The Effects of Study-Abroad: The Acquisition of English Embedded Wh-Questions

by L1 Cantonese Speakers

Chun Long (Giovanni) Ma

Submitted in partial fulfilment of the degree of

Master of Applied Linguistics

School of Languages and Linguistics

The University of Melbourne

Oct 2018
The Effects of Study-Abroad: The Acquisition of English Embedded Wh-Questions

by L1 Cantonese Speakers

Chun Long (Giovanni) Ma
Abstract

Motivated by the growth of study-abroad (SA) population and the various findings in Second Language Acquisition (SLA) literature, this thesis investigates the effect of the SA context on the acquisition of English embedded wh-questions by first-language (L1) Cantonese speakers. 21 (11 at-home, AH and 10 SA) Cantonese learners of English participated in the study. The data was elicited by an oral production task (OPT), a grammaticality judgement task (GJT), a language contact profile (LCP) and an interview. The focus in the OPT and GJT was the inversion error made by the participants in the production and judgement of English embedded wh-questions, while the LCP and interview aim at figuring out the possible factors of the participants’ knowledge of the target feature or the lack thereof. Moreover, the study was also set out to examine the difficulties of different wh-words (what, who, which, when, where, how and why) and whether the argument (what, who, which) – adjunct (when, where, how and why) asymmetry existed.

The results showed no significant difference between the scores of the SA group and the AH group, suggesting that SA does not have a superior effect on the acquisition of L2 syntax. Diverse difficulties of different wh-words and the argument-adjunct asymmetry were found. These findings were discussed in light of the concepts of explicit and implicit knowledge as well as usage-base approaches. The study has pedagogical and theoretical implications.

Keywords: Second Language Acquisition; Study-abroad; Syntax; embedded wh-questions; Cantonese
DECLARATION

I hereby declare that this minor thesis contains no material that has been submitted previously for the award of any other qualification or degree. This thesis is entirely my own work, except where cited or referenced in the text. Any assistance in preparing it has been duly acknowledged.

The length of this thesis, exclusive of tables, references and appendices, is approximately 10,000 words.

Chun Long (Giovanni) Ma
Acknowledgments

About 20 years ago when I was a primary-school student, I was struggling with writing a 50-word diary in English. Today, I have just completed a 13,000-word thesis in English. I would like to show my heartfelt appreciation to the people who have helped me through my study.

First of all, I would like to express my deepest gratitude to my supervisor, Associate Professor Carsten Röver, for his incredible level of patience (replying to my endless and random emails!), immense support and insightful comments throughout this research project. Without his guidance, this thesis would not have been completed. I am also indebted to all of the participants. Likewise, without their participation, it would have been impossible to complete this thesis.

Thanks also go to the teachers whose teaching and class and ideas contributed to this thesis in many different ways, which may not even be perceivable by them. I would like to thank my secondary school English teacher, Ina, without whom I would not even have known what SVO is; Dr. Brett Baker and Professor Lesley Stirling, for their inspirational and exciting (yeah I know many of my friends will say I’m a weirdo…such as Leo Szeto and Scarlett Ng!) syntax and semantics class; Dr. Peter Hurst, for answering my questions about syntax; Dr. Kellie Frost, for her SLA class and feedback on my final essay, which makes up an important part of this thesis; and Dr. Janne Morton, for her academic writing class from which I learned a lot.
I also owe a very important debt to my Master of Applied Linguistics cohort at the University of Melbourne, especially Earn Saemmuk, Kenny Aticharttanin, Ikuna Yagi, Seira, Tammy Chiang and Vina Darissurayya. I appreciate their help and support throughout the Masters’ program and also their patience while being bombarded by my endless inquiries. I am also deeply grateful to Eitan Ritz and Vincent Murphy for answering my random native-judgement questions and syntax questions. And of course, thanks to all of them for having nights out with me so that I could relax!

Special thanks to my idols: Zach Lu, whose TV shows have accompanied me for many nights in this year (I’d also like to thank him for his name, since I used it in two of my instruments!); Brian Jagde, for his inspiring singing which has always motivated me; Giacomo Puccini and Richard Wagner, for their inspirational and extraordinary operas, which have also accompanied me pretty much every day. Without their music, I would have been demotivated and enervated.

Finally, I would like to thank my family: my parents, my grandmothers and my late grandpa and uncle (I’m sure that they would be proud of me). Without their support, both emotional and financial, I would not have been able to study overseas. I would particularly like to thank my partner Rocco Calabro, who has constantly motivated me to work on this thesis until 4 am, for his unflagging love and support.

May the force be with you all.
# Table of Contents

**Chapter 1: Introduction**

Chapter 2: Syntactic Background

2.1. Introduction

2.2. Syntactic Description of English Main Wh-Questions

2.3. Syntactic Description of English Embedded Wh-Questions

2.4. Cantonese Wh-Questions Formation

**Chapter 3: Study Abroad and L2 Syntax Acquisition**

3.1. Introduction

3.2. Context of the Study: Learning Contexts in SLA and SA

3.3. SA and L2 Syntax/Grammar

3.4. SLA Research in English Embedded Wh-Questions

3.5. Gaps in the literature

3.6. Research Questions

**Chapter 4: Methodology**

4.1. Participants

4.2. Instruments

4.2.1. C-Tests

4.2.2. Language Contact Profile

4.2.3. Oral Production Task

4.2.4. Grammaticality Judgment Task

4.2.5. Interview

4.3. Procedure

4.4. Pilot Study I

4.5. Pilot Study II

**Chapter 5: Results**

**Chapter 6: Discussion**

6.1. Research Question 1: The Effect of Study Abroad

6.2. Research Question 2: The Types of Wh-Words

6.3. Research Question 3: The Argument-Adjunct Asymmetry

**Chapter 7: Conclusion**
7.1. A Summary of the Study..........................................................52
7.2. Limitations............................................................................52
7.3. Implications............................................................................53
7.4. Directions for Future Research............................................54

References..................................................................................56

Appendix A..................................................................................73
Appendix B..................................................................................74
Appendix C..................................................................................76
Appendix D..................................................................................79
Appendix E..................................................................................82
List of Tables

Table 1. Comparison between the Structures of English and Cantonese Wh-Questions..................................................................................................................11

Table 2. Mean Scores of the Productive Task..........................................................31

Table 3. Mean Scores of the Receptive Task..............................................................32

Table 4. Mean Scores of the Productive Totals.........................................................33

Table 5. Means Scores of the Receptive Totals.........................................................34

Table 6. The Difficulties of Different Types of Wh-words (Productive Task).........34

Table 7. The Difficulties of Different Types of Wh-words (Receptive Task)............34

Table 8. Mean Scores of the Argument-Questions and Adjunct-Questions..............35
List of Diagrams

Diagram 1. Tree representation of ‘what was Zach reading?’ ……………………………………….5
Diagram 2. Tree Representation of ‘who is she pushing?’ ………………………………………….49
Diagram 3. Tree Representation of ‘why is she smiling?’ ………………………………………….49
Diagram 4. Possible IP Adjunction…………………………………………………………………….49
Chapter 1

Introduction

It is commonly believed that the best way to study a second language (L2) is to live, or even to study in a country where this language is spoken. As Sanz (2014, p.1) points out, “while abroad, learners imbibe the language, soak it in, they feel like sponges, they are surrounded covered with language, their brains saturated.” Approaches to Second Language Acquisition (SLA) also seem to favor this common belief, owing to their emphasis on the importance of input and opportunities of interacting between native speakers (NSs), which are provided copiously in a study-abroad (SA) context. Yet, does empirical evidence also support such common belief? If it does, what are the reasons for the linguistic gains? If it does not, what do the findings mean to SLA theories?

This study is, therefore, set out to examine the potential effect of SA on second language (L2) acquisition and compare it with that of the context of At-Home (AH). In particular, by using empirical evidence gleaned from 21 first language (L1) Cantonese learners of English by an oral production task (OPT) and a grammaticality judgement task (GJT), it looks at whether the SA experience will result in L2 syntactic gain. The target syntactic structure under investigation in this study is English embedded wh-questions (e.g. Zach forgot what he did yesterday). The aim of the study is threefold. First, it seeks to enrich the empirical evidence for the SA literature regarding L2 syntax. Second, it discusses the findings in light of SLA concepts such as implicit/explicit knowledge and usage-based approaches, and also theoretical linguistic notions. Third, it attempts to provide pedagogical implications to English as a Second Language (ESL) practitioners as well as policy-makers in non-English-speaking countries, which could ameliorate L2 learners’ non-nativelike English.
The study is structured as follows. Chapter 2 provides a syntactic description on the target feature; Chapter 3 reviews related literature regarding the effect of SA on L2 acquisition (with a focus on L2 syntax), L2 acquisition on English embedded wh-questions and related SLA concepts; Chapter 4 introduces the methodology used in this study; Chapter 5 presents the results of the study; Chapter 6 discusses of the results in light of the findings of prior scholarship as well as SLA and theoretical linguistic theories; Chapter 7 concludes the study with addressing its limitations and implications of the study. The directions for future research will also be outlined.
Chapter 2
Syntactic Background

2.1 Introduction

This chapter provides a syntactic description of English *wh*-questions, focusing on the difference between main *wh*-questions (e.g., what was Zach reading?) and embedded *wh*-questions (e.g., I didn’t know *what Zach was reading*). This description is based on principles-and-parameters (P&P) theory, government-and-binding (GB) theory and the minimalist program (e.g., Carnie, 2013; Chomsky, 1977, 2015; Haegeman, 1994; Radford, 1997). The difference between the formations of *wh*-questions in English and Cantonese will also be addressed, in order to show the potential difficulty that Cantonese learners of English may face.

2.2. Syntactic Description of English Main Wh-Questions

*Wh*-questions, as suggested by the name, are questions that contain *wh*-words (e.g., *what*, *who*, *which*, *when*, *why*, *where*, and *how*). *Wh*-questions are different to declarative sentences in terms of the word order. For example:

1a. Zach was reading a syntax textbook. (declarative)

1b. *What* was Zach reading? (*wh*-question)

Two observations can be made from sentence 1a and 1b. First, the object of *read* in 1a, i.e., *[a syntax textbook]*, is replaced by *what*, which then moves to the initial position of 1b. Second, the order of the subject ([Zach]) and the auxiliary (*was*) in 1a (Zach was…) is different to that in 1b (…was Zach…). In the generative literature the movement of *what* in 1b is called *wh*-movement (Chomsky, 1977). In Chomskyan
frameworks (Chomsky, 2015; Radford, 1997), a \textit{wh}-phrase is said to move to the specifier (Spec) of the complementizer phrase (CP) ([Spec, CP]). \textit{Wh}-movement results in another movement: the movement of the auxiliary, which is commonly known as subject-auxiliary inversion (subj-aux inversion) (Haegeman, 1994), or more technically, T(ense)-to-C(omplementiser) movement (aka I(nflection)-to-C movement), because the auxiliary that occupies the T (I) node will move to the C node (Carnie, 2013; Radford, 1997). 2a (rewritten from 1b) illustrates these movements. The little \textit{t} is the trace left behind after the elements move:

2a. \([CP\ \textit{What} \_t\ \text{was}_t\ \text{Zach}_t\ \text{reading}_t\ ?]\)

Apart from an auxiliary, a T node can also be occupied by a modal, a finite (tensed) copula or an expletive \textit{do} (Hawkins, 2001). For instance:

3a. What instruments \textbf{can} Zach play? (modal)
3b. Why \textbf{is} Zach sad? (finite copula)
3c. Which book \textbf{does} Zach like? (expletive do)

All the words highlighted above must also undergo T-to-C movement in English main \textit{wh}-questions (In the case of \textit{do}, \textit{does} or \textit{did}, it is inserted into the C node rather than moving there. There is no \textit{does} in its declarative version: ‘Zach likes Syntactic Structure.’ The insertion of \textit{do} (and its variants) is called by Chomsky (2015) as the \textbf{last resort}). In any case, the C node has to be filled, be it an auxiliary, a modal, a finite copula or a dummy \textit{do}. 
What, then, trigger these movements? Albeit no unanimous answers, several proposals have been put forward by generative syntacticians. A commonly accepted proposal is that *wh*-movement and T-to-C movement are triggered by two abstract features, namely [+WH] and [+Q] respectively (Carnie, 2013; Rizzi, 1996; Ilc and Sheppard, 2002). López (2015), from the perspective of formal semantics, proposes that the function of *wh*-movement and T-to-C movement is to alter the semantic structure of a declarative sentence. More specifically, a fronting *wh*-phrase turns a proposition into a predicate. A syntax tree for 2a is shown below to illustrate the movements, where the features reside in and all the nodes and phrases mentioned before:

Diagram 1. Tree representation of ‘*what was Zach reading?*’ (D-structure)
As illustrated, the \textit{wh}-phrase and the word which occupies the T node, in this case, \textit{what} and \textit{was}, move to the higher positions to ‘check’ the features \([+\text{WH}]\) and \([+\text{Q}]\). Using Radford’s (1997) metaphor, \textit{was} is lured to the C node in a \textit{wh}-question by virtue of the power of the strong C node in Modern Standard English. If the C is strong, it has to be filled. A weak C node in \textit{wh}-questions in other languages, on the other hand, does not need to be filled. This will result in the lack of T-to-C movement. As for \textit{wh}-movement, Ilc and Sheppard (2002) offer a similar proposal by distinguishing the strong/weak \([+\text{WH}]\) feature. \textit{Wh}-movement is only applied when \([+\text{WH}]\) is strong. When \([+\text{WH}]\) is weak, there will only be a covert \textit{wh}-movement, which is not shown in the overt syntax of the question, resulting in \textit{wh}-in-situ.

2.3. \textit{Syntactic Description of English Embedded Wh-Questions}

English embedded \textit{wh}-questions display another configuration. Consider 4a and 4b:

\begin{itemize}
  \item 4a. \([\text{CP}_1 \text{I knew } \text{[CP}_2 \text{what}_i \text{Zach was reading } t_i]]\).
  \item 4b. \([\text{CP}_1^* \text{I knew } \text{[CP}_2 \text{what}_i \text{was}_k \text{Zach } t_k \text{reading } t_i]]\).
\end{itemize}

Note that English embedded \textit{wh}-questions, similar to the main counterparts, display \textit{wh}-movement, as shown in 4a. This is reflected by the fact that \textit{what} is in the initial position of the embedded clause (CP2), instead being in the object position, i.e., after the verb \textit{reading}. Unlike main \textit{wh}-questions, however, T-to-C movement does not occur in 4a, as shown by the order of ‘subj-aux’ (…Zach was…) but not ‘aux-subj’. If there is T-to-C movement in embedded \textit{wh}-questions, the questions will be
ungrammatical (e.g., 4b). The question, then, is why embedded wh-questions do not involve T-to-C movement?

Several proposals have been put forward to answer this question. A commonly accepted proposal (e.g., Carnie, 2013; Ilc & Sheppard, 2002) is that the lack of T-to-C movement in embedded wh-questions is due to the feature [-Q] in C. As a result, the word in the T node does not need to move up to ‘check’ the feature. Another proposal, namely the *Doubly Filled COMP Filter*, is perhaps less abstract. The *Doubly Filled COMP Filter* states that an overt wh-phrase and an overt complementizer cannot co-occur in an embedded clause (Pesetsky, 2016). Therefore, in Modern Standard English, 5a is banned due to the co-occurrence of who and if, which violates the *Doubly Filled COMP Filter* (Bayer and Brandner, 2008; Chomsky, 2015):

5a. *[CP1 I wonder [CP2 who, if [TP Zach will marry t]]]
5b. [CP1 I wonder [CP2 who, Zach will marry t]]

The deletion of the complementizer if is needed to make 5a grammatical. Alternatively, the complementizer if can be kept when there is no wh-movement:

5c. [CP1 I wonder [CP2 if Zach will marry Giovanni]] (no wh-movement)

As shown, in the context of embedded clauses, it seems that an overt complementizer and a fronted wh-phrase are not compatible. Since embedded wh-questions, by definition, involve wh-movement (at least in English), this observation explains why there is no T-to-C movement in English embedded wh-questions.
2.4 Cantonese Wh-Questions Formation

Different to English, Cantonese is a *wh*-in-situ language (Law, 2001; Matthews and Yip, 2011), which means that *wh*-phrases in Cantonese do not move to the sentence-initial position like those in English do. Rather, they stay in their base-generated positions. This is apparent because the subject is in the initial position of a question, instead of a *wh*-phrase. For example:

6a. 佢 會 鐘意 達個?
keoi5 wui5 zung1ji3 bin1go3
S/He *would* love *who*?
(cf. *who would* s/he love?)

As mentioned, *wh*-in-situ is due to a weak [+WH] (Ilc & Sheppard, 2002). The *wh*-phrases therefore do not need to move to the [Spec, CP] to check the feature in Cantonese. Moreover, Cantonese does not employ T-to-C movement (subj-aux inversion) (Kuong, 2008). This is shown by the fact that the subject in 6a (佢(s/he)) precedes the auxiliary (會(would)). According to the analysis above, Cantonese is said to have a weak C node and therefore it does not need to be filled. This is why there is no T-to-C movement in Cantonese.

Cantonese embedded *wh*-questions show exactly the same syntactic configuration as their main counterparts, which means that no *wh*-movement nor T-to-C movement is in such construction. For instance:
As shown, the only difference of embedded *wh*-questions between English and Cantonese is that the *wh*-phrase in English still undergoes *wh*-movement, moving to the Spec of the embedded clause; whereas they remain in-situ in Cantonese. Both English and Cantonese do not apply T-to-C movement in embedded *wh*-questions.

The only special case is *why*-questions. For *why*-questions (both main and embedded) in Cantonese, *why* does occupy the initial position of the question, i.e., [Spec, CP]. For example:

8a. 點解 佢 會 係度
dim2gaai2 keoi5 wui5 hai6dou6
Why s/he would here
“*why* is s/he here?”

8b. 我唔知 [CP2點解 佢 會 係度]
ngo5 ng4zi1 dim2gaai2 keoi5 wui5 hai6dou6
I Neg-know [CP2 Why s/he would here]
(cf. I don’t know [CP2 *why* s/he is here])
Some scholars who focus on Mandarin (e.g., Ko, 2005; Lin, 1992) have argued that why is base-generated at the [Spec, CP], instead of moving there from a lower position. Since Mandarin and Cantonese are identical in terms of the formation of why-questions, hence, it is also appropriate to apply the same argument to Cantonese.

Table 1. summarizes wh-movement and T-to-C movement under different wh-question types in English and Cantonese.

Due to the structural difference between English and Cantonese wh-questions, Cantonese learners of English may have difficulty in acquiring English wh-questions. Logically, the errors can be categorized into two types. First, Cantonese learners produce non-inverted English main and embedded wh-questions. This is likely due to L1 transfer since Cantonese wh-questions are always non-inverted. Second, they can produce nativelike inverted English main wh-questions, but they also produce inverted embedded wh-questions. This may be due to overgeneralization. The next chapter will discuss the studies on L2 learners’ errors of English wh-questions in detail, alongside other related literature in SA and L2 syntax.
Table 1.

*Comparison between the Structures of English and Cantonese Wh-Questions*

<table>
<thead>
<tr>
<th></th>
<th>Wh-movement</th>
<th>T-to-C movement</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Main wh-questions</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>English</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Cantonese</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td><strong>Embedded wh-questions</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>English</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Cantonese</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>
Chapter 3

Study-Abroad and L2 Syntax Acquisition

3.1 Introduction

This chapter begins with providing the context which the present study situates at, focusing on the relationship of SLA and learning contexts, specifically the SA context. The body of research regarding the effects of SA on L2 syntax/grammar will then be discussed, followed by a review of general SLA research on English embedded wh-questions. The potential reasons for the effect of SA will also be addressed. The chapter ends with stating some gaps in the literature which motivate the current study.

3.2 Context of the Study: Learning Contexts in SLA and SA

Learning contexts are an important factor in L2 acquisition. They can be formal classroom settings in which teachers teach students the L2 grammatical rules, or countries where the target L2 is spoken, i.e., naturalistic contexts. The input offered by these two context differs in quantity and quality (Pérez-Vidal, 2015). Specifically, naturalistic contexts provide ample opportunities for informal and implicit learning by means of observing and engaging in the L2 (Housen, Schoonjans, Janssens, Welcomme, Schoonheere and Pierrard, 2011), whereas classroom settings provide externally manipulated input which allows L2 learners to be aware of the rules of the L2 (Ellis, 1989; Housen et al., 2011). Scholars therefore surmise that different learning contexts will have different effects on L2 acquisition (Howard, 2011). Examining these effects is then one of the central issues in SLA (Doughty and Long, 2003). Among different learning contexts, the SA context has particularly intrigued SLA scholars.

There is a common belief among language teachers, students, policy makers and parents that the SA experience is beneficial for L2 learning (Freed, 1998; McCormick,
2018; Sanz and Morales-Front, 2018), because it is purported to be able to stimulate L2 acquisition better than formal classroom settings does (Collentine and Freed, 2004; Pérez-Vidal and Juan-Garau, 2011). However, this belief lacks empirical data to support (Freed, 1994). A number of scholars (e.g., Diao, Freed and Smith, 2011; DeKeyser, 2010; Wilkinson, 1998) have in fact speculated that despite the *prima facie* benefits of SA, the SA experience may not be as constructive to L2 learners as people commonly believe. Consequently, researchers are interested in asking why such common belief has gained its place, figuring out what impacts, if any, the SA context indeed has on L2 acquisition, and providing empirical data to such their claims (Howard, 2005).

The SA context is believed to be valuable for L2 learning because it provides a “large amount of authentic input and interaction with native speakers” (Magnan and Lafford, 2012, p.525). Input and interaction are two vital elements for L2 learning according to various SLA theories, such as Input Hypothesis (Krashen, 1977, 1980) and Interaction Hypothesis (Long, 1980, 1981, 1996). Krashen (1977, 1980), for instance, argues that comprehensible input, i.e., input that is “slightly above the learner's current level of proficiency” (Mackey, Abbuhl and Gass, 2012, p.7), drives L2 acquisition. Long (1980, 1981, 1996) further argues that in addition to comprehensible input, interactions between native speakers and L2 learners which are modified through two parties’ negotiations in order to fit the learners’ level are also crucial to L2 acquisition. The characteristics of the SA context presented above is the reason why such common belief existed. However, as mentioned, this popular belief is anecdotal in nature. What does SA research tell us?

The literature in SA has examined various facets of L2 learners’ linguistic repertoire, including oral and listening proficiency (e.g., Conroy, 2018), phonological
development (e.g., Avello and Lara, 2014), pragmatics (e.g., Hassall, 2015; Shively, 2016), L2 writing (e.g., Sasaki, Mizumoto and Murakami, 2018), and morphosyntax/grammar (e.g., Arnett, 2013; Collentine, 2004, 2010; DeKeyser, 1990; Howard, 2005, 2008; Isabelli, 2004, 2007; Isabelli-García, 2010; Isabelli-García and Lacorte, 2016; Leonard and Shea, 2017; Llanes and Muñoz, 2009; Pavesi, 1986; Pozzi, 2017; Rothman and Iverson, 2007a, 2007b; Schenker, 2018; Serrano, Tragant and Llanes, 2012; Torres, 2003; Zhao, 2012). The literature, however, does not unequivocally report a positive effect of SA. While a considerable body of research does indeed reports significant gains found in the SA students (to be discussed below), some studies, yet, find no comparative advantage of studying abroad over studying at-home (e.g., Arnett, 2013; Avello and Lara, 2014; Collentine, 2004; DeKeyser, 1990; Isabelli-García, 2010; Pavesi, 1986; Rothman and Iverson, 2007b; Torres, 2003). The latter finding is valuable as they lend support for the rebuttal of the common belief about the superior effect of the SA context over the AH context.

A possible reason for the conflicting findings in the SA literature is that despite studying abroad, some L2 learners in fact did not avail themselves of the opportunities offered by the SA context, such as the opportunities to interact with native speakers. It is, therefore, important to quantify the input L2 learners received while studying abroad. However, this quantification can be difficult. To this end, researchers commonly use questionnaires such as Language Contact Profile (LCP, Freed, Dewey, Segalowitz and Halter, 2004) to gather data from L2 learners, such as the estimated hours spent on watching English TV shows, listening to English radio, communicating with friends, classmates and teachers in English, etc.. However, this kind of tool suffers from several limitations. For example, its self-reported nature may reduce its validity. Apart from the quantity of input, a number of studies also indicate that learners’
individual variables (Freed, 1998) play an important part in whether gains can be made after SA sojourns. The variables which have examined in the literature include motivation and learning beliefs (e.g., Sanz, 2014; Trenchs-Parera and Juan-Garau, 2014), attitudes (e.g., Geeslin and Schmidt, 2018; Llanes, Tragant and Serrano, 2012) and working memory capacity (e.g., Grey, Cox, Serafini and Sanz, 2015). Llanes et al. (2012), for example, demonstrate that SA learners’ personal positive orientation impacts their L2 writing. These studies seem to suggest that the linguistic gains found in the SA students are due to the synergy between the SA context and individual variables. Merely studying abroad may not guarantee any improvements of one’s language ability.

The question of whether or not the SA context has an effect on L2 acquisition also sheds light on several SLA concepts such as explicit/implicit knowledge. Roechr-Brackin (2015, p.118) defines the former as “knowledge that is represented declaratively, can be brought into awareness and can be verbalized,” while the latter as “knowledge that cannot be brought into awareness or articulated.” The characteristic nature of the SA context is, by definition, its prevalence of naturalistic input, which mostly results in implicit knowledge (DeKeyser, 2003). The findings from SA research can, hence, enrich the research in implicit knowledge.

Regardless, after decades of endeavor since 1960s (Carroll, 1967), the field of SA “is a well-established domain of enquiry in applied linguistics” (Beaven and Borghetti, 2016, p.313) now. The rapid increase in SA research is motivated by the greatly expanding number of SA students (Jackson, 2013). Within the large volume of SA research, L2 grammar and syntax is an area which yields an increasingly expanding body of research.
3.3 SA and L2 Syntax/Grammar

The question of whether the SA experience is beneficial to the L2 syntax/grammar acquisition has aroused debate in the field (Marijuan and Sanz, 2017), which is also the motivation behind the present study. The body of SA research on L2 syntax/grammar yields varying, even contradictory findings.

Most SA studies on L2 syntax/grammar focus on French and Spanish (Churchill and DuFon, 2006), followed by some other European languages such as German (e.g., Arnett, 2013). A number of specific syntactic features, such as subject-verb inversion and verb agreement (Marques-Pascual, 2011), null-subject parameter (Isabelli, 2001), aspect-marking (Schell, 2000), auxiliaries (Arnett, 2013), word order and number and gender agreement (Grey et al., 2015) have been examined in the literature. Apart from specific syntactic features, scholars are also interested in investigating the ‘global’, i.e., overall syntactic/grammatical ability (e.g., Longcope, 2003; Schenker, 2018; Serrano et al., 2012). Similar to SA research in other linguistic facets, the findings of the SA studies on L2 syntax/grammar are mixed. The studies which find that syntactic gains occurred after SA sojourns usually attribute the syntactic gains to the large amount of exposure (e.g., Collentine, 2009; Marques-Pascual, 2011); while the studies which find no gains or comparative advantages explain the findings with the fact that classroom instruction is sufficient for learners to produce nativelike syntax (e.g., Collentine, 2004; Rothman & Iverson, 2007a, 2007b). Moreover, it is also argued that the SA experience is not effectual for advanced L2 learners (e.g., Alarcón, 2006; Isabelli-García, 2010).

syntactic complexity, Juan-Garau et al. (2014) find that the SA context was beneficial for L2 learners’ lexico-grammatical development, as shown by the scores of a cloze test and a sentence rephrasing test. The findings, however, also suggest that the effect of formal instruction is comparable to that of the SA context. As for specific syntactic features, Isabelli (2001), for example, examines the syntactic development of 31 American learners of Spanish in a year-long SA program, focusing on three syntactic features: Null-Subject, verb-subject inversion and *that*-trace filter violations. Isabelli finds a significant improvement in the participants’ performance on verb-subject inversion and *that*-trace filter. The study, however, does not compare the data of the SA group with that of an AH group. Therefore, the causality between SA and the syntactic gains remains unclear. Howard’s (2005) study on Irish learners of French, similarly, finds that the SA participants marked past time with the past-time forms (*passé composé* and *imparfait*) to a larger extent than the AH group did. The study, yet, also finds that the contextual knowledge of the marking of past time in French is similar in both groups, which means that the participants only marked past time in certain contexts while ignoring others, irrespective of the learning environments. A recent study by Sagarra and LaBrozzi (2018) uncovers that the SA participants had a higher sensitivity to morphosyntactic errors than the AH participants had, which suggests learners’ syntactic gains might be attributed to the improvement in their cognitive system.

A possible framework that can explain the positive effect of SA on L2 acquisition reported in the studies discussed above is usage-based approaches. Usage-based approaches are experience-based (Ellis, 2013). These approaches argue that languages are constituted by many ‘basic units’, i.e., constructions, which are form (e.g., morphological: -s in English; syntactic: subj-aux inversion in English)-function
(plurality and interrogatives) mappings. Learners learn constructions via communication, whereby they generalize the exemplars and abstract regularities from them (Ellis, 2015). Furthermore, the frequency of the constructions plays a significant role in L2 learning (Kemmer and Barlow, 2000). A high frequency of input of a linguistics construction results in what Langacker (1987) called ‘entrenchment’. As Ellis and Wulff (2015, p.77) explain, “the more often a speaker encounters a particular construction, or combination of constructions, in the input, the more entrenched that (arrangement of) constructions become.” The rich naturalistic input provided by the SA context may indicate that the input frequency of the target features will be higher than that offered by the AH context, and hence the positive effect on L2 acquisition was found in these studies.

Other scholars, on the other hand, hold an opposite view. VanPatten (2011), for instance, describes syntax as “stubborn” in the sense that it is hardly affected by explicit instructions: “it resists direct external manipulation in the form of explicit teaching and learning” (p.19). In the early days of SLA research, Krashen (1981) also claimed that the role of explicit knowledge in L2 learning is insignificant. Based on the arguments made by these studies, the present study hence will explain the findings through the lens of implicit/explicit knowledge.

Other studies (e.g., Arnett, 2013; Collentine, 2004; DeKeyser, 1986, 1991; Isabelli-García, 2010; Rothman & Iverson, 2007a, 2007b), yet, yield an opposite result. Arnett’s (2013) study on the use of German auxiliary and case marking (accusative and dative) by L1 English speakers, for instance, finds that the AH participants’ performance was comparable with that of the SA participants. In other words, no superior effect of SA can be found. The results reveal improvements in the use of and the correct use of the target features in both SA and AH groups. No statistical
significance can be found in the difference of two groups’ performance. Arnett, however, also points out that the SA group produced much more ditransitive clauses than the AH group did, which suggests that SA might have certain positive effects on L2 grammar, albeit very elusive. Rothman and Iverson (2007a), taking the perspective of Universal Grammar (UG), argue that naturalistic input offered by an SA context only plays a minor role, if any, in the Null-subject parameter setting. Instead, L2 input from a classroom setting itself is sufficient for the resetting. Also note that the participants in these studies usually only had a short period of SA experience (e.g., Arnett, 2013, 12 weeks; Collentine, 2004, a semester; DeKeyser, 1991, one semester; Rothman and Iverson, 2007a, 1 month). This is, yet, not a clear-cut dichotomy. For example, Juan-Garau et al. (2014) find a positive effect of SA despite a three-month SA program.

Moreover, mixed findings in a single study have also been reported (e.g., Grey et al., 2015; Llanes and Muñoz, 2013). Grey et al., (2015), for example, report that the SA experience has a positive effect on the acquisition of word order and number agreement based on the results obtained from GJT; no effect, however, was found on gender agreement. In sum, SA studies generally report that the SA seems beneficial for the acquisition of abstract-level syntactic features, which echoes Collentine’s (2004) observation.

Despite the large volume of SA research on L2 syntax/grammar, a syntactic feature which has attracted SLA scholars’ interest, namely embedded wh-questions, is neglected.

3.4 SLA Research in English Embedded Wh-Questions

Broadly speaking, wh-questions (both main and embedded) are a crucial topic in language acquisition because of its salience in theoretical linguistics (Roeper and
DeVilliers, 2011). A number of SLA studies on English main *wh*-questions have been carried out (e.g., Eskildsen, 2015; Klima & Bellugi, 1966; Lee, 2008). Embedded *wh*-questions are, however, by far understudied despite their importance in SLA (Pozzan, 2011).

Although the number of studies with respect to English embedded *wh*-questions is limited, L2 learners’ errors are still consistently reported (e.g., Bley-Vroman, 1997; Finnegans, 1999; Pozzan, 2011; Pozzan and Quirk, 2014). Their errors are instantiated as an unnecessary subj-aux inversion (T-to-C movement) in the embedded clause (e.g., “*Do you know what is she doing today?” Pozzan & Quirk, 2014, p.1056). Compared to adult L1 English speakers who rarely make such errors (Pozzan & Valian, 2017), the persistent errors in L2 adult English learners have aroused scholars’ interest. Some factors of such error have been put forward in the literature, including first language (L1) transfer (e.g., Zobl, 1995) and overgeneralization of the rule of main *wh*-questions to embedded *wh*-questions (e.g., Pozzan, 2011). Still, little is known about what the main contributing factors to the L2 learners’ errors are, and also under what circumstances L2 learners’ understanding and use of English embedded *wh*-questions may be improved.

Pozzan (2011) is a comprehensive study on L2 acquisition of English *wh*-questions. 88 Chinese/Spanish learners of English were examined. Two production tasks and a grammaticality judgement task were used. With respect to English embedded *wh*-questions, error rates of 12.4% (Chinese learners) and 13.9% (Spanish learners) have been reported for the oral production in the study. Regarding the types of *wh*-words, the Chinese participants scored highest in *why*-questions and lowest in *who*-questions, whereas Spanish participants scored highest in *what*-questions and lowest in *who*-questions. The study argues that argument-adjunct asymmetry does not
exist in the participants’ interlanguage. In other words, the inversion rates of argument-questions \((what, who, which)\) were not higher than the inversion rates of adjunct-questions \((when, where, how, why)\). Pozzan attributes L2 learners’ errors of English embedded \(wh\)-questions to overgeneralization. L1 transfer, on the other hand, is not deemed by Pozzan as the factor because Chinese is a \(wh\)-in-situ language, therefore Chinese learners of English would have produced non-inverted English embedded \(wh\)-questions if L1 transfer did play a role in L2 acquisition. The study, however, overlooks the possible influence of learning environments on the acquisition of the target feature.

Similarly, Pozzan and Quirk (2014) also argue that L2 learners’ production of English \(wh\)-questions cannot be predicted by their L1s. They find that Chinese learners produced inverted main \(wh\)-questions more accurately than Spanish learners did despite the fact that Chinese is a \(wh\)-in-situ language and Spanish is not. This suggests that L1 transfer played no role in L2 acquisition of English \(wh\)-questions, echoing Pozzan (2011). Furthermore, Pozzan and Quirk find that the length of residence (LoR) had no effect on L2 acquisition.

As revealed by the review above, no attempt has been made to link the potential effects of the SA context with the acquisition of English embedded \(wh\)-questions. The fact that the SA context may have a positive effect on L2 grammar/syntax acquisition provides a rationale for the present study.

### 3.5 Gaps in the literature

Notwithstanding the plethora of studies discussed in the review above, a number of gaps can still be identified. First, SA studies on L2 syntax/grammar usually investigate participants’ holistic scores only (Collentine and Freed, 2004). Similarly, many SA studies focus on learners’ ‘global’ ability such as syntactic complexity (e.g.,
Lennon, 1990; Leonard and Shea, 2017; Llanes & Muñoz, 2013; Llanes & Serrano, 2017; Longcope, 2003; Serrano et al., 2012). Specific abstract syntactic features are comparatively less-studied in the literature. As Howard and Schwieter (2018) point out, holistic scores and investigations of general syntactic complexity cannot reflect the development of specific linguistic features. The paucity of studies that explore particular syntactic features limits scholars’ understanding of L2 development, which has been widely described as chaotic and nonlinear (Lowie, 2013). In fact, scholars (e.g., Coleman, 1998; Howard, 2005) have been calling for investigations of specific grammatical features instead of learners’ general grammatical ability.

Second, the countries and languages examined in SA research are limited. Many SA studies to date focus on the context of the US. Specifically, they focus on US students who learnt French and Spanish as L2s (Collentine, 2009; Howard and Schwieter, 2018). Although some studies touch on other contexts such as Egypt (Arabic. Trentman, 2017) and China (Mandarin. Wright, 2018), in general the context of Asia-Pacific is by far out of researchers’ attention. To the researcher’s knowledge, there is only one study which is based on the context of Pacific (Australian learners of French who participated in an SA program in New Caledonia. de Saint-Léger and Mullan, 2018). Given the population and the number of international students from this area, it is indispensable to explore this context.

Third, SA researchers (e.g., Marqués-Pascual, 2011) usually fail in synthesizing the findings of the SA studies with the SLA theories presented above. Specifically, they usually simply attribute the linguistic gains to the larger exposure that the students received during staying abroad. No further discussion of the relationship between these gains and existing SLA approaches can be found. This diminishes the power of the arguments in the SA studies, on one hand, and, on the other hand, deprives scholars of
the chance of offering empirical evidence to the SLA theories. Although in essence the idea of usage-based approaches is the cornerstone of the SA research (McCormick, 2018), an in-depth discussion of the link between the syntactic gains and SLA theories is still needed.

Fourth, the previous SA studies are impaired by the methodology that they used. Two methodological drawbacks can be observed in the literature. The first one is that examinations of a long-term SA experience are wanting in the majority of SA studies. In the literature, SA usually refers to transiently studying the L2 in a place where the L2 is spoken (Collentine and Freed, 2004). Examining the effects of a short-term SA experience is thus the main focus in the literature. Yet, to some extent, it circumscribes the understanding of the effects of a longer term of SA experience, which is also of some scholars’ interest (e.g., Taguchi, 2011). Students who study abroad for an entire degree, rather than part of their degree, are particularly overlooked in the literature. Another methodological limitation is that while numerous SA studies have adopted GJTs and various forms of OPTs such as storytelling, very few of them have used tasks together. Considering the asymmetry between L2 learners’ receptive and productive knowledge of grammar has been widely documented (Buyl and Housen, 2015), probing both types of L2 learners’ knowledge of English embedded *wh*-questions should be encouraged.

Fifth, the target feature in the present study, English embedded *wh*-questions, is relatively overlooked in SLA research (Pozzan, 2011). There is only a dearth of studies focusing on embedded *wh*-questions, as discussed in the review above. Furthermore, scholars neglect the potential effects of the SA context on the acquisition of English embedded *wh*-questions.
Lastly, research on the influence of the types of wh-words on the acquisition of embedded wh-questions is limited. In the literature on L1 English acquisition, scholars propose that wh-arguments (what, which, who) are associated with higher inversion rates than wh-adjuncts (when, why, how) are (e.g., DeVilliers, 1991; Stromswold, 1990. Known as argument-adjunct asymmetry). This asymmetry, however, is underexplored in the SLA research in embedded wh-questions (but see Pozzan, 2011). This is perhaps due to the scarcity of the literature. Besides, Thornton (2008) also observes that why-questions are associated with a low inversion rate in general, compared to other types of wh-questions. This is known as why-effect. It is crucial to examine whether these features can be found in embedded wh-questions.

3.6. Research Questions

In view of these gaps, the present study aims at investigating the relationship between SA and the L2 acquisition of English embedded wh-questions by means of a GTJ and an OPT, which are supplemented by an LCP and an interview. The participants were Cantonese learners of English. The SA group included those who had studied or were currently studying in Australia or the U.S. with more than one year of LoR. It also examines whether argument-adjunct asymmetry can be found in the participants’ answers. Specifically, the present study addresses the following research questions:

RQ1: Does the SA experience have a positive effect on the acquisition of English embedded wh-questions?
RQ2: Does different wh-words have different difficulty?
RQ3: Can argument-adjunct asymmetry be found in the participants’ oral production and grammatical judgement?
Chapter 4
Methodology

4.1 Participants

A total of 21 participants (age = 18 to 30. M = 8; F = 13. AH = 11; SA = 10) participated in the present study. Only those who had stayed in an English-speaking country (Australia or The U.S.) for more than 1 year were categorized into the SA group. All SA participants were staying in the target country while the research was conducted, except one of them who was living in Hong Kong and had studied in the U.S. for one year around 10 years ago. Most of the AH participants were in Hong Kong at the time the research was conducted.

The participants were recruited through the MyUniMelb notice board (Appendix A) and the researcher’s personal social network. They were divided into two groups, the SA group and the AH group, based on where they received education at the time this study was conducted. All participants were native Cantonese speakers and had finished primary and secondary education in a non-English-speaking country (China, Hong Kong, Macau or Malaysia). What makes the two groups different is where the participants received their higher education. The SA group was studying at one of the Australian universities at the time the study was conducted for more than 1 year (average duration = 2.7 years. One of the SA participants studied for around a year in the U.S. for her high school, instead of studying at an Australian university); whereas the AH group was studying/had studied at one of the Hong Kong universities. The AH group had no or less than a year of study abroad experience. Their majors vary; however, participants had never attended a syntax subject or any similar linguistics subjects. This reduces the chance of the participants having metalinguistic knowledge about the target feature.
4.2 Instruments

The participants were invited to complete five tasks, namely 1) four C-Tests; 2) a Language Contact Profile. (LCP. After Li, Sepanski and Zhao, 2006); 3) an Oral Production Task (OPT. After Pozzan and Quirk, 2014); 4) a Grammaticality Judgement Task (GJT) and 5) an Interview. The first two tasks were conducted via Google Forms for all participants. The other three tasks were conducted either via a) face-to-face meetings (for those who were in Melbourne) or b) phone calls (for those who were in Hong Kong and outside Melbourne).

4.2.1 C-Tests

Four C-tests (Appendix B) were taken from Klein-Bralay (1997). The purpose of this task is to understand the participants’ English proficiency. There are a number of gaps in each test. Each gap contains the initial letter(s) of the word that the participants were required to fill (e.g., ci______, target ans.: citizens).

4.2.2 LCP

An LCP (Appendix C) was designed based on Li et al. (2006) with some modifications. This instrument aims at quantifying the use of English and Cantonese. Questions include the percentage of use of Cantonese and English per day, hours of watching/listening Cantonese/English TV and radio, hours of using Cantonese/English at work/for study, whether they found that the SA experience enhance their confidence in using English (for the SA group), etc., in addition to basic personal information such as gender and duration of studying abroad.
4.2.3 OPT

An OPT (Appendix D) was adopted from Pozzan and Quirk (2014). All items, however, were completely re-written by the researcher and therefore only the format was the same as that in the original study. There are 36 slides in total, with one being a practice item and 35 experimental items. In each slide, there is a student, Zach, who asks his teacher an *wh*-question which is shown in a speech bubble. The participants were asked to produce embedded *wh*-questions based on these main *wh*-questions (see procedure). Two sample *wh*-questions are shown below:

Zach (asks the teacher): What did you do yesterday?

Zach (asks the teacher): Why was our homework so difficult?

4.2.4. GTJ

A GJT (Appendix E) was designed to examine the participants’ receptive knowledge. Specifically, it aims at examining whether the participants could discern the wrong English embedded-*wh* questions from the correct ones. This task consists of 48 sentences, 12 out of which are distractors (non-embedded *wh*-questions) and the rest of the sentences experimental items (i.e., embedded *wh*-questions, 14 correct and 22 incorrect). Three sample sentences are shown below:

1. Zach forgot which show he was filming. (grammatical)

2. Luke didn’t know who was his father. (ungrammatical)

3. She knew everything. (Distractor)

4.2.5. Interview
The interview consists of two questions. The first question was, “when you produced the sentences in the first task and judged the sentences in the second task, did you have any rules/criteria to base on?” This question aims at probing whether the participants used explicit or implicit knowledge, or both of them, when producing and judging the target feature, because it is noted in the SLA literature that the ability to verbalize rules of constructions or the lack thereof indicates the use of explicit and implicit knowledge respectively (Rebuschat, 2013). The second question was, “please translate the following Cantonese sentence: “佢琴日做乜? (what did s/he do yesterday.)” The aim of this question is to see whether the participants can produce nativelike main w/h-questions (i.e., an inverted w/h-question), whereby the researcher could investigate what the potential contributing factor of the errors could be.

4.3 Procedure

The links for the C-tests and the LCP had been sent to the participants before the other three tasks were conducted. They were told that they could finish the C-tests and the LCP in their spare time. For the other 3 tasks (OPT, GJT and interview), the researcher arranged a phone call OR a meeting on the campus of The University of Melbourne/Monash University under the agreement of the researcher and the participants.

We began with completing the OPT in the data elicitation session. The participants were asked to read the instruction first followed by a verbal explanation given by the researcher. Specifically, they were asked to 1) read aloud the main w/h-questions on the slides; 2) answer the researcher’s question (what did Zach want to know) based on the main questions that they had just read aloud. The participants were told that they must begin their answers with “Zach wanted to know…” The
expected answers would be in the form of embedded wh-questions (e.g., Zach wanted to know what she did yesterday.)

The second task was the GJT. The participants were asked to judge the grammar of the 48 sentences and tell the researcher whether the sentences were 1) grammatical or 2) ungrammatical. The third task, an interview, was conducted after upon the completion of the GJT. The data collection session was conducted in Cantonese to reduce their nervousness, except the embedded wh-questions they produced, which were of course in English.

4.4 Pilot Study I

The first pilot study was conducted as the final essay for the subject ‘Second Language Acquisition’. Two native Cantonese speakers (1 AH participant and 1 SA participant) were recruited. They completed four tasks, namely the C-Tests, LCP, OPT and GJT. The findings show that the SA participant performed better in both OPT and GJT than the AH participant did, which supports the claim that the SA context is beneficial to L2 learning as far as English embedded wh-questions are concerned. Minor changes of the instruments have been carried out after conducting this pilot study, which include additions and deletions of items in the OPT and GJT, to ensure that similar number of items are distributed to each wh-words. Questions in the LCP have also been modified. In addition, an interview was added as an additional instrument to help the researcher understand the nature of the participants’ knowledge of the target feature and whether L1 transfer can account for the errors that the participants make in the OPT and GJT.

4.5 Pilot Study II
After all the changes mentioned above have been carried out, the new OPT, GJT, along with the C-Tests were piloted by two native Australian English speakers to ensure the accuracy of the tasks and answers. The native speakers’ agreement on grammatical sentences was 97% and on ungrammatical sentences was 100%.
Chapter 5

Results

Table 2.  
*Mean Scores of the Productive Task*

<table>
<thead>
<tr>
<th>Group Statistics</th>
<th>group</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Productive (What)</td>
<td>AH</td>
<td>11</td>
<td>1.45</td>
<td>2.296</td>
</tr>
<tr>
<td></td>
<td>SA</td>
<td>10</td>
<td>1.70</td>
<td>2.058</td>
</tr>
<tr>
<td>Productive (Who)</td>
<td>AH</td>
<td>11</td>
<td>1.36</td>
<td>1.804</td>
</tr>
<tr>
<td></td>
<td>SA</td>
<td>10</td>
<td>1.10</td>
<td>1.595</td>
</tr>
<tr>
<td>Productive (Which)</td>
<td>AH</td>
<td>11</td>
<td>1.36</td>
<td>1.804</td>
</tr>
<tr>
<td></td>
<td>SA</td>
<td>10</td>
<td>2.00</td>
<td>1.886</td>
</tr>
<tr>
<td>Productive (Where)</td>
<td>AH</td>
<td>11</td>
<td>1.64</td>
<td>2.248</td>
</tr>
<tr>
<td></td>
<td>SA</td>
<td>10</td>
<td>1.60</td>
<td>1.897</td>
</tr>
<tr>
<td>Productive (When)</td>
<td>AH</td>
<td>11</td>
<td>1.55</td>
<td>2.252</td>
</tr>
<tr>
<td></td>
<td>SA</td>
<td>10</td>
<td>2.00</td>
<td>2.000</td>
</tr>
<tr>
<td>Productive (How)</td>
<td>AH</td>
<td>11</td>
<td>1.82</td>
<td>1.991</td>
</tr>
<tr>
<td></td>
<td>SA</td>
<td>10</td>
<td>2.20</td>
<td>2.201</td>
</tr>
<tr>
<td>Productive (Why)</td>
<td>AH</td>
<td>11</td>
<td>2.18</td>
<td>2.136</td>
</tr>
<tr>
<td></td>
<td>SA</td>
<td>10</td>
<td>2.40</td>
<td>2.066</td>
</tr>
</tbody>
</table>

In response to the first research question, two independent-samples *t*-tests were conducted. The first independent-samples *t*-test compared the productive (OPT) scores of participants with and without studying abroad for over 1 year. As shown in Table 2., it was found that the participants with SA experience scored higher than the participants without SA experience on *what*-questions (*M* = 1.70 vs. 1.45), *which*-questions (*M* = 2.00 vs. 1.36), *when*-questions (*M* = 2.00 vs. 1.55), *how*-questions (*M* = 2.20 vs. 1.82) and *why*-question (*M* = 2.40 vs 2.18); whereas the latter only scored better in *who*-question (*M* = 1.36 vs. 1.10) and *where*-questions (*M* = 1.64 vs. 1.60). However, none of the differences were significant (*p* > .05).
Table 3.

*Mean Scores of the Receptive Task*

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Receptive <em>(What)</em></td>
<td>AH</td>
<td>11</td>
<td>2.91</td>
</tr>
<tr>
<td></td>
<td>SA</td>
<td>10</td>
<td>3.70</td>
</tr>
<tr>
<td>Receptive <em>(Who)</em></td>
<td>AH</td>
<td>11</td>
<td>4.27</td>
</tr>
<tr>
<td></td>
<td>SA</td>
<td>10</td>
<td>4.30</td>
</tr>
<tr>
<td>Receptive <em>(Which)</em></td>
<td>AH</td>
<td>11</td>
<td>3.27</td>
</tr>
<tr>
<td></td>
<td>SA</td>
<td>10</td>
<td>3.60</td>
</tr>
<tr>
<td>Receptive <em>(Where)</em></td>
<td>AH</td>
<td>11</td>
<td>2.82</td>
</tr>
<tr>
<td></td>
<td>SA</td>
<td>10</td>
<td>3.30</td>
</tr>
<tr>
<td>Receptive <em>(When)</em></td>
<td>AH</td>
<td>11</td>
<td>3.18</td>
</tr>
<tr>
<td></td>
<td>SA</td>
<td>10</td>
<td>3.30</td>
</tr>
<tr>
<td>Receptive <em>(How)</em></td>
<td>AH</td>
<td>11</td>
<td>3.18</td>
</tr>
<tr>
<td></td>
<td>SA</td>
<td>10</td>
<td>3.80</td>
</tr>
<tr>
<td>Receptive <em>(Why)</em></td>
<td>AH</td>
<td>11</td>
<td>3.73</td>
</tr>
<tr>
<td></td>
<td>SA</td>
<td>10</td>
<td>3.80</td>
</tr>
</tbody>
</table>

The second independent-samples *t*-test was conducted to compare the receptive (GJT) scores of participants with and without studying abroad for over 1 year. As shown in Table 3, it was found that the participants with SA experience scored higher than the participants without SA experience on all *wh*-questions (*what*: $M = 3.70$ vs. 2.91; *who*: $M = 4.30$ vs. 4.27; *which*: $M = 3.60$ vs. 3.27; *where*: $M = 3.30$ vs. 2.82; *when*: $M = 3.30$ VS. 3.18; *how*: $M = 3.80$ vs. 3.18; *why*: $M = 3.80$ vs 3.73). Similar to productive task, however, none of the differences are significant ($p > .05$). In sum, the results of two independent-samples *t*-tests suggest that the SA context only has a weak effect, or even has no effect, on the acquisition of English embedded *wh*-questions.

In response to the second research question, a repeated-measures ANOVA was conducted to compare the productive totals (e.g., *what* vs. *who*, *what* vs. *which*, *what* vs. *where*, etc.) (Table 4.). The result indicated that there was a significant difference
between the difficulty of different *wh*-questions, $F (6, 120) = 3.979, p < 0.05$, partial $\eta^2 = 0.166$, small effect size. Specifically, as shown in Table 6., *why*-questions were significantly easier than *who*, *what*, *where*, and *when*-questions ($p < .05$). *How*-questions were significantly easier than *what*- and *who*-questions ($p < .05$). *When*-questions were significantly easier than *who*-questions ($p < .05$). It was also found that *who*-questions had the lowest mean.

### Table 4. 
*Mean Scores of the Productive Totals*  

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>What</td>
<td>1.57</td>
<td>2.135</td>
<td>21</td>
</tr>
<tr>
<td>Who</td>
<td>1.24</td>
<td>1.670</td>
<td>21</td>
</tr>
<tr>
<td>Which</td>
<td>1.67</td>
<td>1.826</td>
<td>21</td>
</tr>
<tr>
<td>Where</td>
<td>1.62</td>
<td>2.037</td>
<td>21</td>
</tr>
<tr>
<td>When</td>
<td>1.76</td>
<td>2.095</td>
<td>21</td>
</tr>
<tr>
<td>How</td>
<td>2.00</td>
<td>2.049</td>
<td>21</td>
</tr>
<tr>
<td>Why</td>
<td>2.29</td>
<td>2.053</td>
<td>21</td>
</tr>
<tr>
<td>Total</td>
<td>1.74</td>
<td>1.98</td>
<td>21</td>
</tr>
</tbody>
</table>

Another repeated-measures ANOVA were conducted to compare receptive totals (e.g., *what* vs. *who*, *what* vs. *which*, *what* vs. *where*, etc.) (Table 5.). Similarly, the result indicated that there was a significant difference between the difficulty of different *wh*-questions, $F (6, 120) = 4.766, p < .05$, partial $\eta^2 = 0.192$, small effect size. Specifically, as shown in Table 7., *who*-questions were significantly easier than all other types of *wh*-questions ($p < .05$). *Why*-questions were significantly easier than *where*- and *when*-questions ($p < .05$).
No adjustment was used when running these two repeated-measures ANOVAs due to the small sample size in the study, as well as the controversial status of Bonferroni adjustments (Perneger, 1998).

Table 5.

**Means Scores of the Receptive Totals**

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>What</td>
<td>3.29</td>
<td>1.146</td>
<td>21</td>
</tr>
<tr>
<td>Who</td>
<td>4.29</td>
<td>1.007</td>
<td>21</td>
</tr>
<tr>
<td>Which</td>
<td>3.43</td>
<td>.811</td>
<td>21</td>
</tr>
<tr>
<td>Where</td>
<td>3.05</td>
<td>1.396</td>
<td>21</td>
</tr>
<tr>
<td>When</td>
<td>3.24</td>
<td>1.261</td>
<td>21</td>
</tr>
<tr>
<td>How</td>
<td>3.48</td>
<td>1.504</td>
<td>21</td>
</tr>
<tr>
<td>Why</td>
<td>3.76</td>
<td>.539</td>
<td>21</td>
</tr>
<tr>
<td>Total</td>
<td>3.51</td>
<td>1.10</td>
<td>21</td>
</tr>
</tbody>
</table>

Table 6.

**The Difficulties of Different Types of Wh-words (Productive Task)**

- is significantly easier than
  - **why** who, what, where, when
  - **how** who, what
  - **when** Who

Table 7.

**The Difficulties of Different Types of Wh-words (Receptive Task)**

- is significantly easier than
  - **who** what, where, which, when, how, why
  - **why** where, when
In response to the third research question, a paired-sample $t$-test was conducted to compare the scores on argument-questions and adjunct-questions (productive arguments: $M = 4.48$; productive adjuncts: $M = 7.67$; receptive arguments: $M = 11$; receptive adjuncts: $M = 13.52$). Significant difference was found in both productive ($p < .001$) and receptive task ($p = .001$). Strong effect size was also found in both tasks (productive task: $d = .96$; receptive task: $d = .89$). The results suggest that adjunct-questions were significantly easier than argument-questions in both tasks (Table 8.).

Table 8.
Mean Scores of the Argument-Questions and Adjunct-Questions

<table>
<thead>
<tr>
<th>Paired Samples Statistics</th>
<th>Mean</th>
<th>N</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pair 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Argument (Productive)</td>
<td>4.4762</td>
<td>21</td>
<td>5.40943</td>
</tr>
<tr>
<td>Adjunct (Productive)</td>
<td>7.6667</td>
<td>21</td>
<td>7.78674</td>
</tr>
<tr>
<td>Pair 2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Argument (Receptive)</td>
<td>11.0000</td>
<td>21</td>
<td>2.30217</td>
</tr>
<tr>
<td>Adjunct (Receptive)</td>
<td>13.5238</td>
<td>21</td>
<td>3.85511</td>
</tr>
</tbody>
</table>
Chapter 6

Discussion

6.1 Research Question 1: The Effect of Study Abroad

As revealed by the results presented in the previous chapter, it was found that the SA context, compared to the AH context, only has a weak effect on the acquisition of the target feature, i.e., English embedded wh-questions. This finding is in line with a number of previous SA studies, such as Arnett (2013), Collentine (2004), DeKeyser (1991), Isabelli-García (2010) and Rothman and Iverson (2007a & 2007b), among others, which have found that SA has no superior effect on L2 grammar/syntax acquisition. The finding also supports Pozzan and Quirk’s (2014) argument that LoR does not have an effect on the acquisition of embedded wh-questions by L2 learners. Contrarily, the finding is at odds with Duperron (2006), Isabelli (2001), Howard (2005), among others, which have found that SA has a positive effect on the acquisition of specific grammatical features. Unlike the majority of the studies which have found no superior effect on L2 grammar/syntax acquisition, the current study has chosen to investigate learners who had at least one year of SA experience. The finding suggests that the larger exposure offered by the SA context does not lead to a better acquisition of the target feature, even when the SA participants has a relatively long LoR. In what follows, I will discuss this finding in light of explicit/implicit knowledge and usage-based approaches (especially the concepts of input frequency and salience).

In Chapter 3, I have briefly discussed the concepts of explicit/implicit knowledge. Based on the participants’ results of the OPT and GJT, and also the information collected from the interview (to be presented below), it is suggested that the weak effect of SA is possibly due to the learners’ imperfect implicit knowledge of the target feature, which is not adequate for them to produce and judge the feature.
nativelike. Instead, in order to produce nativelike syntactic features, in this case, English embedded \textit{wh}-questions, explicit knowledge needs to be employed to modify the imperfect implicit knowledge.

The main difference, or advantage, that the SA context has over the AH context is the ample naturalistic input which will result mostly in implicit knowledge (DeKeyser, 2003). Therefore, the SA participants were supposed to have better implicit knowledge of the target feature. However, they did not outperform the AH participants in the present study, as shown in the previous chapter. Most of the participants (14, from both the SA and AH group), in fact, did not achieve 30\% of the score (i.e. below than 10 out of 35) in the productive task. Five participants (3 AH and 2 SA), on the other hand, were able to obtain an extremely high score in the productive task (32-33 out of 35). Since these five participants were from both the SA and AH group, it seems that their above-average performance was not due to the effect of the learning environments; rather, some kind of strategy which enabled them to obtain a high score was used. What would it be?

Four of these five participants informed the researcher in the interview that they had in fact realized what feature the study aimed at investigating (they called it “reported speech”). They knew that this feature does not require subj-aux inversion in the embedded clause (some of them said “the second part of the sentence”; some of them said ‘the second subject and the second verb’), and their answers were also guided by this rule (another participant, on the other hand, reported that she realized that the tasks were testing grammar.). The intentional use of the rule can be shown by the participants’ frequent self-corrections as well as the sometimes-laborious searching for the correct answers while completing the tasks. By contrast, the rest of the participants informed the researcher that they had relied on their intuition while completing the
tasks. Specifically, they relied on whether or not the sentences in the GJT and the OPT (those they produced) sounded ‘good’. While the use of intuition suggests that the low-scored participants used implicit knowledge in answering the tasks, the high-scored participants’ awareness of the rule indicates that in addition to implicit knowledge, they also used explicit knowledge.

The evidence to support this claim comes from various scholars. For instance, building on Cleeremans and Jiménez (2002) and Dienes and Perner (1999), Williams (2009, p.324) states, “explicit knowledge guides intentional actions, whereas implicit knowledge is deployed automatically.” Rebuschat and Williams (2012) state that the main difference between explicit/implicit knowledge lies in the awareness of the target feature or the lack thereof. Moreover, Rebuschat (2013) argues that whether or not learners can verbalize any rules in the task is an indicator of the use of explicit knowledge. All these, despite the slight terminological differences, suggest that the high-scored learners used explicit knowledge (as shown by their use of intentional action, the awareness of and furthermore, the ability to verbalize, the rule) to modify implicit knowledge while completing the tasks; the low-scored participants, contrarily, only relied on implicit knowledge (as shown by their lack of ability to verbalize the rule due to the lack of awareness of the target feature, and their automatically use of the rule).

The low-scored participants’ performance, however, demonstrated that merely applying implicit knowledge is not sufficient for L2 production and judgement, at least in the case of producing and judging English embedded wh-questions. This is in line with the general findings in SLA literature (e.g., Lightbown, Spada and White, 1993; Long, 1991; MacWhinney, 1997; Schmidt, 1990), that the effect of implicit knowledge on L2 learning is limited. Implicit knowledge itself rarely helps L2 learners achieve
nativelike knowledge, as opposed to its efficiency in L1 acquisition. L2 acquisition needs to be assisted by explicit knowledge (Ellis, 2011). This echoes Ellis’ (2015) claim that explicit instruction, which mainly leads to explicit knowledge (DeKeyser, 2003), can speed up the process of L2 acquisition. Specifically, the benefits of explicit knowledge, as argued by the Weak Interface theory, is to assist L2 learners to notice the target features and to guide the “output practice” (Ellis, 2011, p.43). When implicit knowledge fails in producing and judging the L2, explicit knowledge comes in to support language production and judgement. This argument is supported by a number of empirical studies, such as Akakura (2012) and Spada and Tomita (2010). Argument, on one hand, supports the observation made by Juan-Garau et al. (2014) that the effect of formal instruction on L2 grammar acquisition is comparable with that of the SA context; it, on the other hand, does not support VanPatten’s (2011) argument that syntax is ‘stubborn’. The role of explicit knowledge in L2 acquisition, especially L2 grammar/syntax acquisition, should therefore be noted.

The discussion above has attempted to establish the inadequacy of implicit knowledge and the role of explicit knowledge in L2. Merely studying abroad and having been exposed to extensive linguistic input seem not to cause L2 syntactic gains. In sum, the discussion above has argued that the inefficiency of implicit knowledge and the lack of explicit knowledge of the target feature may be the reason why the SA participants’ scores did not significantly different to the AH participants’ scores. The participant’s performance was related to the use of explicit knowledge or the lack thereof, irrespective to the learning environments.

The study has also reported overall high inversion error rates in both tasks (circa. 65% in the productive task and 32% in the receptive task). To explain this finding, I argue that frequency may contribute to such high inversion rates. The
frequency of English *wh*-questions in language input differs in terms of the embedded form and the main form: the former is significantly lower than the latter (Westergaard and Bentzen, 2007). Similarly, in terms of output or interaction opportunities, L2 learners of English will have more chances to utter main *wh*-questions than their embedded counterparts while communicating with other English speakers. In other words, L2 learners not only have insufficient input, but also have scant output/interaction opportunities, of embedded *wh*-questions. As proposed by a number of SLA approaches, such as Krashen’s (1977, 1980) Input Hypothesis and Long’s (1980, 1981, 1996) Interactional Hypothesis, input and output (or interaction opportunities) are deemed as the core elements of L2 learning, as discussed in Chapter 3. The lack of input and output/interaction opportunities will hamper learners’ interlanguage development of the target feature.

The importance of frequency can also be shown by usage-based approaches, which argue that through a high frequency of input, learners can “generalize over similar exemplars in their input to form conceptual and grammatical categories or to automatize the processing of frequently experienced linguistic sequence” (Jach, 2018, p.273). Moreover, frequency also helps the entrenchment of grammatical constructions, which is emphasized in usage-based approaches (Ellis and Wulff, 2015; Langacker, 1987). As mentioned in Chapter 3, the idea of entrenchment is that the more often speakers encounter a construction, the more entrenched this construction will be in their mind (Ellis and Wulff, 2015). The relatively lack of input of the target feature, which not just happen in the AH context but also SA context, as argued above, hinders learners from generalizing exemplars to form grammatical cue for embedded *wh*-questions. As a result, this construction will not be well-entrenched in the participants’ cognitive system. The main *wh*-question form, on the other hand, is well-entrenched due to a
higher frequency of input. The participants could therefore easily apply the inversion rule when producing and judging embedded wh-questions where they should not apply such rule. The wh-words, which are always associated with subj-aux inversion in the main wh-question context, could trigger participants’ application of the inversion rule in the embedded wh-question context. Once they uttered (in the OPT) and saw (in the GJT) the wh-words, they naturally applied the inversion rule, instead of the non-inversion rule for embedded wh-questions, due to the fact that the former is better entrenched than the latter. This could explain why they made the inversion error in producing and judging embedded wh-questions in the tasks.

To take it one step further, the analysis above can explain Pozzan’s (2011) proposal for the inverted English embedded wh-questions, i.e., overgeneralization. Pozzan argues that L2 learners tend to overgeneralize the inversion rule of main wh-questions to embedded wh-questions. She, yet, did not give the reason why overgeneralization took place. Synthesizing Pozzan’s argument with the discussion on frequency and entrenchment above may provide us a clearer answer. As argued, main wh-question form is better entrenched in learners’ mind than embedded wh-question form is due to the higher frequency of input. This suggests that the rule of the main form ‘overpowers’ that of the embedded form. Learners, therefore, overgeneralize the wrong rule to embedded wh-questions.

Moreover, the high inversion rates report in the present study could also explained by salience, as its role L2 syntax and morphosyntax acquisition has been noted by SLA scholars recently (Gass, Spinner and Behney, 2018). Salience refers to “the property of a stimulus to stand out from the rest.” A feature is regarded as salient if it can capture people’s attention (Cintrón-Valentín and Ellis, 2016, p.2). As Ellis and Wulf (2015, p.82) state, “many grammatical form-meaning relationships are both low
in salience and redundant in the understanding of the meaning of an utterance”. Embedded *wh*-questions, or more specifically, the non-inversion property of embedded *wh*-questions, can also be regarded as “low in salience”. Whether or not an embedded *wh*-question is inverted, the meaning of it remains unchanged (e.g. *Zach doesn’t know who will he meet this afternoon vs. Zach doesn’t know who he will meet this afternoon*). The non-inversion property does not really map to a specific and distinct meaning (as opposed to, say, subj-aux inversion is associated with interrogatives in English). In terms of communicative needs, the non-inversion property of embedded *wh*-questions could be said as ‘redundant’. It is, therefore, possible that learners overlook the non-salient structural difference between main and embedded *wh*-questions, which, again, leads to the inversion error.

Naturalistic L2 learners usually direct their focus to open-class words instead of grammatical cues; furthermore, they usually do not fully use grammatical morphemes and words in closed-class which are low in salience (Clahsen and Felser, 2006; Dietrich, Klein and Noyau, 1995; VanPatten, 2015). The classic figure in SLA, Wes (Schmidt, 1983), is one of the examples. Wes was fluent in English in the sense that he had achieved a high communicative competence. Yet, he was not competent to use grammatical-error-free English. It seems that for them, being able to communicate is more important than being grammatical. Hence, their focus would be directed to salient cues such as open-class words which contain concrete meanings, as observed by Dietrich et al.. Building on Dietrich et al., VanPatten and Clahsen and Felser’s arguments, the current study argues that not only micro-level linguistic aspects such as morphemes and words could be non-salient, but also larger units such as syntactic constructions, e.g., embedded *wh*-questions could also be low in salience and therefore
difficult to catch learners’ attention, resulting in learners’ imperfect knowledge of the construction.

To put the argument that salience plays a role in language learning and the argument that implicit knowledge itself is not sufficient for the acquisition of the target feature made previously together, a clearer picture can be found. It is what Ellis (2015, p.12) states, “implicit tallying does not take place for low salient cues for which pattern recognition units have never been consolidated.” This is the reason why the target feature was not tallied by the participants, resulting in an imperfect knowledge of the feature. This may explain why the participants who simply relied on intuition failed to achieve a high score in this study, since L2 learners’ implicit knowledge is generally incompatible with that of L1 speakers of English. In this case, explicit knowledge functions as a ‘filter’ to correct the learners’ imperfect implicit knowledge of the target feature, which results in correct production/judgement, as what the high-scored participant did. The failure of using explicit knowledge could lead to incorrect production/judgment. Learning environments seem not to play a role in the acquisition of the target features.

6.2 Research Question 2: The Types of Wh-Words

With regard to the types of wh-words, the present study has reported mixed findings: different wh-words was associated with different mean scores, suggesting that their difficulty is different. Specifically, in the productive task, who-questions were the most difficult items to the participants, while why-questions the easiest; whereas in the receptive task, where-questions were the most difficult ones and who-questions the easiest. Since the previous studies which investigate the difficulty of different wh-words in main wh-questions are limited, and there is basically no study has investigated this
aspect in embedded wh-questions (except Pozzan, 2011), the following discussion will also cover the findings in First Language Acquisition (FLA) research and see if they are applicable to the present study.

The finding of the present study regarding the types of wh-words generally contrasts with the findings in previous FLA and SLA research regarding the acquisition of wh-questions. Bloom, Merkin and Wooten (1982), for instance, reported that where-, what- and who-questions were acquired earlier than why-, when-, and which-questions by child L1 speakers. This finding was confirmed by Rowland and Pine (2003). In SLA research, Haznedar (2003), for example, reports that the child L2 speaker of English produced more who and when-questions than what-, where-, how-, which and why-questions. She also documented the inversion errors in these wh-questions: what-questions was associated with the largest number of inversion error (11 errors); where-, how-, which- and why-questions had a similar number of inversion error which were lower than that of what-questions (3, 4, 2, 3 errors respectively); while when-questions were all correct. The present study, as shown by the results obtained from the productive task, however, does not support these findings. Firstly, this could suggest that L1 acquisition and L2 acquisition are fundamentally different: different cognitive processing may take part in L1 acquisition as opposed to L2 acquisition, reinforcing the neuroscientific evidence which shows the difference between L1 learners and L2 learners’ cortices that lead to different language learning mechanisms used by the former and the latter (Ellis, 2011). Secondly, this may suggest that the difficulty of different wh-words is different between main wh-questions and embedded wh-questions. The findings presented above from Haznedar are about main wh-questions (she also mentions embedded clauses in her study. However, most of them are if-clauses). Besides, the inversion errors that Haznedar reports were based on the numbers
of main *wh*-questions that the participant produced. For instance, most of the *wh*-questions that he produced were *what*-questions, therefore it would be expected that more inversion errors would be found in *what*-questions. As a result, the difficulty of different *wh*-words is somewhat unclear. Finally, this finding also indicates the imperfectness and complexity of L2 learners’ interlanguage regarding English embedded *wh*-questions.

The only clear finding with respect to the types of *wh*-words in this study is the relatively high scores on *why*-questions in both tasks. *Why* was the easiest item in the productive task and the second easiest item in the receptive task. This finding confirms Thornton’s (2008) observation. In her study of child L1 speakers of English, it was observed that participants tended to produce main *why*-questions without subj-aux inversion. This is an error in the context of main questions. It is, however, correct in the context of embedded questions. The participants in the present study, in general, showed the same pattern: they produced embedded *why*-questions without subj-aux inversion.

The reasons why *why*-questions seemed relatively easier than the other *wh*-questions are possibly due to their idiosyncratic semantic characteristics (Pozzan, 2011) and their structural similarity with the Cantonese counterparts. In formal linguistics literature, it has been proposed that *why*-questions have a distinctive semantic property, compared to other *wh*-questions. Specifically, a *why*-question presupposes the non-*wh* portion in the question, whereas other *wh*-questions do not display this characteristic (Tomioka, 2009). For instance, while the question “why did no one come?” presupposes “no one came”, the question “what did no one read?” does not presuppose “no one read anything.” Jin (2016) argues that this idiosyncratic semantic property of *why*-questions is consistent with the syntactic proposal put forward by Ko (2005). As
mentioned in Chapter 2, Ko argues that in *wh*-in-situ languages such as Japanese and Chinese, *why* is based-generated at the [Spec, CP] directly, instead of being moved from the lower position. Based on these two proposals, the high scores of *why*-questions in both tasks reported could then be explained.

The fact that *why* is based-generated directly at the [Spec, CP] in Cantonese suggests that Cantonese learners of English might not apply *wh*-movement in forming *why*-questions in English. The structural resemblance between Cantonese and English *why*-questions, i.e., the fronting *why*, could probably trigger Cantonese-like *why*-questions in English. Note that in Chapter 2, I have presented the characteristics of Cantonese *wh*-questions (both main and embedded), i.e., no T-to-C movement (subj-aux inversion) and no *wh*-movement. If Cantonese-like *why*-questions are triggered, that means learners would possibly not only apply the no-*wh*-movement rule, but also the no-T-to-C movement rule, resulting in *non-inverted* *why*-questions. Put it differently, it is possible that when the participants were producing the embedded *why*-questions, they were, to some extent, interfered by their L1. The non-inverted *why*-questions, of course, will be regarded as ungrammatical in the main *wh*-question context. It is, however, grammatical in the embedded *wh*-question context. It is documented in the literature that Hong Kong Cantonese learners of English, even those who have a high-proficiency, may rely on their L1 syntax while producing an L2 (Chan, 2004). This may explain the relatively high scores on *why*-questions found in the present study.

Some may argue that why does the better entrenchment of main *wh*-questions, which will lead to inversion errors in embedded *wh*-questions, as argued in the previous section, not influence the production and judgement of the embedded *why*-questions. Moreover, if L1 transfer plays a part in producing and judging *why*-questions, why are
other *why*-questions not influenced? A tentative account for these doubts is that the idiosyncratic semantic property of English *why*-questions as well as the idiosyncratic syntactic property in Cantonese *why*-questions might overpower the effect of entrenchment. Also, their idiosyncratic natures might open more room for L1 transfer to play a role. As a result, the participants produce non-inverted *why*-questions occasionally. Future research which examines this issue in detailed is needed.

Another possible account is the diverse input of embedded *why*-questions. Pozzan (2011) has pointed out that the most frequent main *why*-questions are *what*-questions, followed by *why*-questions, *which*-questions and *when*-questions. By the same token, it could be argued that this diversity of input frequency also exists in embedded *why*-questions. From the usage-based point of view, the different difficulty of different types of *wh*-words could be attributed to different frequency of these words in daily speech. Frequency, of course, is not the only factor, as demonstrated by the inconsistence between the scores of different *wh*-words (see Chapter 5) and their frequency (embedded *what*-questions were the second most difficult items yet they could be the most frequent sentences). Whether or not learners can successfully produce nativelike embedded *why*-questions depends on the synergy between all the factors discussed above, and perhaps, also individual variables (as discussed in Chapter 3, these variables are influential in language learning). Further in-depth psycholinguistic research could offer a clearer answer.

In short, the present study has reported mixed findings with respect to the difficulty of different types of *wh*-words. The possible reasons for these findings have also been provided.

6.3 Research Question 3: The Argument-Adjunct Asymmetry
The last section has discussed the muddled findings with respect to the types of *wh*-words. However, if attention is only paid to two types of *wh*-words, i.e., argument (*what, who, which*) and adjunct (*where, when, how, why*), a clearer picture can be seen. The present study has found argument-adjunct asymmetry in the participants’ production and judgement of English embedded *wh*-questions. In other words, the inversion rates of argument-questions were higher than that of adjunct-questions. Note, however, that since the present study investigates embedded *wh*-questions, the higher inversion rates mean that the scores of that type of questions will be lower, because inversion is not acceptable in embedded *wh*-questions. This finding supports DeVilliers (1991) and Stromswold (1990), which have reported such asymmetry in children L1 speakers. Broadly speaking, the finding also sheds light on SLA in general, suggesting that L2 acquisition may have some similarity with L1 acquisition, as far as argument-adjunct asymmetry is concerned.

Stromswold’s (1990) argument of argument-adjunct asymmetry is that according to GB framework (Chomsky, 1981, 1986), while *wh*-words in argument-questions cannot be based-generated at the [Spec, CP] and must need to move from the lower position due to theta government, *wh*-words in adjunct-questions are free from this government requirement. The two diagrams below were taken from Lee (2008). They illustrate the difference between an argument-question and an adjunct-question:
Diagram 2. Tree Representation of ‘who is she pushing?’ (Lee, 2008, p.629)

Diagram 3. Tree Representation of ‘why is she smiling?’ (Lee, 2008, p.629)

Diagram 4. Possible IP Adjunction (Lee, 2008, p.630)
In diagram 2., the NP [who] must be generated in the base position, i.e., sister to the V reading because it is the theta position. By doing so, the theta government requirement can be fulfilled. The NP then is moved to the [Spec, CP], as illustrated by the longer arrow; whereas in diagram 3., the AdvP [why] is not in a theta position, i.e., sister to the V-bar. As a result, it is possible for the adjuncts adjoin to the IP (equivalent to TP used in Chapter 2. Shown in Diagram 4) since such structure does not violate UG’s principles, i.e., theta government. Also, note that under such adjoining mechanism, T(I)-to-C movement will not be triggered. If the difference of the syntactic mechanisms between argument- and adjunct-questions holds true, it is predicted that the former will be associated with a higher inversion rate; whereas the latter a lower inversion rate. The present study has reported evidence from L2 learners’ interlanguage to support this prediction.

Turn the focus to the findings in SLA research. To the researcher’s knowledge, there are only two studies which examine argument-adjunct asymmetry in L2 acquisition of English main wh-questions (Lee, 2008; Pozzan, 2011). Conflicting results were shown (Lee finds the asymmetry in the grammaticality judgement of L2 speakers of English; while Pozzan finds no such asymmetry in L2 learners’ oral production of main and embedded wh-questions,). The present study supports Lee’s observation, while suggesting a conflicting finding with Pozzan’s findings. As for learners’ receptive knowledge, the finding of the current study also supports Lee’s observation.

Having said that, although the present study supports the asymmetry proposed by generativists, it cannot—and also should not—be seen as a strong endorsement of generative approaches. It does not advocate every proposal proposed by generativists. For example, as presented in the Chapter 2, it is argued by generativists that the [-Q]
feature is the reason why there is no T-to-C movement in English embedded *wh*-questions. Then, why the [-Q] feature is not perfectly learned—or acquired—by L2 learners, at least those who participated in the present study? The answer still remains unclear. One of the reasons is, perhaps, this proposal is problematic.

All told, this chapter has discussed the results collected in the previous chapter in light of the findings in prior scholarship and theories in SLA, such as implicit/explicit knowledge, frequency and entrenchment, as well as syntax and semantics.
Chapter 7

Conclusion

7.1 A Summary of the Study

The present study has examined the effect of the study-abroad context on the acquisition of English embedded \textit{wh}-questions by L1 Cantonese speakers. By the data collected from the oral production task and grammaticality judgement task, with the aid of the information collected from the language contact questionnaire and interview, it is suggested that studying abroad does not have a superior effect over studying at-home on the acquisition of the target feature. This finding, to some extent, debunks the common belief that studying abroad is the ultimate way to learn an L2. The study has, furthermore, shown that the difficulty of different \textit{wh}-words varies, suggesting the complexity of languages. Yet, some clear finding has also been reported, such as the argument-adjunct asymmetry.

Having said that, the present study does not intend to demur at the idea of living or studying abroad. Although it, alongside a considerable number of studies, have shown that no syntactic gains could be observed after studying abroad, as Arnett (2013) points out, studying abroad, in fact, benefits learners in other ways, such as enhancing their confidence and increasing their cultural knowledge. The study, rather, intends to alert language learners to the fact that they should not take any linguistic gains occurred after studying abroad for granted.

The study also has several implications. Before presenting them, some limitations should first be addressed.

7.2. Limitations
The first limitation is the small sample size used in the study. The second limitation is that, the literature has noted that the study on the causality of SA may be impaired by the mixture of classroom and naturalistic context (e.g., Schell, 2000). Despite the endeavor to find participants who had not had any formal classroom instruction while studying abroad, this condition could not be fully guaranteed. The last limitation is that the instruments could not elicit the participants natural use of embedded *wh*-questions. Methodological refinement can be considered for eliciting the data about how learners actually use embedded *wh*-questions in daily conversations.

7.3. Implications

The study has the following implications. Theoretically, it contributes to SLA research in the sense that it enriches the empirical evidence regarding the effect of SA on particular syntactic constructions, discusses the findings with SLA concepts and offers opportunities for reviewing some generative proposals of language acquisition.

Pedagogically, the participants’ overall below-average score (<50%) found in the present study could provide a chance for ESL teachers to reflect on the English language curriculum. They also could think about the question of whether explicit instruction should be used in a more prominent way to assist ESL students to understand this feature, due to the potential positive effect that explicit knowledge may have, as argued in the previous chapter.

However, it is worthwhile to contemplate a question: whether it is indispensable for instilling the correct form of the target feature into L2 learners? As mentioned, the meanings of embedded *wh*-questions will not be affected by it syntax. Even the ungrammatical embedded *wh*-questions can still convey the message well. After all, it is not an egregious error from the communication point of view. Recently research into
World Englishes has reminded the public to appreciate the diversity of different varieties of Englishes. Whether we should still hold a dogmatic view on ‘standard English’ is worthwhile to be pondered over.

7.4. Directions for Future Research

First, timed instruments can be used in future research in order to measure learners’ implicit knowledge more precisely (R. Ellis, Loewen, Elder, Erlam, Philp and Reinders, 2009). The use of both timed and untimed tasks would provide a clearer picture of learners’ knowledge of English embedded wh-questions.

Second, the semantics and pragmatics of wh-questions can be taken into account when researchers investigate the acquisition of the target feature, because it is noted in FLA literature that the semantics and pragmatics of wh-questions will affect the L1 acquisition of wh-questions (e.g., Foryś-Nogala, Haman, Katsos, Krajewski and Schulz, 2017; Roeper, Schulz, Pearson and Reckling, 2007). It would be a fascinating opportunity to see what impacts theoretical linguistics has on applied linguistics, particularly on language acquisition.

Finally, SLA research into other types of wh-questions should be encouraged. As argued in 6.2, the acquisition of main wh-question and that of embedded wh-questions seem different, insofar as the difficulty of wh-words is concerned. Investigation of other types of wh-questions might also yield some interesting findings. Scholars (e.g., Pliatsikas, Johnstone and Marinis, 2017; Slavkov, 2015) have recently started investigating the acquisition of long-distance wh-questions (e.g., what, do you think t_i Zach is reading t_j). This area is however underexplored. This kind of research can allow linguists to understand more about the mechanism behind language acquisition.
As closing remarks, I would like to emphasize, once again, the importance of the acquisition of $wh$-questions. As Roeper et al. (2007) point out, cross-linguistically, $wh$-words vary enormously in terms of morphology and privileges of syntactic movements. It is this intricate nature of $wh$-words, and hence also $wh$-questions makes the study of them so appealing.
References


Sanz, & A. Morales-Front (Eds.), *The Routledge handbook of study abroad research and practice* (pp. 293-307). London: Routledge.


Appendix A

Notice in MyUniMelb

Are you Cantonese speakers?

We are recruiting Cantonese native speakers, who have been studying in Australia for at least 1 year, to participate in a research on English grammar.

All participants can choose either 1) proofreading service (a piece of work) or 2) a free latte/coffee.

Students who are interested in participating in this research please contact:

Giovanni Ma: chunm1@student.unimelb.edu.au for details.
Appendix B

C-Tests

Text 1

Within the last twenty to thirty years the blood groups of peoples in all parts of
the world have been studied. The most interesting results of these studies have
been that, with few exceptions, nearly every human group examined
has been found to consist of a mixture of the same four blood
groups; human races differ in the relative numbers of persons with
certain blood types that fall in each of the four groups. Universal donors, group 0,
are found in every race and are generally the commonest type; group A is also
common, while group B, and especially AB, is less common.

TEXT 2

If we go back to the Norman Conquest, we find nothing in the country which
we could properly call a legal system. Indignant citizens asserted their rights,
and complained their neighbors had broken their obligations, and spoke
of taking their case to court. But in all except the most important matters.
between the most powerful subject, the court to which they
referred was a local court, a court with which they claimed were those
recognized by the custom of the neighborhood.

TEXT 3
For many years I have studied psychological processes entailed by our linguistic skills in communicating with one another. Since my interest in the psycho aspects of communication is even older than auto computers I can remember when those days before computers were like when I typed them with the pre I can think of now summary statement more appropriate than those made by a famous American athlete who said, “I’ve been rich, and I’ve been poor, and believe me, rich is better.” Believe me, computers are better.

TEXT 4

Many students of society—historians, political scientists, philosophers—find the study of works of literature useful and readily say so. They do not feel threatened by a different kind of discipline or tendency to oversimplify their own subject special mystery. The high degree of imagination needed for distinctive work in the human or social science ensures that men with their powers do not misunderstand the technical boundaries between academic disciplines for divisions within human experience.
Appendix C
Language Background Questionnaire

* Required

What is your name? *

How old are you? *

What is your gender? *
Female
Male
Other:

Country of Origin? *

Country of Residence? *

How long have you been staying in Australia? *

Did you learn English language in primary school? *
Yes
No

Did you learn English language in secondary school: *
Yes
No

Estimate how often you use your native language and English per day (in %.
Total should be 100%)

Cantonese/Chinese (%): *

English (%): *

Estimate, per day, how often you watch TV or listen to radio in Cantonese and
English (in hours) (such as news and entertaining shows on YouTube, Netflix,
etc.)
Estimate, per day, how often you read newspapers, magazines, and other general reading materials (including online materials such as forums and Facebook posts) in Cantonese/Chinese and English (in hours)

Cantonese/Chinese (hours): *

English (hours): *

Estimate how often you use your native language and English per day for work and/or study-related activities (e.g. writing essays, chatting with classmates/prof.) (in hours)

Cantonese/Chinese (hours): *

English (hours): *

If you have lived in/traveled to other English-speaking country(ies) for more than 3 months, please indicate a) the name of the country(ies) and; b) your length of stay *

If you have taken a standardized test of proficiency for English (e.g. IELTS, TOEFL), please indicate your score(s). *

If you have studied/stayed in any English-speaking countries. Please answer the following questions:
Did the experience of studying/staying abroad make you more confident in using English?
Yes
No

Have you attended any English classes while studying/staying abroad?
Yes
No

Have you stayed in home-stay family(ies) and/or university dormitory(ies)? If you have, estimate the hours you spoke with your host family(ies) and/or neighbors in the dormitory(ies) in ENGLISH. (per day)

If you answered “yes” for the previous question, please answer the following question: Did you feel comfortable to speak English with them?
Yes
No
Appendix D

Oral Production Task

Protocol:

Items:

1. Where did you have dinner yesterday?
2. What did you do yesterday?
3. Where was your new laptop?
4. Who is your favorite writer?
5. Why are you so happy today?
6. When do you usually go to bed?
7. How do you think about this novel?
8. Where is our exam paper?
9. Which is your favorite color?
10. When is our next exam?
11. Who will you meet this afternoon?
12. Where will we go for our excursion?
13. How is your day?
14. What do we do in the class today?
15. Why was our homework so difficult?
16. When do we finish the semester?
17. Where did you travel to last summer?
18. What is the textbook for next semester?
19. Who is the naughtiest student in the class?
20. Which drink do you like?
21. How was the show last night?
22. Why did Ryan get detention?
23. Who forgot the USB here?
24. What major is your son doing?
25. Why did I fail the exam?
26. How can I improve my result?
27. Who is your son’s favorite actor?
28. Which classroom will we use today?
29. When can we finish the class?
30. Why were the students so naughty?
31. How is your son going?
32. Which is your favorite country?
33. When should we start preparing for the exam?
34. What subject will you teach next year?
35. Which university should I apply for?
Appendix E
Grammaticality Judgement Task

Instruction: Judge the following sentences and tell the researchers whether they 1) grammatical or 2) ungrammatical.

1. Gianni didn’t know how he survived from the semester.
2. Tom don’t know anything about the exam.
3. He inquired where is the new library.
4. Franco didn’t know which book was his.
5. Maria wondered why was Tom upset.
6. She knew everything.
7. You knew what could you drink.
8. The managers didn’t know who were gonna be his team members.
9. Zach wondered when did the party start.
10. I didn’t know what was this.
11. Jim forgot where did he get the gift.
12. Where was the shopping mall?
14. Zach didn’t know who did he love.
15. He forgot which hat Gianna liked.
16. We wondered what were they.
17. Maria forgot when was the opera.
18. I didn’t have no money.
19. I forgot who did mom invite to my birthday party.
20. Zach didn’t know how did he do his assignment.
21. Have you finished your assignment?
22. I wanted to know why you did this to me.
23. Luke didn’t know who was his father.
24. I didn’t know nothing.
25. Yoda inquired which galaxy he is going to.
26. Alex asked Maria where was the bakery.
27. Jim ate too many rice.
28. George forgot which bar did he go to last night.
29. Jim wondered who broke the computer.
30. They remembered when did the party start.
31. Zach forgot which show he was filming.
32. The America has a lot of universities.
33. The teacher wondered why her students got a bad result.
34. I have been studying today.
35. The professor didn’t know how did the MacBook work.
36. The audience didn’t know what happened in the movie.
37. He brought three children to the playground.
38. The teacher wanted to know why Gianni read a lot.
39. Gianni forgot where did he buy the T-shirt.
40. Zach knew what was it.
41. Her boyfriend wanted to know when they were going to meet.
42. They travelled with their children.
43. The students inquired when the assignment was due.
44. Zach didn’t know where his book was.
45. Mary knew who did leave the notebook.
46. He remembered how did he come here.
47. We didn’t know the girl in the classroom.
48. Brian inquired how should he sing the opera.
Author/s:
Ma, Chun Long

Title:
The effects of study-abroad: the acquisition of English embedded wh-questions by L1 Cantonese speakers

Date:
2018

Persistent Link:
http://hdl.handle.net/11343/219989

File Description:
The Effects of Study-Abroad: The Acquisition of English Embedded Wh-Questions by L1 Cantonese Speakers

Terms and Conditions:
Terms and Conditions: Copyright in works deposited in Minerva Access is retained by the copyright owner. The work may not be altered without permission from the copyright owner. Readers may only download, print and save electronic copies of whole works for their own personal non-commercial use. Any use that exceeds these limits requires permission from the copyright owner. Attribution is essential when quoting or paraphrasing from these works.