 13(02), 161-186.
- Ellis, R. (1994). *The Study of Second Language Acquisition*. Oxford: Oxford University Press.
- Ellis, R. (2005). Principles of instructed language learning. *System*, 33(2), 209-224.  
doi: 10.1016/j.system.2004.12.006

- Escribano, J. L. G. (2006). NPs as just NPs. *Language Sciences*, 28(6), 529-579. doi: 10.1016/j.langsci.2005.06.003
- Esfahani, F. R., & Kiyoumars, F. (2011). Availability of UG Economy Principle in Persian EFL Learners and Its Implication for Teaching English as a Foreign Language. *International Journal of Learning*, 18(8), 1-16.
- Fairclough, N. (1992). *Critical language awareness*: Longman London.
- Felix, S. W., & Weigl, W. (1991). Universal Grammar in the classroom: the effects of formal instruction on second language acquisition. *Second Language Research*, 7(2), 162-180. doi: 10.1177/026765839100700206
- Gass, S. M. (1991). Grammar instruction, selective attention and learning processes. In R. Phillipson, E. Kellerman, L. Selinker, S. S. M. & S. M. (Eds.), *Foreign/second language pedagogy research* (pp. 134-141).
- Gass, S. M., & Selinker, L. (2008). *Second language acquisition: an introductory course*. New York: Routledge.
- Gass, S. M., & Varonis, E. M. (1994). Input, Interaction, and Second Language Production. *Studies in second language acquisition*, 16(03), 283-302.
- Gil, K. H., Marsden, H., & Whong, M. (2011). L2 Acquisition of any: Negative Evidence, Negative Implicature and Negative L1 Transfer.
- Gregg, K. R. (1996). The logical and developmental problems of second language acquisition. In W. C. Ritchie & T. K. Bahtia (Eds.), *The handbook of second language acquisition* (pp. 49-81). New York: Academic Press.
- Hanaoka, O. (2007). Output, noticing, and learning: An investigation into the role of spontaneous attention to form in a four-stage writing task. *Language Teaching Research*, 11(4), 459-479. doi: 10.1177/1362168807080963

- Hattori, H. (2004). *The acquisition of wh-movement by Japanese advanced learners of English*. (Ph. D. Ph. D.), University of Essex.
- Hawkins, J. A. (2004). *Efficiency and complexity in grammars*. Oxford: Oxford University Press Oxford.
- Hawkins, R., & Chan, C. Y.-h. (1997). The partial availability of Universal Grammar in second language acquisition: the 'failed functional features hypothesis'. *Second Language Research*, 13(3), 187-226.
- Hawkins, R., & Hattori, H. (2006). Interpretation of English multiple wh-questions by Japanese speakers: a missing uninterpretable feature account. *Second Language Research*, 22(3), 269-301. doi: 10.1191/0267658306sr269oa
- Hilles, S. (1991). Access to Universal Grammar in second language acquisition. In L. Eubank (Ed.), *Point counterpoint: Universal Grammar in the second language* (pp. 305-338). Amsterdam: John Benjamins Publishing Company.
- Izumi, S. (2002). Output, input enhancement and the noticing hypothesis. *Studies in second language acquisition*, 24(04), 541-577.
- Izumi, S., & Bigelow, M. (2000). Does Output Promote Noticing and Second Language Acquisition?\*. *TESOL Quarterly*, 34(2), 239-278.
- James, C., & Garrett, P. (1992). *Language awareness in the classroom*: Longman London.
- Kennedy, S. (2012). Exploring the relationship between language awareness and second language use. *TESOL Quarterly*, 46(2), 398-408.
- Kiguchi, H., & Thornton, R. (2004). Binding principles and ACD constructions in child grammars. *Syntax*, 7(3), 234-271.
- Kong, S. (2005). The partial access of universal grammar in second language

- acquisition: An investigation of the acquisition of English subjects by L1 Chinese speakers. *Journal of East Asian Linguistics*, 14(3), 227-265.
- Krashen, S. (1981). Second language acquisition. *Second Language Learning*.
- Krashen, S. (1994). The input hypothesis and its rivals. In N. Ellis (Ed.), *Implicit and Explicit Learning of Languages* (pp. 45-77). London: Academic Press.
- Kumagami, M. (2006). Two types of strategies: the acquisition of English wh-questions by Japanese learners. *Kyushu University Papers in Linguistics*(27).
- Larsen-Freeman, D., & Long, M. H. (1991). *An introduction to second language acquisition research*. London: Longman.
- Lassadi, B. (2003). Optional wh-movement in French and Egyptian Arabic *Cahiers linguistiques d'Ottawa*, 31, 67-93.
- Lassadi, B. (2007). The syntax and semantics of optional wh-movement: The case of Egyptian Arabic. *CAHIERS LINGUISTIQUES D OTTAWA*, 35, 218.
- Leow, R. (1996). Grammaticality judgment tasks and second-language development. *Georgetown university round table on languages and linguistics*, 126-139.
- Leow, R. (1997). Attention, awareness, and foreign language behavior. *Language Learning*, 47(3), 467-505.
- Li, X. (1998). Adult L2 accessibility to UG: An issue revisited. In S. Flynn, G. Martohardjono & W. A. O'Neil (Eds.), *The generative study of second language acquisition* (pp. 89-110). New Jersey: Lawrence Erlbaum Associates Inc.
- Long, M. (1996). The role of linguistic environment in second language acquisition. In W. C. Ritchie & T. K. Bahtia (Eds.), *Handbook of second language*

- acquisition* (pp. 413-468). New York: Academic Press.
- Mackey, A. (2006). Feedback, noticing and instructed second language learning. *Applied Linguistics*, 27(3), 405-430.
- Mandell, P. B. (1999). On the reliability of grammaticality judgement tests in second language acquisition research. *Second Language Research*, 15(1), 73-99. doi: 10.1191/026765899667538959
- Nazari, N. (2013). The effect of implicit and explicit grammar instruction on learners' achievements in receptive and productive modes. *Procedia - Social and Behavioral Sciences*, 70(0), 156-162.
- Park, H. (2000). *Child second language acquisition and grammatical theories: The Minimalist Program and optimality theory*. (Ph. D. Dissertation), The University of Arizona.
- Radford, A. (1997). *Syntax: a minimalist introduction*. Cambridge: Cambridge University Press.
- Rahimi, M. (2009). The role of teacher's corrective feedback in improving Iranian EFL learners' writing accuracy over time: is learner's mother tongue relevant? *Reading and Writing*, 22(2), 219-243. doi: 10.1007/s11145-008-9139-5
- Reber, A. S. (1989). Implicit learning and tacit knowledge. *Journal of Experimental Psychology: General*, 118, 219-235.
- Rezaei, A. A., & Hosseinpour, R. M. (2011). On the role of consciousness-raising tasks in learning grammar. *The Iranian EFL Journal*, 39(3), 237.
- Richards, J. C., Platt, J., Platt, H., & Candlin, C. N. (Eds.). (1992) Longman Dictionary of Language Teaching and Applied Linguistics (Vols. 78). London: Longman

- Robson, C. (1993). *Real world research: A resource for social scientists and practical researchers*. Oxford: Blackwell.
- Robson, C. (2002). *Real world research: A resource for social scientists and practitioner-researchers* (Vol. 2). Oxford: Blackwell.
- Rothman, J. (2009). Pragmatic deficits with syntactic consequences?: L2 pronominal subjects and the syntax–pragmatics interface. *Journal of Pragmatics*, 41(5), 951-973.
- Ruangjaroon, S. (2005). *The Syntax of WH-expressions as Variables in Thai*. University of British Columbia.
- Sa-ngiamwibool, A. (2007). Enhancing structure and written expression among EFL Thai students through consciousness-raising instructions. *Journal of NELTA*, 12(1&2), 113-128.
- Schachter, J. (1990). On the issue of completeness in second language acquisition. *Second Language Research*, 6(2), 93-124. doi: 10.1177/026765839000600201
- Schachter, J. (1991). Corrective feedback in historical perspective. *Second Language Research*(7), 89-102.
- Schachter, J., & Yip, V. (1990). Grammaticality Judgments. *Studies in second language acquisition*, 12(04), 379-392. doi: 10.1017/S0272263100009487
- Schmidt, R. (1990). The role of consciousness in second language learning. *Applied Linguistics*, 11(2), 129-158.
- Schmidt, R. (1992). Awareness and Second Language Acquisition. *Annual Review of Applied Linguistics*, 13, 206-226. doi: 10.1017/S0267190500002476
- Schmidt, R. (1994). Deconstructing consciousness in search of useful definitions for applied linguistics. In J. H. Hulstijn & R. Schmidt (Eds.), *Consciousness in*

*second language learning* (Vol. 11, pp. 237-326): AILA.

- Schmidt, R. (1995). Consciousness and foreign language learning: A tutorial on the role of attention and awareness in learning. *Attention and awareness in foreign language learning*, 1-63.
- Schmidt, R. (2001). Attention. In P. Robinson (Ed.), *Cognition and second language instruction* (pp. 3-32). Cambridge: Cambridge University Press.
- Schmidt, R. (2010). Attention, awareness, and individual differences in language learning. *Proceedings of CLaSIC*, 721-737.
- Schwartz, B. D. (1993). On Explicit and Negative Data Effecting and Affecting Competence and Linguistic Behavior. *Studies in second language acquisition*, 15(02), 147-163. doi: 10.1017/S0272263100011931
- Sheen, Y., Wright, D., & Moldawa, A. (2009). Differential effects of focused and unfocused written correction on the accurate use of grammatical forms by adult ESL learners. *System*, 37(4), 556-569. doi: 10.1016/j.system.2009.09.002
- Shirazi, Z. R. H., & Sadighi, F. (2012). Implicit Versus Explicit Feedback in Classroom: An Experimental Study. *Journal of Language Teaching and Research*, 3(3), 439-445.
- Skinner, B. F. (1957). *Verbal behavior*. New York: Appleton-Century-Crofts.
- Slavkov, N. (2009). *The acquisition of complex wh-questions in the L2 English of Canadian French and Bulgarian speakers: Medial wh-constructions, inversion phenomena, and avoidance strategies*. (Ph. D.), University of Ottawa.
- Smith, M. S. (1981). Consciousness-raising and the second language learner. *Applied Linguistics*, 2, 159-168.

- Smith, M. S. (1991). Speaking to many minds: On the relevance of different types of language information for the L2 learner. *Second Language Research*, 7(2), 118-132.
- Smith, M. S. (1993). Input enhancement in instructed SLA. *Studies in second language acquisition*, 15(02), 165-179.
- Song, H. S., & Schwartz, B. D. (2009). Testing the fundamental difference hypothesis. *Studies in second language acquisition*, 31(Special Issue 02), 323-361. doi: 10.1017/S0272263109090329
- Storch, N. (2001). Comparing Esl Learners' Attention To Grammar On Three Different Classroom Tasks. *RELC Journal*, 32(2), 104-124.
- Svalberg, A. M.-L. (2007). Language awareness and language learning. *Language Teaching*, 40(04), 287-308. doi: 10.1017/S0261444807004491
- Swain, M., & Lapkin, S. (1995). Problems in Output and the Cognitive Processes They Generate: A Step Towards Second Language Learning. *Applied Linguistics*, 16(3), 371-391. doi: 10.1093/applin/16.3.371
- Tayyebi, G. (2012). The availability of universal grammar to second language learners: a case of wh-movement. *International Journal of English Linguistics*, 2(3), 34.
- Tomlin, R. S., & Villa, V. (1994). Attention in cognitive science and second language acquisition. *Studies in second language acquisition*, 16(02), 183-203. doi: 10.1017/S0272263100012870
- Truscott, J., & Hsu, A. Y.-p. (2008). Error correction, revision, and learning. *Journal of Second Language Writing*, 17(4), 292-305. doi: 10.1016/j.jslw.2008.05.003
- Tsai, W.-T. D. (1994a). *On Economizing the Theory of A-bar Dependencies*. (Ph. D.), MIT.

- Tsai, W.-T. D. (1994b). On nominal islands and LF extraction in Chinese. *Natural Language & Linguistic Theory*, 12(1), 121-175. doi: 10.1007/bf00992747
- Tsimpli, I. M., & Dimitrakopoulou, M. (2007). The interpretability hypothesis: evidence from wh-interrogatives in second language acquisition. *Second Language Research*, 23(2), 215-242.
- Varnosfadrani, A. D., & Basturkmen, H. (2009). The effectiveness of implicit and explicit error correction on learners' performance. *System*, 37(1), 82-98. doi: 10.1016/j.system.2008.04.004
- White, L. (1985). The acquisition of parameterized grammars subjacency in second language acquisition. *Second Language Research*, 1(1), 1-17.
- White, L. (1988). Island Effects in Second Language Acquisition. In S. Flynn & W. O'Neil (Eds.), *Linguistic Theory in Second Language Acquisition* (Vol. 8, pp. 144-172): Springer Netherlands.
- White, L. (1989a). The adjacency condition on case assignment: Do L2 learners observe the subset principle? In S. Gass & J. Schachter (Eds.), *Linguistic perspectives on second language acquisition* (pp. 134-158). Cambridge: Cambridge University Press.
- White, L. (1989b). *Universal Grammar and Second Language Acquisition* (Vol. 1). Amsterdam: John Benjamins Publishing Company.
- White, L. (1990). The verb-movement parameter in second language acquisition. *Language Acquisition*, 1(4), 337-360.
- White, L. (2003). *Second Language Acquisition and Universal Grammar*. Cambridge: Cambridge University Press.
- White, L., & Juffs, A. (1998). Constraints on wh-movement in two different contexts

- of nonnative language acquisition: Competence and processing. In S. Flynn, G. Martohardjono & W. A. O'Neil (Eds.), *The generative study of second language acquisition* (pp. 111-129). New Jersey: Lawrence Erlbaum Associates, Inc.
- Wong, B. E. (1999). *Acquisition of Wh-movement in English questions and relative clauses by speakers of Malay*. (Ph. D.), University of Essex.
- Wright, T., & Bolitho, R. (1993). Language awareness: a missing link in language teacher education? *ELT journal*, 47(4), 292-304.
- Yamane, M. (2003). *On the interaction of first-language transfer and universal grammar in adult second language acquisition: WH-movement in L1-Japanese and L2-English interlanguage*. (Ph. D.), University of Connecticut.
- Ying, H. (1999). Access to UG and language transfer: A study of L2 learners' interpretation of reconstruction in Chinese. *Second Language Research*, 15(1), 41-72.



## APPENDIX A

### Teaching plan

Session	Time	Content
1	Mar. 15	Direct subject questions
2	Mar. 22	Direct object questions
3	Mar. 29	Direct adjunct questions: why; how
4	April 12	Direct adjunct questions: where; when
5	April 19	Indirect subject questions
6	April 26	Indirect object questions
7	May 3	Indirect adjunct questions: why; how
8	May 10	Indirect adjunct questions: where; when
9	May 17	Wh-movement constraints: CNPC
10	May 24	Wh-movement constraints: SSC
11	May 31	Wh-movement constraints: CSC
12	June 7	Wh-movement constraints: Adjunct Island
13	June 14	Wh-movement constraints: Wh-Island

## Teaching procedure

Step	Time allocation	Content
1	10	<b>Preview:</b> Students watch 10 plots taken from an English movie for the first time
2	10	<b>Attention:</b> Students take down wh-questions while watching the plot a second time
3	20	<b>Discussion:</b> Discuss why questioned part and verb are fronted or stay in situ
4	10	<b>Attention:</b> Subjects read a short story with wh-questions in it Subjects underline sentences with wh-movement
5	10	<b>Practice:</b> Question formation task After school assignment: Find out 10 sentences with target linguistic phenomenon

## Sample Teaching Plan

Session: 1

Date: March 15, 2012

Content: Direct subject questions

Objective:

1. Students should be able to figure out direct subject questions from a medium-leveled passage.
2. Students should be able to understand differences between English and Chinese direct subject questions.
3. Students should be able to understand why or why not a wh-word leads the sentence and the auxiliary verb (including tense indicator -ed and -es) are not fronted.

Procedure:

### **1. Preview:**

Watch the following plots two times. The first time is for general understanding and while the students are watching each plot, they should try to find out the direct subject question. (For the convenience of illustration, typescripts of two plots will be cited here.)

### **Plot 1**

Edward: **What's in Jacksonville?**



Bella: How did you know about that?

Edward: I... You didn't answer my question.

Bella: Well you don't answer any of mine so...I mean you don't even say "Hi" to me.

Edward: Hi.

Bella: Are you gonna tell me how you stopped the van?

Edward: Yeah...I had an adrenaline rush. It's very common. You can Google-it.

Bella: Floridians. That's what's in Jacksonville.

*(Twilight 2008)*

**Plot 2**

Bella: What did your friends mean about... “You know ‘the Cullens don’t come here’?”

Jacob: You caught that huh? I’m not really supposed to say anything about it.

Bella: Hey I can keep a secret.

Jacob: Um really it’s just like an old scary story.

Bella: Well, I want to know.

Jacob: Okay did you know that Quileutes are supposedly descendants from wolves?

Bella: What? Like wolves...Real wolves?

Jacob: Yeah...That’s a legend of our tribe.

Bella: So **what’s the story about the Cullens?**



Jacob: Well they’re supposedly descendants from this like...Enemy clan.

(White, 1985)

## 2. Attention: (audio-visual form)

Subjects are required to watch the plot, listen carefully, try to find out and take down subject direct-questions in the scene on a blank piece of paper and hand in their paper to the researcher in order that the researcher can evaluate whether they notice the grammatical phenomenon.

## 3. Discussion

Instructions on English and Chinese direct wh-questions.

What's in Jacksonville?

Shenme zai Jacksonville?

What is in Jacksonville? (Chinese wording)

(What's in Jacksonville?)

What's the story about the Cullens?

Guanyu Cullen jia de gushi shi shenme?

About the Cullens story is what? (Chinese wording)

(What's the story about the Cullens?)

The subjects are required to figure out the wh-component which is the subject of each English direct wh-question, and then translated the question into Chinese. Meanwhile, they should make comparisons between the subject direct question in two languages and find out the positions of wh-components and auxiliary verbs.

**4 Attention (written form)**

Subjects are required to read the following passage for general comprehension and then underline all the direct subject questions in it.

**The Son**

A wealthy man and his son loved to collect rare works of art. They had everything in their collection, from Picasso to Raphael. They would often sit together and admire the great works of art.

When the Viet Nam conflict broke out, the son went to war. He was very courageous and died in battle while rescuing another soldier. The father was notified and grieved deeply for his only son.

About a month later, just before Christmas, there was a knock at the door. A young man stood at the door with a large package in his hands. He said, "Sir, you don't know me, but I am the soldier for whom your son gave his life. He saved many lives that day, and he was carrying me to safety when a bullet struck him in the heart and he died instantly. He often talked about you, and your love for art."

The young man held out his package.

"I know this isn't much. I'm not really a great artist, but I think your son would have wanted you to have this."

The father opened the package. It was a portrait of his son, painted by the young man. He stared in awe at the way the soldier had captured the personality of his son in the painting. The father was so drawn to the eyes that his own eyes welled up with tears. He thanked the young man and offered to pay him for the portrait.

"Oh, no sir, I could never repay what your son did for me. It's a gift."

The father hung the portrait over his mantle. Every time visitors came to his home he took them to see the portrait of his son before he showed them any of the other great works he had collected. The man died a few months later. There was to be a great auction of his paintings. Many influential people gathered, excited over seeing the great paintings and having an opportunity to purchase one for their collection. On the platform sat the painting of the son.

The auctioneer pounded his gavel. "We will start the bidding with this portrait of the son. Who will bid for this painting?" There was silence. Then a voice in the back of the room shouted. "We want to see the famous paintings. Skip this one." But the auctioneer persisted. "Will someone bid for this painting? Who will start the bidding? \$100, \$200?" Another voice shouted angrily. "We didn't come to see this painting. We came to see the Van Goghs, the Rembrandts. Get on with the real bids!" But still the auctioneer continued. "The son! The son! Who'll take the son?"

Finally, a voice came from the very back of the room. It was the long-time gardener of the man and his son. "I'll give \$10 for the painting." Being a poor man, it was all he could afford. "We have \$10, who will bid \$20?" "Give it to him for \$10. Let's see the masters." "\$10 is the bid, won't someone bid \$20?"

The crowd was becoming angry. They didn't want the painting of the son. They wanted the more worthy investments for their collections. The auctioneer pounded the gavel. "Going once, twice, SOLD for \$10!" A man sitting on the second row shouted. "Now let's get on with the collection!"

The auctioneer laid down his gavel.

"I'm sorry, the auction is over. When I was called to conduct this auction, I was told of a secret stipulation in the will. I was not allowed to reveal that stipulation

until this time. Only the painting of the son would be auctioned. Whoever bought that painting would inherit the entire estate, including the paintings. The man who took the son gets everything!”

### 5. Discussion:

Comparison between English and Chinese direct subject questions:

e.g. Who'll take the son? (shei yao erzi?)

1) Wh-word take the subject position leading the sentence

2) Wh-word, “who (shei)” is the doer who “will take the son”

3) While a wh-question is raised to inquire the doer of an action in a declarative sentence, a Chinese wh-word stays in-situ, whereas English wh-word is fronted but leaves a trace as shown below:

e.g. An old man will take the son. →

Who<sub>i</sub> t<sub>i</sub> will take the son?

Yi ge laoren yao er zi. →

Shei yao er zi?

### 6. Practice: Question formation task

Subjects are required to find out 5 declarative sentences from the previous passage and raise questions asking information about the doers of each sentence. The answers to the questions should be the declarative sentences.

#### After school assignment:

1. The subjects are required to read the English weekly newspaper “21<sup>st</sup> Century” and to find out 10 direct subject questions. (The purpose of this is to provide more L2 input.)

2. The subjects need to make another 10 direct subject questions following the sentence structures taken from the newspaper. (The purpose of this is to make them learn how to produce grammatical L2 direct questions.)

3. The subjects need to watch the whole movie Twilight after school, and find out other direct subject questions in the movie.

4. The subjects need to make questions following the same sentence structure of the questions taken from the movie.



## APPENDIX B

### Pretest paper

Name: \_\_\_\_\_ Class: \_\_\_\_\_ Score: \_\_\_\_\_

#### 1. Grammaticality judgment test

Judge whether the following wh-questions are grammatical or ungrammatical. If it is grammatical, mark the sentence with a “√”. If it is ungrammatical, mark it with a “×” and make corrections that you think are necessary to change it into grammatical wh-questions.

- 1) Emmy argued with her mother about when could she move out to live alone. ( )
- 2) Kelvin wondered why had he lost the contract. ( )
- 3) David proposed to the committee when they would be able to finish the project.  
( )
- 4) Why Africa is so poor? ( )
- 5) For what reason did he give up this project? ( )
- 6) On what day will they leave for Shanghai? ( )
- 7) Please tell me who did sent him an email to explain the situation. ( )
- 8) Where did you put my textbook? ( )
- 9) The secretary was guided how could she arrange the appointments properly. ( )
- 10) Have you been informed who did hosted the conference? ( )
- 11) To whom John gave a glass of water? ( )

- 12) In which room the conference will be held? ( )
- 13) Could you tell me which bus should I take to get to the hospital? ( )
- 14) The tiger searched everywhere in order to find out where had the rabbit gone.  
( )
- 15) Kathy was told how could she make the dress beautiful. ( )
- 16) Which country you will be traveling to next month? ( )
- 17) What did Eileen write in the letter? ( )
- 18) Who did watched a movie? ( )
- 19) Why is everyone so hard-working? ( )
- 20) Sharon knew where she could go in order to find her son. ( )
- 21) Bob called me just now to inform me when would he arrive here. ( )
- 22) Mary wanted to know why was she appointed to do the task. ( )
- 23) Who on earth made a promise to Eileen? ( )
- 24) By what time she will have been an officer for ten years? ( )
- 25) When she needed to see the doctor again? ( )
- 26) Jimmy suggested Cindy where would they go for their honeymoon. ( )
- 27) Did you tell me who was in charge of this class? ( )
- 28) Please tell me what is your name. ( )
- 29) Betty expected to explain why she should work day and night. ( )
- 30) What problem Tom had solved for us? ( )

## 2. Question formation task

Please read the following sentences. There is an underlined part within each sentence. You need to form a question asking information about the underlined

part so that the statement should be the answer to your question. Some of the statements CANNOT be questioned. If you think the underlined part can not be questioned, please tell the reason.

- 1) The general made a promise that his army would defend the country till the last minute.
- 2) The little boy gave up his favorite toy because his mother bought him a new toy.
- 3) Eileen enjoyed teaching very much because she gained great pleasure from it.
- 4) The director suggested that the examination be postponed to next year.
- 5) That our best friend won the game encouraged us so greatly.
- 6) The pretty girl gave me a big smile and helped me get on the bus.
- 7) Greg has informed me when the movie will be shown in town.
- 8) Betty likes apples but hates bananas.
- 9) Eileen wondered who would deliver the speech at the conference.
- 10) He stole the necklace that my mother made for me.
- 11) John met a child who was reading a book.
- 12) Uncle Bill sent a toy to me but a real car to my brother.
- 13) That China defeated Brazil in the soccer game was absolutely a rumor.
- 14) That he has gone through all the difficulties inspired us.
- 15) Sara quit her job here because she received a higher position in the government.

## APPENDIX C

### Posttest paper

Name: \_\_\_\_\_ Class: \_\_\_\_\_ Score: \_\_\_\_\_

#### 1. Grammaticality judgment test

Judge whether the following wh-questions are grammatical or ungrammatical. If it is grammatical, mark the sentence with a “√”. If it is ungrammatical, mark it with a “×” and make corrections that you think are necessary to change it into grammatical wh-questions.

- 1) What the hell you two have done to that poor dog? ( )
- 2) Don't worry. She left us a map guiding us to where the treasure was buried. ( )
- 3) Whom did he deliver a speech at the opening ceremony? ( )
- 4) For what reason couldn't you accompany that poor boy who got lost in the mall?  
( )
- 5) Who should we defend even if it means devoting our youth? ( )
- 6) You are wondering why of course did I bring you here tonight. ( )
- 7) The notice said who they had informed to deal with the problem? ( )
- 8) When would everyone want to celebrate the winning of the final game? ( )
- 9) They are expecting a news conference to announce for what reason should the nuclear weapon be produced. ( )
- 10) On which shelf had the mother hidden the freshly baked cake from the naughty cat?

- ( )
- 11) I hardly remember what was my mother like. ( )
- 12) How are you enjoying your extended stay? ( )
- 13) In which museum the classic paintings will be shown? ( )
- 14) On what day Prof. Oxford announced the deadline of the term paper? ( )
- 15) That fat ugly boy made a show of how he bullied the other kids younger than he was. ( )
- 16) He didn't have a clue what was going on. ( )
- 17) Can you use your own words to explain what could music teach us in English? ( )
- 18) What did struck the man-eating monster in the chest? ( )
- 19) Where we could escape after being told that the virus existed everywhere in the air? ( )
- 20) I'd like to thank my loyal dog who knows which direction should I go in that dark forest in order to survive. ( )
- 21) Who out there would take care of them? ( )
- 22) Mr. Cook showed us a picture to explain by what means could a dog be used to help the blind. ( )
- 23) It was Prof. Brown who taught me how much could I earn by investing reasonably. ( )
- 24) The little girl's dad always treated her badly. Why the little girl still gave him a wonderful gift? ( )
- 25) Why these men, who had lived in a breeding place of crime, had such a surprisingly good record? ( )

- 26) How soon he is about to become the king? ( )
- 27) Uncle Bob called just now to inform us when he would visit us. ( )
- 28) The girl remembered where was her boyfriend waiting for her. ( )
- 29) Could any of you explain to me why none of you even knew that he had gone?  
( )
- 30) By what time Prof. Oxford will have worked on this project for ten hours without a single break? ( )

## 2. Question formation task

Please read the following sentences. There is an underlined part within each sentence. You need to form a question asking information about the underlined part so that the statement should be the answer to your question. Some of the statements CANNOT be questioned. If you think the underlined part can not be questioned, please tell the reason.

- 1) A precious stone was found by a wise woman who was traveling in the mountains.
- 2) The brutal monster killed my mother because she tried to stop him from killing me.
- 3) I will not answer your questions for I don't know the reason either.
- 4) That many children in the rural areas can not have enough education has become more and more discussed.
- 5) Those who are obedient normally become the followers but those who are creative normally turn to be leaders.

- 6) The mother tiger looked around wildly to see where her babies had been taken.
- 7) My mother decorated the tree with bright white lights and a golden star on the top of the tree.
- 8) If an employee was having a bad day, Michael was there telling the employee how to look on the positive side of the situation.
- 9) My mother handed the boy a sandwich made from thick slices of bread.
- 10) She smiled at the look of amazement on his face.
- 11) He went to the dog and patted it on its head because the dog saved his life.
- 12) That the girl in blue is a genius in language makes us jealous.
- 13) That a dog could read the notice on the wall makes everybody curious.
- 14) You should not mention anything about the burned apple-pie while you're here unless you want her to become a crazy cat.
- 15) There broke out a storm of cheering and stamping in the hall as soon as the exciting news was announced.

## **APPENDIX D**

### **Interview questions**

1. Have you noticed any differences in your performance when you were dealing with wh-questions?
2. What do you think of the teaching method used in the instruction of wh-movement?
3. What do you think is the effect of the instruction in facilitating your performance in making wh-questions?
4. How did you judge that this question was right?
5. Did you notice the difference between ... and ...?



## **CURRICULUM VITAE**

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