

WILL CANTONESE L1 SPEAKERS IN ESL LEARNING PROGRESS IN  
LINE WITH PIENEMANN'S TEACHABILITY HYPOTHESIS?

CHAN, MUI YUEN MABEL

EdD

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WILL CANTONESE L1 SPEAKERS IN ESL LEARNING PROGRESS IN LINE  
WITH PIENEMANN'S TEACHABILITY HYPOTHESIS?

by

CHAN, MUI YUEN MABEL

A Thesis Submitted to

The Education University of Hong Kong

in Partial Fulfillment of the Requirement for

the Degree of [Doctor of Education/Doctor of Philosophy/Master of Philosophy]

August 2016

## STATEMENT OF ORIGINALITY

I, CHAN, MUI YUEN MABEL, hereby declare that I am the sole author of the thesis and the material presented in this thesis in my original work except those indicated in the acknowledgement. I further declare that I have followed the Institute's policies and regulations on Academic Honesty, Copy Right and Plagiarism in writing the thesis and no material in this thesis has been published or submitted for a degree in this or other universities.

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August 2016

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**ABSTRACT**

**WILL CANTONESE L1 SPEAKERS IN ESL LEARNING PROGRESS IN LINE  
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Teachability Hypothesis, a subset of Processability Theory, states that instruction is most beneficial if it focuses on structures from the next stage of the learners (that is, X+1 stage) of learners' stage (X), and that learners cannot skip stages. After a review of past Teachability studies, it is found that the past studies have not proved that Cantonese native speakers must be at the X stage in order to be ready to learn the X+1 stage English as Teachability Hypothesis (TH) has stated. Although the processing procedures of Processability Theory were built for universal application in Second Language Acquisition (SLA), it is believed that possible interference from learners' first language had not been attended to, and such interference could contribute to outcome or outcomes different from that of the Teachability Hypothesis (TH). It is hoped that the study can contribute to the understanding of Cantonese learners of English as a Second Language (ESL), and that the issues about typologically distant languages and first language interference to English as a Second Language (ESL) learners can be pursued further. This study aimed to investigate whether Cantonese speakers in Hong Kong will progress in line with Pienemann's Teachability Hypothesis. In contrast to the past studies in which the first language of informants were mostly Romance languages such as German, Italian, and Spanish,



the first language of informants of this study is Cantonese, which is a Chinese language dialect and is more distant to English. This study adopted the processing hierarchy of Processability Theory as the framework to measure, describe, and explain the recorded conversational data. A pre-test interview was recorded followed by a 3-month period tutorial and a post-test interview. Both interviews' data was analyzed using the Emergence Criterion method of data analysis. The analyzed data of pretest and posttest was compared for any stage gain. It was found that each of the six informants advanced to the next stage (X+1), and that each informant progressed according to his/her order of development regardless of the tutorial input, and no one skipped stage. The answer to the research question is that Cantonese speakers did progress as predicted by the result from Pienemann's Teachability Hypothesis. The study also provided some additional insights about the first language interference in English as a Second Language acquisition.

*Keywords:* Processability, Teachability, ESL, Cantonese learners, English learning in Hong Kong

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## TABLE OF CONTENTS

Statement of Originality	i
Thesis Examination Panel Approval	ii
Abstract	iii
Acknowledgements	vi
Table of Contents	vii
List of Abbreviations	xv
List of Tables	xvi
List of Figures	xviii
Chapter 1: Introduction	1
1.1 Overview	1
1.2 Aims of the Study	3
1.3 Rationale of the Study	4
1.4 Outline of the Study	6
1.5 Chapter Summary	7
Chapter 2: Literature Review	8
2.1 Predecessors of PT	9

2.1.1 The Multidimensional Model	9
2.1.2 Processing strategies	14
2.1.3 The Predictive Framework	18
2.1.3.1 Influence of Typological distant L1 to SLA	19
2.1.3.2 Implicational Scaling on ESL Order	20
2.1.3.3 Interrelating Morphology to Syntax	22
2.1.3.4 Processing pre-requisites between stages	23
2.1.3.5 ESL Stages	26
2.1.3.6 Predictive Framework Summary	29
2.2 Processability Theory	30
2.2.1 Testing the ESL Predictions Johnston (1985)	33
2.2.2. Developmental Gap Noted	35
2.3 Levelt's Speech Production Model	39
2.3.1 The Lexicon	41
2.3.2 Syntactic procedures	43
2.3.3 Speech Model and Incremental Processing Grammar	45
Section Summary	
2.4 Lexical Functional Grammar	47

2.4.1 Lexical Mapping Theory	49
2.4.2 Feature Unification	51
2.4.3 The Linearization Problem	54
2.4.4 Unmarked Alignment Hypothesis	55
2.4.5 The TOPIC Hypothesis	57
2.5 Teachability Hypothesis Studies	59
2.6 Research Gap and Rationale for the Study	61
2.7 Chapter Summary	63
Chapter 3: The Study	69
3.1 Data Collection	70
3.1.1 The Informants	70
3.1.1.1 Informed consent	72
3.1.1.2 Convenience Sampling	73
3.1.2 A Dual Mode of Context	73
3.1.3 The Data Collection Procedure	75
3.1.3.1 A mixed setting for data collection	75
3.1.3.2 The Target Structure and Tasks	75

3.1.3.3 Pretest interview	77
3.1.3.4 Posttest interview	77
3.1.3.5 The Tutorial	78
3.1.4 Data Collection Section Summary	80
3.2 Data Analysis	81
3.2.1 The Purposes of Emergence Criterion Analysis	81
3.2.2 Method for EC analysis	81
3.2.2.1 Quantitative distributional analysis	81
3.2.2.2 Application of an emergence criterion for acquisition	83
3.2.2.3 Application of implicational scaling to derive an emergence order	84
3.3 Research Issues	87
3.3.1 Reliability and Validity	87
3.3.2 Emergence criterion for acquisition	87
3.3.2.1 Emergence sample from this study	89

3.3.3 Coding for this study	90
3.3.3.1 ESL stages in question formation	93
3.3.4 Distributional Analysis in tables	96
3.3.5 Data Analysis and Research Issues Section	99
Summary	
Chapter 4: English Learning in Hong Kong	100
4.1 Hong Kong Education System	100
4.1.1 Historical development	101
4.1.2 Current Hong Kong Education System	102
4.1.3 Curriculum Reforms – Learning to learn	103
4.2 English in the Hong Kong Curriculum	105
4.2.1 English Language	105
4.2.2 Cantonese and Vernacularization	106
4.2.3 Putonghua	107
4.2.4 EMI versus CMI debate	108
4.2.5 Firm Guidance Review	109
4.2.6 Fine Tuning Policy Report	109

4.2.7 English Language Pedagogy	110
4.2.8 English Language Assessment	111
4.2.9 English Language Teacher Training	112
4.2.9.1 Pre-service	114
4.2.9.2 LPATE results and ELT training	114
4.2.9.3 In-service	116
4.2.10 English Pedagogical Section Summary	117
4.3 Problems in learning English in Hong Kong	117
4.3.1 The use of English	117
4.3.2 Teaching and Learning style	117
4.3.3 Diversity among languages	120
4.3.4 High Demand of Speech Production	120
4.3.5 Typological distant L1 and L2	121
4.4 Chapter Summary	122
Chapter 5: Findings	124
5.1 Individual results of Pretest and Post-test	124
5.1.1 Introduction	124
5.1.2 Informants: (JS, ST: Stage 3 / Stage 4)	125



5.1.3 Informants: (IP, SY: Stage 4/Stage 5)	129
5.1.3.1 Inversion and Question Feature	129
Unification	
5.1.3.2 Information exchange at Stage 5	132
sentence level	
5.1.4 Informants: (BM, CW: Stage 5 / Stage 6)	132
5.2 Findings on Teachability Hypothesis	137
5.3 Findings on Next Stage (X+1) Gains	138
5.4 Chapter Summary	140
Chapter 6: Discussion on Findings	141
6.1 Variational Hypothesis and Learner Variation	142
6.2 Typologically Distant Chinese	145
6.3 Chapter Summary	147
Chapter 7: Conclusion	148
7.1 Limitations of this study	147
7.2 Limitations of Processability Theory and Processing	149
Hierarchy	
7.3 Pedagogical Significance of the Study	150

7.3.1. Teaching Design	151
7.3.2. Learner Variation Prediction	152
7.4 Implications and Future Research	152
7.5 Chapter Summary	153
References	153
Appendix A: Current English Language Curriculum	163
Appendix B: Consent Form Page 1 and Page 2	164
Appendix C: Cartoon pictures for Description	167
Appendix D: Sample of a transcription: CW	168
Appendix E: Tutorial Session Tasks and Written Exercises	170

## LIST OF ABBREVIATIONS

ESL	English as a second language
GSL	German as a second language
IL	Inter-language (learner's second language)
IPG	Incremental Procedural Grammar
LMT	Lexical Mapping Theory
MM	Multidimensional Model
NP	Noun Phrase
PF	Predictive Framework
PH	Processing Hierarchy
PT	Processability Theory
SLA	Second Language Acquisition
TH	Teachability Hypothesis
TOP	Topic Hypothesis
UAH	Unmarked Alignment Hypothesis
VP	Verb Phrase

## LIST OF TABLES

Table 1	ESL Processing Procedures and Developmental Stages	4
Table 2	Implicational scale analysis	12
Table 3	Quantitative data on learner development	13
Table 4	Strategies explanation of developmental stages in the MM	16
Table 5	Final list of ESL structures for Rapid Profile	20
Table 6	Tentative stages in ESL development	22
Table 7	Explanation of how ESL question develops in the Predictive Framework	28
Table 8	Child learners of ESL: implication table	34
Table 9	Relatives of Processability Theory	36
Table 10	Processing procedures applied to English	46
Table 11	Predicted Developmental Sequence of the Topic Hypothesis	58
Table 12	Summary Results of Teachability Hypothesis Studies	65
Table 13	General Organizations for Chapter 3	69
Table 14	Implicational Scale of a Learner	83
Table 15	Distributional Analysis of Guy's development of SEP and INV	85
Table 16	Modified ESL Processing Hierarchy	91

Table 17	Processing Procedure applied to ESL	94
Table 18	Processing procedures applied to English Question	95
Table 19	Distributional Analysis Table: Pre-Post Test BM	97
Table 20	LPATE Results	115
Table 21	Pretest Group Stage	139
Table 22	Posttest Group Stage	139

## LIST OF FIGURES

Figure 1	ESL syntactic and morphological structures and explanations.	21
Figure 2	Information Exchange in Processability Theory.	32
Figure 3	Levelt's Speech Production Model.	40
Figure 4	Incremental language generation.	44
Figure 5	Feature Unification in the S- Procedure.	51
Figure 6	Mapping of Three Parallel structures in LFG.	53
Figure 7	Linearization Problem illustration: A dog is seen by Peter illustration	54
Figure 8	Unmarked Alignment Hypothesis Illustration.	56
Figure 9	Distribution of Informants.	72
Figure 10	Schedule of the tutorial sessions and interviews.	79
Figure 11	Transcription conventions.	80

# CHAPTER 1

## INTRODUCTION

### 1.1 Overview

In the decade between the morpheme order studies of 1970's (e.g., Dulay & Burt, 1973/74) and the strategies approach of the 1980's (Clahsen, 1984) the attention and focus of Second Language Acquisition (SLA) were directed from one of the discovery of the order to that of the explanation of the order. Among the different developmental orders, a hierarchy built on a set of processing procedures has commanded a lot of attention. This processing hierarchy is ranked according to a set of processing procedures and is based on the following logic: at any stage of development, a learner can process only those second language linguistic forms that the current state of the learner's language processor can handle. In other word, the learner is constrained to his/her current processing ability of specific linguistic knowledge by the linguistic processor. The processing hierarchy of Processability Theory (PT) (Pienemann, 1998, 2005) not only can explain the second language learning process (Jordan, 2004, p. 225), but can also address the instructional effect in second language learning (Van Patten & Williams, 2007, pp. 9-12).

The core of PT composes two main constructs: (a) Processability Hierarchy, and (b) Hypothesis Space. I will briefly explain these two constructs in order to give an overview. Pienemann (1998) ranks the processing procedures in a hierarchy, which he used to describe and predict L2 learner development. The ranking order is composed of several levels of processing procedures relevant to acquisition. They are:

the lexicon, categories, phrases, and sentences (Table 1, p. 4). Johnston (1985) defined this set of ranking order as the “developmental stages”. The developmental order in these stages allows us to know whether individual learners have acquired the relevant processing procedures, and /or their prerequisites, and whether learners are now ready to advance to the next stage. With these developmental predictions of learners, processing hierarchy can guide instructors which grammatical structures to teach to the specific learners. The second construct, a learner’s *hypothesis space*, allows the learner to vary from the constraint of the developmental path. Depending on individual’s assumption toward the target language, a learner will produce either target-second-language or non-target interlanguage (IL). While IL varies from the target second language, the variations are predictable according to *hypothesis space*. These predictions are attributes of *hypothesis space* construct, that is, due to the processing limitations, there are only a few options for the variations. These IL predictabilities thus allow instructors to describe and foresee interlanguage (More about the use of *hypothesis space* and its *variational hypothesis* will be discussed in Chapter Six).

On research methodology, PT considers that accuracy criteria (e.g., 80% suppliance) are too arbitrary and has adopted the Emergence Criterion (EC). EC uses the point of time when a structure (of a linguistic form) first appears to have been processed by learners. An additional noteworthy point for PT research is that PT bases its research on natural conversational data, because PT researchers believe that natural conversations tap directly into the language production process and, therefore, would reflect learner’s ability more truthfully.



Originally basing its ideas on the Multidimensional Model (Clahsen, Meisel, & Pienemann, 1983; Meisel, Clahsen, & Pienemann, 1981; Pienemann, 1980), and the Strategies Approach (Clahsen, 1984), PT started to study German as second language learning (GSL), and extended its theories to include English as a Second Language (ESL) (Pienemann & Johnston, 1986, 1987). This study will focus in the Second Language Acquisition of English—the teaching and learning of English as a Second Language (ESL).

Specifically, I studied the effect of Teachability Hypothesis among Cantonese learners in Hong Kong. Teachability Hypothesis is a subset of PT (Pienemann, 2005), and was formulated in Pienemann's (1984; 1989) studies. Teachability Hypothesis states that: Instruction is most beneficial if it focuses on structures from the next stage (X+1) of learners (X), and that no stages can be skipped by learners.

## **1.2 Aims of the Study**

This study aimed to investigate whether Cantonese L1 speakers in Hong Kong progress in line with Pienemann's Teachability Hypothesis as found in Pienemann (1984) and Pienemann (1989). Pienemann's (1998, 2005) Processing Hierarchy was adopted as the set of developmental order to analyze learner development (Table 1). It was hoped that by following a set of developmental stages, the study could describe, test, and explain a group of Cantonese secondary school learners. It was also hoped that ESL instructors could know what grammatical elements to teach to specific Cantonese learners, when the current stage of the learner was known (Pienemann, 1984; 1987; 1989; 1998).

Table 1

*ESL Processing Procedures and Developmental Stages*

Stage	Processing procedure	L2 process	Morphology	Syntax
6	subordinate clause procedure	main and subordinate clause procedure		Cancel INV
5	S-procedure/ WO-rules/ -salience	inter-phrasal info-exchange	SV agreement (= 3sg -s)	Do2nd, Aux2nd, Neg Aux 2nd Yes/No, WH
4	VP-procedure/ WO-rules/ +salience	inter-phrasal info-exchange	Tense agreement  NP agreement: add (+ed) Add (+ing); possessive pronoun: Tom's pen; two kids two dogs / plural marking: kids (add +''s'')	inversion, pseudo inversion  Adverb-fronting Wh-fronting Do-fronting Negation + Verb Topic fronting
3	Phrasal procedure (Noun Phrase)	Phrasal info-exchange	two child's (inter-language) two woman's Past tense (+ed): telled	Canonical word order(SVO)
2	category procedure	Lexical morphemes		

1	word/ lemma	“words”	invariant forms	single constituent
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Source: Pienemann (1998, p. 171)

### 1.3 Rationale of the Study

After a review of past studies, I was convinced that they have not proved that Cantonese L1 speakers must be at the X stage in order to be ready to learn the X+1 stage of English. Pienemann founded PT on a universal developmental dimension of SLA with little or no consideration of possible interference from learners’ first language (L1). My speculation was that L1 interference could and may contribute to the variable outcome of Cantonese speakers, and, thus, add to the understanding of SLA (Pienemann 1998), and that some issues raised about typologically distant languages’ interference to ESL learners (Johnston, 1985; Pienemann & Johnston 1987) can be pursued further. Moreover, in contrast to past studies in which informants were mostly of Romance languages (German, Italian, Spanish), the informants of this study whose L1 (Chinese) were more distant to English.

The informants are Hong Kong Chinese who spoke a daily dialect called Cantonese. Spoken by 98% of the population in Hong Kong, Cantonese is the common language. On the other hand, English--the second language in this study--has long been a dominant language in Hong Kong, and its hegemonious status has changed little even after Hong Kong returned to China. Following the educational system of Hong Kong, the study’s informants have been exposed to English since they began schooling in kindergarten. This brings out the third reason for this study. After life-long exposure to the English language and its prevalent uses, Hong Kong secondary learners are more interested to acquire skill-building techniques in English

learning. Pienemann's processing procedure hierarchy in ESL and its analytical characteristics can be quite appealing to Hong Kong English learners and teachers alike.

My study, therefore, will look into English learning of a small group of senior secondary students in Hong Kong in Teachability Hypothesis (TH), and the Research Question is: Will Cantonese L1 speakers' progress in ESL learning in line with Pienemann's Teachability Hypothesis?

#### **1.4 Outline of the Study**

Chapter Two reviews the relevant literature and the study's theoretical background. The first section of Chapter Two presents the Multidimensional Model (Clahsen, Meisel, & Pienemann, 1983; Meisel, Clahsen, & Pienemann, 1981; Pienemann, 1980). The second section presents the Predictive framework of English as a Second Language (ESL) (Pienemann & Johnston, 1985, 1987). The third section presents the theoretical bases of processability theory, including the speech production model of Levelt (1989) and the four psychological assumptions in language production (Pienemann, 1998), and presents how processing hierarchy evolves from Incremental Procedural Grammar (IPG) (Kempen & Hoenkamp, 1987). The fourth section presents two crucial concepts of processing hierarchy--the information exchange and feature unification borrowed from Lexical Functional Grammar (LFG) (Bresnan, 1989, 2001; Kaplan & Bresnan, 1982). The last section states the research question--to test and measure Teachability Hypothesis through stage change. This last section ends with a review of past Teachability studies, which leads to the Research Question of this study.

Chapter Three, the methodology chapter, consists of the data collection, the data analysis section, and research issues of the study. The data collection section describes

the informants of this study, a discussion of the procedures used to elicit natural conversation data in pretest and posttest, with the Tutorial Schedule and instruction materials displayed. The data Analysis section follows with special attention paid to the emergence criterion used to measure acquisition (Pienemann, Johnston, & Brindley, 1989); an account of how data were coded and analyzed, as well as the foundation of choosing question structure as the target structure. The chapter ends in showing how EC was applied in the analysis with processing hierarchy on question structures.

Chapter Four is included for the purpose of providing an accurate and thorough background of the study's informants. The chapter describes English Learning in Hong Kong in three sections. First, the Hong Kong education system, including its historical development, current system, and the new curriculum is discussed. Second, English in the Hong Kong Curriculum, its historical development of the three main languages of Hong Kong and Hong Kong language policies, its recent pedagogical changes including the adoption of TBLT, standards-referenced assessment, and ELT teacher development are discussed. Third, I explain the specific difficulties in English learning for Hong Kong secondary students.

Chapter Five presents the findings of this study in two major sections. The first section analyzes the pretest and post-test of individual informant, and his/her utterances, with explanation from PT. The second section shows the group results on stage gain, and the answer to the research question.

Chapter Six discusses the variational outcome observed from the learners and their strategies in coping with English acquisition, which are to some extent, unique to the typological distant Cantonese ESL learners. The conclusion chapter, Chapter 7, discusses the pedagogical significance of this study, the limitations of PT and of this study, with

possible future research areas proposed.

### **1.5 Chapter One Summary**

This chapter has introduced the processing procedures in SLA, and Pienemann (1998)'s natural developmental order--the processing hierarchy, which is constructed according to a set of processing procedures which are believed to have constrained second language learning. In order to test the Teachability Hypothesis, which is a subset of PT, the PT processing hierarchy is adopted as the framework for analysis. In next chapter, I will review PT literature.

## **CHAPTER 2**

### **LITERATURE REVIEW**

Processability Theory (PT) was designed to address the developmental problem of second language acquisition (SLA). Pienemann (1998) established a universal hierarchy to explain learners' challenges in terms of processing requirements as defined in Levelt's (1989, 1993) model of language generation, and based on the representational correlates as defined in Lexical-Functional Grammar (LFG; Bresnan, 2001).

The centerpiece of PT--the developmental hierarchy--explains and describes the processing procedures, which are supposed to be the procedures that shape the course of learning process (Jordan, 2004, p. 225), and has formed the base for the instructional effect in SLA (Van Patten & Williams, 2007, pp. 9-12). PT describes and explains the "constraints" of second language acquisition (SLA). PT also

describes the psycholinguistic processor architecture through the speech production model (Levelt, 1989); incremental procedural processing of grammar of sentence (Kempen & Hoenkamp, 1987); and in explaining its linguistic structures, PT adopts the processes of information exchange and feature unification of Lexical Functional Grammar in sentence building (Bresnan, 2001, 1989; Kaplan & Bresnan, 1982). Through its explanatory and descriptive framework of processing procedure, a prediction of the second language development is possible.

This chapter is organized as follows: Section 1 reviews the predecessors of PT--the Multidimensional Model (Clahsen 1984; Clahsen, Meisel, & Pienemann, 1983; Meisel, Clahsen, & Pienemann, 1981) and processing strategies. Section 2 reviews the Predictive Framework (Johnston, 1985; Pienemann & Johnston, 1987) which describes the inclusion of English as Second Language (ESL) processing procedures into PT. Section 3 reviews Levelt's (1989, 1993) speech generation model and Kempen and Hoenkamp's (1987) incremental sentence processing. Section 4 reviews LFG and its representations in PT. Section 5 introduces Teachability Hypothesis (TH) and the relevant empirical studies, and announce the research question of this study.

## **2.1 Predecessors of PT**

Several concepts have contributed to the building up of PT and were elaborated in the following studies and publications: the Multidimensional Model (Meisel, Clahsen & Pienemann, 1981), Processing Strategies Approach (Clashen, 1984), and the Predictive Framework (Pienemann & Johnston, 1987). The following paragraphs discuss these studies and their findings, which have become the fundamental concepts

of PT.

**2.1.1 The Multidimensional Model.** The Multidimensional Model was resulted from findings of The ZISA Group Project (Zweitspracherwerbitalienischer und spanischerArbeiter), a study in Germany of German as a Second Language Acquisition (GSL) for Italian and Spanish migrant workers. The setting of the project was naturalistic (that is, non-classroom) with 45 informants for the cross-sectional study, and about 12 informants over two years for the longitudinal study. The aim was to explain the stages and variation in the acquisition of GSL. The Summary article of the project was published in Meisel, Clahsen, and Pienemann (1981), and the project report was published in Clahsen, Meisel, and Pienemann (1983). The project applied Clahsen's (1984) strategies in their study (Clahsen et al., 1983; Meisel et al., 1981; Pienemann, 1980), and focused on the issue of determining sequences in SLA.

Originally, the 'multidimensionality' of this model referred to the three dimensions' in which the ZISA researchers found the speech of their informants: development, psycholinguistic variation and Socio-psychological variation. Later, Psycholinguistic variation was trimmed for lacking empirical support. The two dimensions are:

- Developmental Dimension - L2 learners acquire German word order rules (GSL) in the same implicationaly ordered and obligatory developmental stages, as these stages are believed to be psychologically constrained, such as limitation of memory in the use of L2. To cope with this memory constraint, the learners were believed to have adopted a combination of the three speech-processing strategies (Clahsen, 1984) in development dimension, while some engaged in simplification



strategies (Meisel et. al., 1981).

- Variational (Socio-psychological) Dimension - This dimension was explained as due to an individual learner's different orientation towards simplification. Learners vary in their attitudes towards and involvement in the local (German) language and culture. The integrative-oriented Standardizers are more positive toward German culture; and uses more restrictive simplification strategies than an integrative-oriented learner who uses elaborate simplification strategies.

The L2 developmental path is obligatory and fixed and its acquisition constrained for L2 learners, regardless of the socio-psychological background of learners (Clahsen, 1984). Variational features are acquired and used to different extents by different learners, and they are optional according to each learner's hypothesis, so less constrained to learners (Clahsen, 1984).

Developmental stages are said to undergo in a fixed order; while at the same time, each learner displays different interlanguage as s/he moves through the developmental stages. The MM explains this variation as a socio-psychological variation. The term-interlanguage--should be clarified before we move on. Most second language acquisition researchers agree that L2 learners are active in construction of the L2; and during the learning process they internally formulate and develop their own linguistic system of L2 (Selinker, 1972, 1992). This linguistic system of L2 learners is termed interlanguage (IL) by Selinker (1972, 1992).

MM has outlined, with empirical support, the developmental and variational dimensions as two systematic and independent progressing dimensions (Pienemann, Johnston, & Brindley, 1988), and their difference in motivation. Besides variational

and developmental dimensions in L2 acquisition, the key concepts that MM brought into PT are also implicational scaling, probabilistic rules, and emergence criterion (Meisel, 1991; Meisel, Clahsen, & Pienemann, 1981).

- Implicational Scaling - The ZISA researchers (1981, p. 123) borrowed the technique of implicational scaling (DeCamp, 1973; Guttman, 1944). Meisel et al. (1981, p. 129) cited Bailey's (1976, 1977) research and stated that implicational scaling "constitutes a psychologically plausible hypothesis about what is learnable." Implicational scaling has established that the acquisition of rules 1 and 2 must happen before the acquisition of rule 3 and so on, and is used to test the distribution of 1s and 0s for a series of variables in sequential order. DeCamp (1973, p. 33) was the first to apply implicational scaling to linguistics, he explains:

An implicational analysis is a binary relation between linguistic features and language varieties (dialects, styles, etc.) so selected and so arrayed in order, as to result in a triangular matrix. If the value of any square in the matrix (i.e. the product of F(feature) x V(varieties)) is 1, it implies that the value of any square **above** or to the **left** is also 1. A value of 0 implies that the value of any square below or to the right is also 0. Such a triangular matrix accommodates only a specific set of features, hence it is descriptive statistics (see also and Chapter three The Reliability section).

Table 2

*Implicational scale analysis*

Features					
F1	F2	F3	F4	F5	Varieties

1	1	1	1	1	V1
1	1	1	1	0	V2
1	1	1	0	0	V3
1	1	0	0	0	V4
1	0	0	0	0	V5
0	0	0	0	0	V6

Source: DeCamp (1973, p.33)

- Use of Probabilistic Rules to complement the emergence criterion - Meisel et al. (1981, pp. 125-6) adapted Labov's (1972a, 1972b) variable rules (cf Pienemann 1998, p. 141). Variable rules have the following structure: rule x (e.g. contraction of the copula) is used with probability X in social context Y given that the linguistic context is Z (X/Y- percentage values in Z- linguistic contexts). This enabled the MM to include quantitative data in probabilistic values, other than just in the (0 or 1) values in implicational scaling.

In Table 3, the figures express the probability of application of one GSL rule, Particle (or Verb Separation) e.g., You may the car take (English version), with different sets of verbs. Maria uses both rules correctly on all occasions while Franco uses them correctly in 77% and 71% of contexts. The brackets around Franco's first example show that there are less than four relevant utterances. The probability shows the emergence of the linguistic rule in learners' production, in this case, Particle rule with modals.

Table 3

*Quantitative data on learner development*

Learners' GSL rules	Maria	Franco
Modal + main verb	1	(0.77)
Auxiliary + main verb + past participle	1	0.71

Source: Clahsen et al. (1983, pp. 131-2)

With the empirical support of implicational scaling and probabilistic rules, MM can operationalize emergence criterion for acquisition, which is a means to establish learner's development by using the first emerging of a grammatical rule in learner production.

The concepts of developmental and variational dimensions in L2 learning, implicational scaling for linguistic context, probabilistic rules, and emergence criterion, have added not only the explanatory power, but also the descriptive power to SLA. However, how learners learn and produce with the processing constraints were unexplained (Larsen-Freeman & Long, 1991, p. 285; McLaughlin, 1987, pp.114-115), as well as the input process of learners (Ellis, 1994, p. 388).

**2.1.2 Processing Strategies.** In the major publications of the MM (Clahsen et al., 1983; Meisel et al., 1981, p. 123, 125;), the ZISA researchers apply implicational scaling (Table 2.1) to help explain the developmental stages in the word order rules and the changing position of the verb in the clause. Following Bailey (1976, 1977), the ZISA researchers hypothesize that rules are learned **in a sequence**, if the database shows that they are ordered implicationally (That is, if they believed that the use of the third rule implied that a learner had also learned the second and first rules and so

on). Although this is indeed what the ZISA researchers found, they wanted an explanation for why the rules were learned in an ordered way.

It was Clahsen's processing strategies hypothesis (1984, pp. 221-223), which was adopted as the explanation for this development (KeBler, 2008). This was because Clahsen's strategies were able to provide a more coherent account of the developmental stages of word order in the acquisition of ESL (Table 4) which were revealed by the data.

Meisel et al. (1981) and Clahsen (1984) claim that structures observed at each of the five stages in the development of ESL word order (Table 5) are hierarchically related such that each new one entails and adds to the previous one, thereby gradually allowing more complex structures to be processed.

At Stage X, learners do not know any grammar of the L2 so the learners would process sentences in canonical order. At stage X+1, learners add the strategy IFS, keeping the previous COS and SCS strategies. This is still “pre-syntactic”. Here, the learner can move elements from one salient position to another (initial to final position or vice versa), but only if this does not disturb the canonical word order. Thus, an ESL learner can produce utterances like: In Mainland, I am waiter (adverb-fronting).

At stage X + 2 (movement into a salient position), the learner is no longer constrained by the canonical order strategy, and can move internal elements to salient (initial or final) position. Verbs are moved to a salient position from a non-salient position (i.e., non-initial/final, as V in SVO), producing utterances like Have you job? (yes/no inversion), or You take coat off (particle separation).

At X+3, the process of internal movement is available for learners. ‘Inversion of the subject and inflected verb form’ in German belongs to this stage. At Stage X+4, all three constraints are removed, the grammatical substrings are recognized and learners are able to process elements across strings. Subordination is now available to learners. Once the final ‘constraint’ on the processing of main clauses, IFS, is cancelled at stage 5, the full L2 phrase structure starts to operate in clauses.

Table 4

*Strategies explanation of developmental stages in the MM*

Stage	Rule	Strategies	Explanation	Research base
6(X+ 4)	verb final	Subordinate Clause Strategy (SCS) cancelled	Constituents within subordinate clauses are moved to create Subordinate clause order.	
5(X+ 3)	inversion	IFS cancelled	Constituents within the string are moved to create inversion i.e. a sentence-internal operation	
4(X+ 2)	verb separation	COS cancelled	Constituents are moved out of the string to create verb separation i.e. an operation internal and external of sentence.	
3(X+ 1)	Adverb Fronting	Initialization- Finalization Strategy (IFS) added	IFS enables Adverb Fronting. There is no interruption of the basic string i.e. a sentence-external operation.	IFS: Neisser (1967)
2(X)	canonical	Canonical	The canonical order i.e. SVO is	COS: Bever

ordering	Order	easiest because it is produced by a	(1970);
	Strategy &	fixed string of constituents.	SCS: Bever
	(COS)		and
	Subordinate		Townsend
	Clause		(1979)
	Strategy		
	(SCS) in		
	place		

---

Notes: The strategy reflects the cumulative removal of three constraining strategies: (a) the canonical order strategy (COS), (b) the initialization-finalization strategy (IFS), and (c) the subordinate clause strategy (SCS). Source: Clahsen (1984)

Pienemann (1998) recognizes the accurate predictions of development of the processing strategies, but also criticized the processing strategies in three points:

1. First, the strategies assume "that the L2 learner already 'has' fully developed components of a grammar and need to be constrained for the L2 (Pienemann, 1998, p.49)", but *the learner (only) acquires lexical items that cannot be indexed to syntactic categories* (Pienemann, 1998, p. 49); the learner needs to build up the L2 grammar; the strategies has not explained about how learners can acquire L2 grammar (Pienemann 1998, p. 166).
2. Second, the main idea behind the strategies approach was that processing strategies constrain movement transformations. "... (but) ... it is now accepted that transformations are psychologically implausible concepts



(Levelt 1989; Pienemann, 1998, p. 51)".

3. Third, Clahsen (1984) has not answered how L2 learners acquire the syntactic patterns (Pienemann, 1998, p. 53).

Following processing Strategies approach, Pienemann proposed Predictive Framework (Pienemann and Johnston 1987) and PT (Pienemann, 1998) as alternatives.

**2.1.3 The Predictive Framework.** The Predictive Framework (PF) (Pienemann and Johnston, 1986, 1987; Pienemann 1987; Pienemann, Johnston, and Brindley, 1988) was formulated in order to extend the scope of the processing strategies and to predict developmental stages and variation in SLA. The theoretical framework was the processing strategies (Bever, 1970; Slobin, 1973), and Multidimensional Model (Clahsen et al., 1983; Meisel et al., 1981). PF is based on the data of a project done by Johnston (1985), which is a report on the extensive research of Syntactic and Morphological Processing in Learner's English (SAMPLE). The SAMPLE (Johnston, 1985) report is a cross-sectional study of the acquisition of ESL by adult migrants in Australia. The project aim was to describe & theoretically account for development of ESL to provide a basis for teaching. The (reported) cross-sectional data was all twenty-four informants (12 Polish, 12 Vietnamese) collected over two interviews. The (not reported) longitudinal data was from eight informants (4 Polish, 4 Vietnamese) over one year.

The SAMPLE-ESL project is different from the ZISA-GSL project in a number of ways. Both ZISA project and (processing) Strategies Approach based the processing hierarchy on GSL language development, SAMPLE is based on a

typological near language-English as a second language (ESL). Not only that it advanced a hierarchical framework for predicting and explaining development and variation in SLA, using different strategies and grammatical principles from MM and processing strategies, it has made several discoveries and improvements on the developmental hierarchy-influence of learner's L1 to SLA, implicational scaling on ESL Order, interrelating morphology to syntax, processing prerequisites between stages, ESL stages explained:

**2.1.3.1 Influence of Typological distant L1 to SLA.** Informants of SAMPLE are typologically distant L1 speakers (Vietnamese and Polish). This contrasts with the MM typologically similar L1 informants - Italian and Spanish.

SAMPLE data enables the notion that typologically distant L1 speakers can differ significantly in their learning of ESL, and from this data, the difference in the acquisition of questions was found (Johnston, 1985, p. 241) to be related to the variational dimension. For example, the Vietnamese informants produced more productive wh- questions with 'do' and produced less with inversion (Johnston 1985, p. 241). Also, Johnston (1985) found the Vietnamese speakers' use the copula and the Plural -s much less than the Polish speakers (Johnston, 1985, p. 242). For example: *She from Vietnam?* The missing of copula use in inverted questions was found common among the Vietnamese (Johnston, 1985, p. 240). Johnston (1985, pp. 61-2) links the differences in use of copula to the L1 morphology. Vietnamese, unlike English, does not have a bound plural or the copula after predicative adjectives – e.g. *She Vietnamese* - whereas Polish does. This is the first time that the L1 influence of L2 learning is found.

From the data of these informants, the distinction between variational and developmental paths can be more clearly than MM. Question formation, with its word order rules, was hypothesized to be developmental, while copula (English) among L1 Vietnamese speakers was found to be variational.

**2.1.3.2 Implicational Scaling on ESL Order.** Pienemann and Johnston (1987) tested the SAMPLE database (Table 5), to see whether English structures were implicationally related and found that if a learner had acquired a structure at stage 5 there was a very high probability (95%) that they had acquired the rules at the lower stages.

Pienemann, Johnston and Brindley (1988, p. 227) selected "only those which are considered frequent and clear enough" (see Table 5) excluded: *Particle Shift*, *V- "to"-V*, *ADV-LY*, *Q-TAG*, *Adv-VP* (Pienemann, Johnston, & Brindley, 1988, p. 228) for *Rapid Profiling* on computer, also found the scalability was very high.

Table 5

*Final list of ESL structures for Rapid Profile*

Structure	Stage	Example
1. single words, formulae	1	how are you?
2. SVO, SVO?	2	* The tea is hot?
3. ADVERB PREPOSING	3	* Yesterday I work
4. DO FRONTING	3	* Do he work?
5. TOPICALIZATION	3	This I like
6. NEG + V (don't)	3	* He don't eat meat
7. PSEUDO-INVERSION	4	Where is my purse?

8. YES/NO-INVERSION	4	* Have he seen it?
9. PARTICLE SHIFT	excluded	* He turn the radio on.
10. V-“TO”-V	excluded	We like to sing.
11. 3 <sup>RD</sup> -SG-S	5	She comes home
12. DO-2 <sup>ND</sup>	5	They did not buy anything.
13. AUX-2 <sup>ND</sup>	5	Where has he seen you?
14. ADV-LY	excluded	They spoke gently.
15. Q-TAG	excluded	It’s expensive, isn’t it?
16. ADV-VP	excluded	He has often heard this.

---

\* non-target-like

Source: Pienemann, Johnston, & Brindley (1988, p. 228)

Johnston (1997, pp. 338-9) presents an implicational scale of the SAMPLE informants’ acquisition of a range of ESL syntactic and morphological structures (Figure 1 below). In Johnston’s (1997, pp. 338-9) view, this ordering demonstrates ESL developmental stages. Cited below is the SAMPLE data in implicational scale (Dyson, 2004 quoting Johnston, 1997, pp. 338-9):

NO+X	Use of no as a simple pre-lexical negator.
SVO	Canonical word order (no grammatical relations).
“ING”	Use of “-ing” to mark semantic action words.
IRREG	Emergence of irregular pasts (e.g. “went”).
PL “S”	Productive usage of plural “-s”.
ADVF	Adverb fronting (e.g. “Yesterday I go home”).

WH+X	WH-word at beginning of canonical order sentence.
DON+V	Use of “don(t)” as a monomorphemic preverbal negator.
Neg+V	Use of “no” as preverbal negator.
RFX1	Use of emphatic relexives (e.g. “George himself”).
-ER	Use of productive comparative forms of the adjective.
REG	Use of regular “-ed” past tense forms.
PSINV	Inversion with inverted element fronted (e.g. Y/NQ).
COMP	Use of complementizers and “that” complements.
A-EN	Use of auxiliaries and past participles.
D-FOR	Use of “for” as a dative/benefactive.
D-To	Use of “to” in dative constructions.
A-ING	Emergence of auxiliaries and “-ing” participles.
3SG-S	Emergence of third singular “-s”.
AUX-2	Use of auxiliary or copula in inverted second position.
ADVLY	Regular use of “-ly” as an adverbial marker.
(Johnston 1997, pp. 338-9)	

*Figure 1. ESL syntactic and morphological structures and explanations.*

**2.1.3.3 Interrelating Morphology to Syntax.** “The extension of MM model to morphology has facilitated the task of gauging developmental stages for learners of English. Unlike question structures, morphemes like third person “-s” and adverbial “-ly” are frequent and obligatory. ...this extension should work for any natural

language, since all natural languages use either word order or morphology or a mixture of the two in their syntax” (Pienemann & Johnston, 1987, p. 81). It is obvious that the inclusion of morphology is to make the Processing stages more “universal” in applicability (Pienemann, 1998).

**2.1.3.4 Processing prerequisites between stages.** The strong empirical supports of implicational scalability provide evidence for processing prerequisite, that is, SL learners need to build up one stage to provide the processing capacity necessary for the next stage. Pienemann and Johnston (1987) revised Clahsen's (1984) strategies of GSL to explain the ESL processing hierarchy (Pienemann & Johnston, 1987). Table 6 illustrates these predictions of ESL (Pienemann & Johnston, 1987, pp. 75-83).

Table 6

*Tentative Stages in ESL development*

S T G	VERB	NOU N	PN	Q	NEG	AD	ADJ	PREP	W_ OR DE R
1:	‘WORDS ‘ or FORMULAE								
2:	“ IL-ing IRREG -ed	“ “ “ REG_P	1st 2nd 3rd POSSE	SVO? “ “	no no+ X “	- - -	- - -	PP “ “	SVO “ “
3:	“	L	SS	DO_	don+	(ADV)	-	“	TOPIC

		IRREG – PL		FRON T WHX_ FRON T	V “	-	(more )	“	ADV_FR ONT
4:	AUX_ EN AUX_ ING	(POSS ESS) “	“ “	PSEU DO_IN V Y/N_I NV	“ “	“ “	(bette r) (best)	COMP_T O “	PART_M OV PREP_ STRNDG
5:	3SG_S +”	(PL_ CONC D) “	CASE (3rd) RFLX (ADV)	AUX_ 2nd SUPPL ET	DO_ 2nd SUP PLE T	-ly “	-er -erst	“ “	(DAT_TO ) “
6:	(GERU ND)	“ “ “ “ “	RFLX (PN) “ “ “ “	Q_TA G “ “ “ “	“ “ “ “ “	“ “ “ “ “	“ “ “ “ “	“ “ “ “ “	ADV VP (DAT MVMT) (CAUSA TIE) (2_SUB_ COMP)

Key: (Round brackets indicate tentative assignments only).

L-ing = non-standing 'ing';

PP = in prepositional phase

DO\_FRONT = yes/no questions with initial 'do'

WHX\_FRONT = fronting of wh-word and possible cliticized element (e.g. 'what do')

TOPIC = topicalization of initial or final elements;

ADV\_FRONT = fronting of final adverbs or adverbial PPs.

AUX\_EN = [be/have] + V\_ed, not necessarily with standard semantics.

PSEUDO\_INV = simple fronting of wh-word across verb (e.g. 'where is the summer?')

COMP\_TO = insertion of 'to' as a complementizer as in 'want to go'.

PART\_MOV = verb-particle separation, as in 'turn the light on'.

AUX\_ING = [be] + V-ing, not necessarily with standard semantics.

Y/N\_INV = yes/no questions with subject-verb/aux inversion.

PREP\_STRNDG = stranding of prepositions in relative clauses.

3SG\_S = third person singular '-s' marking.

PL\_CONCD = plural marking of NP after number or quantifier (e.g. 'many factories').

CASE(3<sup>rd</sup>) = case marking of third person singular pronouns.

AUX\_2<sup>nd</sup> = placement of 'do' or 'have' in second position;

DO\_2<sup>nd</sup> = as above, in negation.

SUPPLET = suppletion of 'some' into 'any' in the scope of negation.

DAT\_TO = indirect object marking with 'to'.



RFLX(ADV) = adverbial or emphatic usages of reflexive pronouns;

RFLX(PN) = true reflexivization.

Q\_TAG = question tags; ADV\_VP = sentence internal adverb location.

DAT\_MVMT = dative movement (e.g. 'I gave John a gift').

CAUSATIVE = structures with 'make' and 'let'.

2\_SUB\_COMP = different subject complements with verbs like 'want'.

Source: Pienemann and Johnston (1987, p. 82-3)

**2.1.3.5 ESL Stages.** PF explains the ESL order in 6 stages using a mix of the psychological mechanism of saliency and psycholinguistic theory of grammar's information transfer.

At the first stage, the learner can produce only words. At stage 2 clauses are formed on the basis of the invariant semantic relations proposed by Bever (1970) ieN(oun) V(erb) N(oun). At Stage 3, perceptual saliency leads to re-orderings in the clause. As words are categorized as nouns and verbs and so on from Stage 4, saliency can be replaced by language-specific morphological and syntactic operations.

Pienemann and Johnston (1987, pp. 75-76) tried to link categorization of words and word order to morphology, the PF includes a new mechanism by which psycholinguistic operations are performed on internal elements. Although the use of arrows suggests the 'movement' of elements, this concept is not based on a transformational analysis of word formation, instead it was influenced by a formal theory of grammar, Lexical Functional Grammar (Dyson, 2004 quoting Pienemann & Johnston, 1986, p. 96).

The notion of "transfer" is a psycholinguistic one--it involves the retention of

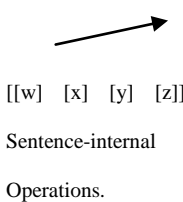
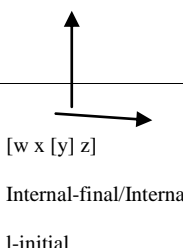
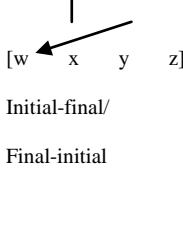
grammatical information in memory and its *use* at a later point for agreement marking in the sentence (Pienemann, 1987, p. 91). This PF's notion of 'transfer of information' makes a more specific claim about the role of memory than the MM, and set the direction of the adoption of LFG into the Processability Framework (Dyson, 2004).

Given the predictions that categories are acquired at stage 4, it follows that 'transfer of information' starts to operate at stage 4. This raises an apparent inconsistency in Table 7: the 'transfer of information' column implies that the arrow at stage 3 also involves 'transfer of information' when this operation is simply based on saliency, as in the MM. As Pienemann (1987, p. 91) indicates, “the first operations which involve re-organization of information (e.g., ADV) are carried out on the basis of non-language-specific position markers, i.e. the saliency of initial and final positions”.

The inconsistency between transfer *of grammatical information*, and the general perceptual mechanism of *saliency*, is later resolved by the adoption of Topicalization Hypothesis (Pienemann, 2005; Pienemann, et al., 2005) (See also LFG section this chapter), which explains the topic (initial) positions assumes the most prominent position in the grammatical function hierarchy (Bresnan, 2001), so the idea of saliency was abandoned.

Table 7

*Explanation of how ESL question develops in the Predictive Framework*

Stage	Transfer of Information	Question type	Example	Word order
6		Q_TAG (Question Tag)	You have lost it, have you? He asked me to go.	Syntactic operations:  The learner can break down the string into substrings; the learner can move elements out of substrings & attach them to other elements.
5	 <p>[[w] [x] [y] [z]] Sentence-internal Operations.</p>	AUX_2nd (Aux 2nd)	Where have you lost it?	Syntactic operations:  The learner can categorize different elements; the learner can move elements around in an ordered way.
4	 <p>[w x [y] z] Internal-final/Internal-initial</p>	PSEUDO_INV (Copula inversion)  Y/N_INV (Y/N inversion)	Is she at home? Where is she?  Have you seen him?	End of Pre-syntactic operations:  The learner can categorize some elements (e.g. nouns and verbs); and the learner can move an element (e.g. verb) out of the string to its beginning or end.
3	 <p>[w x y z] Initial-final/ Final-initial</p>	DO_FRONT (Do Fronting)  WHX_FRONT (Wh-Fronting)	Do he live here?  Where he live?	Pre-syntactic operations:  The learner can identify the beginning & end of a string and move between these two positions, but does not know grammatical categories of the elements.

2	w x y z Canonical order  ↑	SVO?	You live here?	Pre-syntactic operations:  The learner can produce a string of elements, but does not know the grammatical categories of the elements.
1	x	Words & formulae	I don't know	The learner has no knowledge of the grammatical categories of the element/s.

Source: (Pienemann & Johnston, 1987, pp. 75-83)

**2.1.3.6 Predictive Framework Summary.** To summarize the progress of PF from the MM model, differences between them are noted blow:

1. The explaining principles are different:

MM explains language development in terms of removal of constraining strategies whereas PF explains SL development as an accumulation of a series of “processing prerequisites”-- the processing procedures acquired at the lower stages are prerequisites for the higher stages.

2. Grammar acquisition:

MM uses transformation to account for the movement of grammatical constituents, PF accounts for the movement by ‘information exchange’ between grammatical elements for sentence production.

3. Methods of implicational scaling and emergence criterion (Dyson, 2008).

Pienemann and Johnston (1987) applied the two methods to detect stages in the development of questions in the data collected (Johnston 1985). The study was a cross-sectional study of spoken language development. Six stages in the development of question syntax production hypothesized is built on empirical

foundation.

4. PF has included morphology onto the developmental hierarchy, as Pienemann and Johnston (1987, p. 81) posited that “... all natural languages use either word order or morphology, or a mixture of the two in their syntax.” In a way, PF has supported the developmental dimension of the MM model, and has extended the predictive framework of MM from GSL to ESL; PF has made one step toward being ‘more universal’ in applicability of PT.

However, PF was based on transformational assumptions, and had no typological or psychological plausibility, and was limited to only ESL domain. To overcome these limitations, Pienemann (1998) developed PT, which is intended to design as a universal application (i.e., applicable to all languages).

## **2.2 Processability Theory**

The processing procedures of PT expand from the set of processing prerequisite of the Predictive Framework. Clearly, *processing prerequisite* which shows the lower processing procedures are prerequisites for the higher procedures, is an explicit (Pienemann, 1998, pp. 45-53) move away from Clahsen’s (1984) processing strategies. Besides keeping some of the PF’s concepts, e.g. developmental gaps and the stage 2, 3 concepts, PT also tested the implicational scalability of the ESL hierarchy.

There are concepts from PF that PT keeps for its processing hierarchy: In order to explain stage 2, and the lack of clausal hierarchy in SVO, PT (Pienemann, 1998) saves the insights from Johnston (1985) and Bever (1970), and invoked the N (oun) - V (erb) -N (oun) strategy. To explain fronting at stage 3, Pienemann (1998, p. 78)

also retains the *saliency* of initial and final clausal positions. The “*saliency*(prominence of constituents) in clauses has been established through studies (Pienemann, 1998 quoting Kintsch, 1974 and Sridhar, 1988), which showed that first and last stimuli in any sequence are persistently remembered better than stimuli in other positions”. Pienemann (1998, pp. 239-243) adopts this so that noun phrase is acquired at stage 3 and verb phrase at stage 4. These predictions also show a progression from the PF’s notion of “transfer of grammatical information” (Dyson, 2004). Pienemann (1998) first sketched the general ESL in three phases: lexical > phrasal > sentence (Figure 2) to show the information exchange and store of memory.

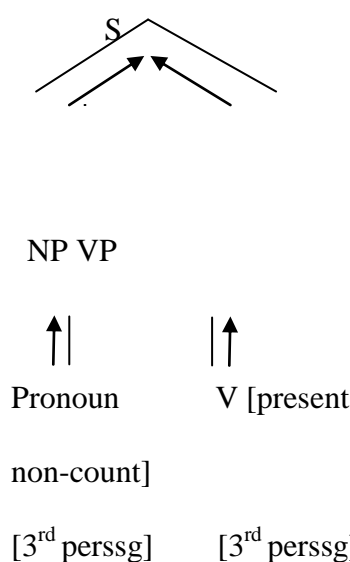
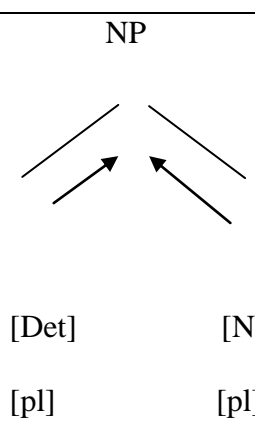
Information Exchange			
	Locus of exchange	Example	Illustration
(3) Sentence	Within sentence	He talk-s	 <p>S</p> <p>NP VP</p> <p>↑↑      ↑↑</p> <p>Pronoun      V [present, non-count]</p> <p>[3<sup>rd</sup> perssg]      [3<sup>rd</sup> perssg]</p>
(2) Phrase	Within Phrase only	Two kids	 <p>NP</p> <p>[Det]      [N]</p> <p>[pl]      [pl]</p>
(1)Category	No exchange	Talk-ed	V(erb)-past

Figure 2. Information Exchange in Processability Theory.

(Source: Pienemann 2015, p. 128)

### 2.2.1 Testing the ESL Predictions: Johnston (1985). For hypothesizing PT, the

data from the SAMPLE project was again tested for ESL prediction using implicational scaling (Pienemann 1998, pp. 177-178), which according to Pienemann (1998) have the most substantial support for the processing procedures (cited in Pienemann, 1998, p. 177) with the scalability of the set of data at 100% scalability, the data "strongly supports the English processability hierarchy" since "for every rule and learner the acquisition of highest rule in the hierarchy implies the acquisition of all lower-level rules". Pienemann (1998, p. 177) states that there are at least two factors which lend strength to the scalability. First, all at each of the five levels, at least one speaker is at the highest level, second, the richness of the data base.

Additional testing is also provided by a cross-sectional study of 13 child ESL learners (Pienemann & Mackey, 1993) which includes 14 of the structures from the ESL table, also results in an implicational table with 100% scalability. The ESL scale also contains several items that relate to interrogatives (Table 8).



Table 8

*Child Learners of ESL: implicational table*

Stage	Structure	1: 7	1: 4	1:2	1:3	2:3	1:5	2:2	2:1	2:5	2:4	1::6	2.6	1:1
6	Cance l Invers ion	/	/	/	/	/	/	/	/	/	/	-	/	+
5	Aux2 nd/ Do2n d 3 sg-s	/	/	-	/	-	/	+	+	+	+	+	+	/
		-	-	-	-	+	+	+	+	+	+	+	+	+
4	Y/N Invers ion Partic le verbs Copul a Invers ion	/	/	/	/	+	/	+	+	+	+	/	+	/
		/	/	/	+	+	+	+	+	+	+	+	+	+
		/	/	/	/	+	/	+	+	+	+	+	+	/

3	Neg+													
	V	+	+	+	+	+	+	+	+	+	+	+	+	+
	Do	/	/	+	/	/	/	+	+	+	+	/	+	/
	Front.	+	+	+	+	+	+	/	+	+	+	+	+	+
	Topi	+	/	+	+	+	+	+	+	+	+	/	+	+
	ADV													
2	SVO													
	Plural	+	+	+	+	+	+	+	+	+	+	+	+	+
	Posse	+	+	+	+	+	+	+	+	+	+	+	+	+
	ssive	+	+	+	+	+	+	+	+	+	+	+	+	+
1	prono	+	+	+	+	+	+	+	+	+	+	+	+	+
	un													
1	single	+	+	/	/	/	+	/	/	/	/	/	+	/
	words													

Source: Pienemann (1998: 181)

**2.2.2 Developmental Gap Noted.** In using the data from SAMPLE project, Pienemann and Johnston (1987) not only expand within stage by interrelating similar structures and morphemes, they also noted the possibility of **learner developmental gaps** between structures. A good example in English is between these the structures of the third person singular –s (3SG-s) *she runs*, and (AUX\_2nd) *where is the girl going?*

The structure of: *She runs* (3SG-s) and *Does she run?* are related as they both require the grammatical knowledge of (3SG-s), with the added knowledge of inverted

form for the question structure. A learner may acquire some but not all of the structures at a certain stage, e.g. at stage 5, the learner may have acquired the AUX\_2nd (Questions) but not 3SG-s, in this case, there would be *gaps* in his/her development; progress from one stage to another would also be gradual because of these gaps (Pienemann, Johnston, & Brindley, 1988, pp. 228-30).

Up to now, the chapter has shown the predecessors and relatives of PT and has discussed the relevant concepts that help build up the PT at this point. A table of this chapter summary is presented below (Table 9):

Table 9

*Relatives of Processability Theory*

Model	Key References	Key Concepts	Scope
Multi-dimensional Model (MM)	Meisel, Clahsen, & Pienemann (1981); Pienemann, Johnston & Meisel (1996)	-Implicational scaling, -probabilistic rules, -emergence criterion, -two dimensions in SLA: 1. development, 2.variation	Descriptive framework for dynamic processes in L2 development
Processing Strategies Approach	Clahsen (1984)	Development of L2 German word order determined by shedding of processing constraints	Explanation of German L2 word order development
Teachability Hypothesis	Pienemann (1984, 1987, 1989)	X+1 instruction most beneficial to learners at X	Explains constraints on teachability, based on

(TH)		stage; Stages of acquisition cannot be skipped through instruction; TH constraints do not apply to variable features (features subject to learner's orientation)	strategies approach on German L2 word order development
Predictive framework (PF)	Pienemann & Johnston (1987)	-ESL morpho-syntax development and variation paths -processing prerequisite build up processing resources -implicational scaling of ESL stages	Explains developmental patterns in ESL and GSL morph-syntax
Processability Theory (PT)	Pienemann (1998, 2005)	Processing procedures -modeled in LFG -incremental procedural grammar generation -speech production model	Universally explains L2 development in syntax and morphology

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How Processing Procedures of PT has modeled in speech production model (Levelt 1989) and Incremental procedure generation (Kempen & Hoenkamp, 1987), and LFG (Bresnan, 2001) will be discussed in the next two sections, and Teachability Hypothesis studies will be presented in the last section of this chapter.

MM, PF, and processing strategies all have played some parts in the making of the present day PT, but PT's basic premises and tenets were taken from some of its contemporaries. Among them, Levelt's (1989, 1993) was most influential. The similarity between Levelt's (1989) concepts and the premises in construction of the PT processing procedure are not coincidental. The premises are:

- Procedures to construct phrases are relatively autonomous, operate largely automatically and so are not normally accessible to the conscious mind (Levelt, 1989; Pienemann, 1998, p. 2)
- Grammatical form is constructed in the grammatical encoder while the conceptualizer is formulating the rest of the message (Pienemann, 1998, p. 3).
- The processor has to produce a linear output i.e., 'from left to right' even when the underlying meaning is not linear (Levelt, 1989, p. 235; Pienemann, 1998, p. 4).
- Grammatical processing has access to memory storage specifically for grammar. This holds the value of grammatical features while the rest of the message is still being processed (Pienemann, 1998, p. 4).

First, In order to account for the psycholinguistic aspect of SL acquisition, PT incorporates Levelt's (1989) Speech Production Model, and Kempen and

Hoenkamp's (1987) incremental language processing. The key assumption is that language processing is autonomous due to the high speed in parsing; the L2 learners are constrained in their ability to process the L2 the same way a competent speaker can. Another important incorporation of PT is the Lexical Functional Grammar (LFG). Similar to PT's, all three theories (Levelt's model, IPG, and LFG) agree with the assumption that grammar is lexically driven. In this chapter these three important incorporations of PT will be discussed.

### **2.3 Levelt's Speech Production Model**

The Speech Production Model, which shows the steps of the Formulator interacts with the Lexicon and the order in production of phrasal categories and syntax. Levelt's (1989) is comprised of three major components: the Conceptualizer, the Formulator, and the Lexicon. Grammatical encoding and phonological encoding take place within the Formulator. Pienemann (1998: 54) gives particular attention to the "architecture" of the Grammatical Encoder (see Figure below); PT's (1998) basic premise is that language-specific processing develops in SLA in the same order that the Grammatical Encoder processes the speech of competent users of the language (Figure 3).

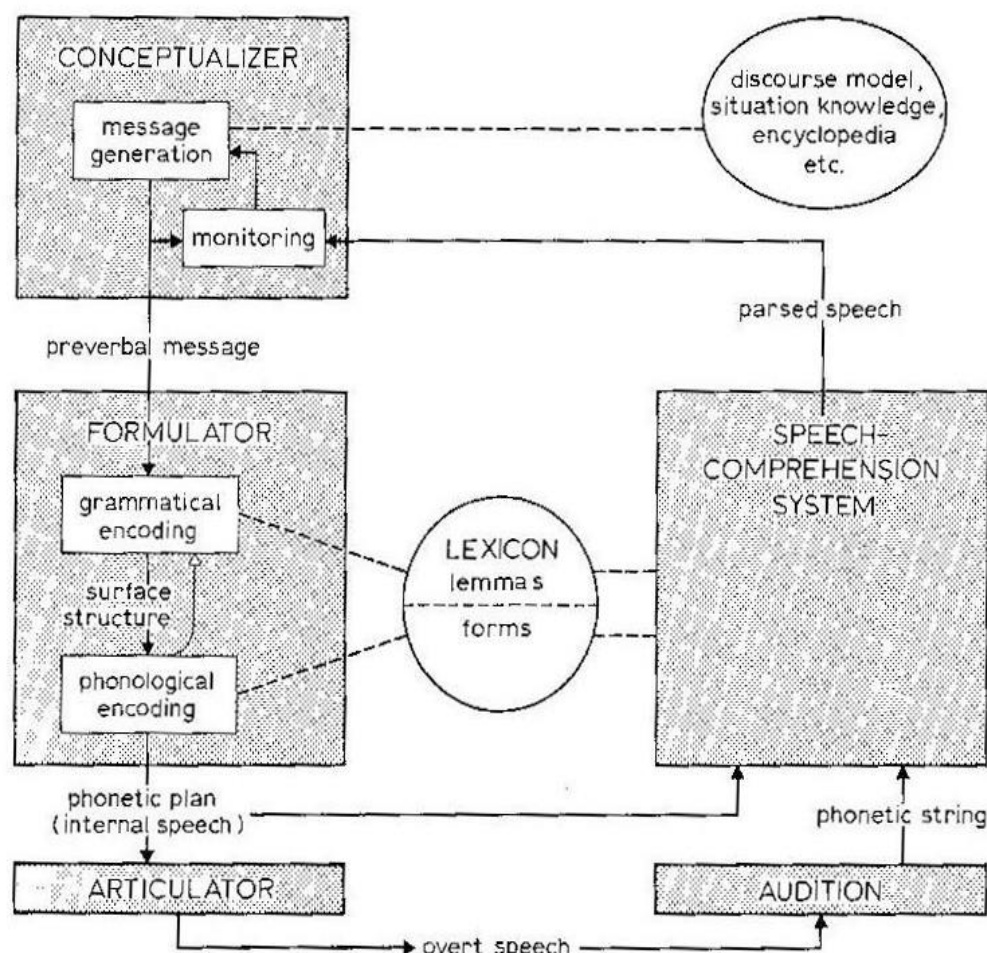


Figure 3. Levelt's Speech Production Model

#### A Model for the speaker

Source: Levelt (1989, p.9)

Boxes represent processing components

Circle and ellipse represent memory stores of knowledge

The Grammatical Encoder “consists of procedures for accessing the lemma, and of syntactic procedures” (Levelt, 1989, p. 11). The two major aspects of grammatical

encoding according to this speech processing model are: 1) the role of the lexicon, and 2) the nature of syntactic procedures (Pienemann, 1998). The following paragraphs will discuss the aspects of Lexicon and Syntactic procedure.

**2.3.1 The Lexicon.** Lexicons are lexical entries (of different morphological variants that relate to some conceptual specification) which consist of two parts:

A lemma with a meaning and category as in a dictionary, such as the meaning of the lemma 'give' is 'make another the recipient of something in the subject's possession' and the syntactic category is verb.

- A morphological 'gives' and phonological /gIvz/ form which are the forms this lemma can take in speech, as again one finds in a dictionary.

Lemma is an important concept in PT (Pienemann, 1998, pp. 74-5) because the lemma 'stores' part of the 'grammatical information' which is accessed by the Grammatical Encoder – diacritic features such as 'tense', 'number' etc. These features differ from one language to another and so must be acquired for individual language. Pienemann (1998) reproduces the parameters of the lemma "give" from Levelt (1989) which is reproduced below: lexical entries for the lemma "give" conceptual specification:

CAUSE (X, (GOposs (Y, (FROM/TO (X, Z))))))

conceptual arguments: (X, Y, Z)

syntactic category: V

grammatical functions (SUBJ, DO, IO)



relations to COMP:none

lexical pointer: 713

diacritic features: tense

aspect

mood

person

number

pitch accent

From: (Levelt, 1989, p. 191)

From the above, we can see that the conceptual specification defines the meaning of the word. What matters to PT is that in the process of language production, all these entries have to be mapped onto grammatical categories. This mapping, as Pienemann stressed, is what Kaplan and Bresnan (1982) identify as the main objective of psychologically plausible theory of grammar (Lexical Functional Grammar). The conceptual argument “give” have the thematic roles “agent”, “theme” and “goal” (Pienemann, 1998, p. 64). These thematic roles have to be mapped onto grammatical functions, which are also listed in the lemma. One possible mapping of these thematic roles onto grammatical functions is illustrated below:

X (agent), Y (theme), Z (goal)

SUBJ    DO    IO

From: (Pienemann, 1998, p. 63)

As we can see from the above illustrations, the lexicon plays an important role in the

process of language processing, as an essential mediator between conceptualization and grammatical encoding (Level, 1989, p. 181, cited in Pienemann, 1998).

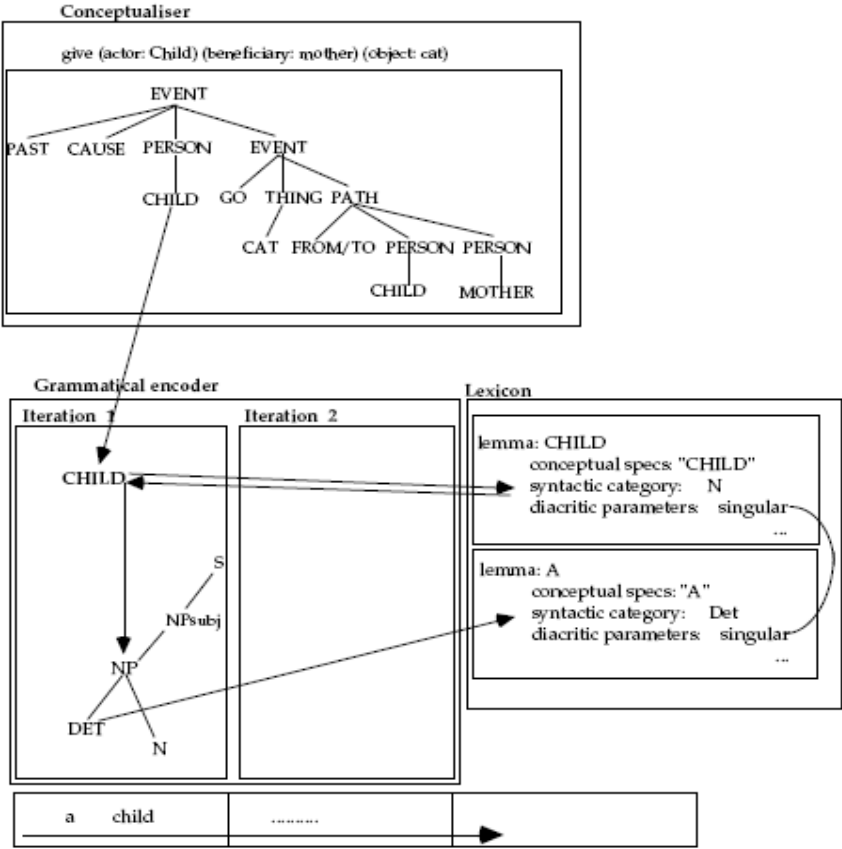
**2.3.2 Syntactic procedures.** The architecture of the Grammatical Encoder in Levelt (1989) is described in Kempen and Hoenkamp's (1987) Incremental Procedural Grammar, which is designed to model grammatical procedures as they are produced in real time. **Incrementality** can only be implemented into a time-constrained grammar if syntactic procedures are both *conceptually* and *lexically* guided. First, Syntactic procedure is instigated by the activation of a lemma, in which already contains a number of category information. Second, a lemma with a category information N will instigate building an NP, a lemma containing the category information V will instigate building a VP, and so on (Figure 4).

Kempen and Hoenkamp (1987) assume that conceptual material is delivered in small chunks, and each delivery is called “an iteration” referring to the temporal structures of the encoding process. The whole process moves from iteration to iteration, this is what Kempen and Hoenkamp (1987) and Levelt (1989) mean by incremental production (Figure 4).

As shown in Figure 4, once the concept “child” is delivered to the grammatical encoder, the category procedure is activated and resulted in building an NP. This process is aided by the language specific ‘Functorisation Rules’; these rules “instigate the activation of free grammatical morphemes and the insertion of bound grammatical morphemes” (Pienemann, 1998, p. 67). A Functorisation Rule for the NP “a child” would read as follows: NP, N, < Ref-indefinite, Number –singular >

This rule ensures that the syntactic category Det is attached to NP, the lemma for “A”

is activated, and that the lexeme “a” is inserted. Pienemann argues that “the selection of the lemma for “A” partly depends on the value of a diacritic feature (‘singular’) of the head (‘child’) being checked against that of the targeted lemma” (Pienemann, 1998, p. 67). Functorisation Rules vary according to individual language and have to be acquired for each language. The produced phrase should establish a relation with the other phrases “to make this the beginning of a continuous and fluent utterance” to build up a sentence, which is taken care of by Appointment Rules. Appointment rules assign grammatical functions to phrases leading to the S-procedure.



(Pienemann 1998, 68)

Figure 4. Incremental language generation.

### 2.3.3 Speech Model and Incremental Processing Grammar Section

**Summary.** We noted that PT adopted the three components of Levelt's 1989 model. They are the conceptualizer, the lexicon and grammatical encoding (situated in the formulator). The processing starts in the conceptualizer, where speakers generate messages, which are represented semantically in the brain. To express these meanings in language, the speech-processing mechanism accesses words in the mental lexicon (such as *child*, *mother*) and syntax –the category of verb, phonology and morphology. This grammatical information is accessed by the formulator using procedures, or *encoding* operations, by which the brain automatically builds phrases and clauses to create spoken messages (Levelt, 1989, p. 236). Since these procedures are required to produce speech under typically extreme time constraints, they are largely autonomous and unconscious.

Up to this point, we have learnt how Levelt's (1989) model has supported PT's theory on linguistic processing and sentence building. PT also incorporates Lexical Functional Grammar (LFG) to describe the types of information exchange that need to take place for encoding grammatical utterance. Both LFG and Kempen and Hoenkamp (1987) believe in: (1) lexically driven grammar, (2) the functional annotations of phrases, and (3) the mechanism of feature matching. These three features also supported Levelt (1989) and PT (Pienemann 1998). Different from LFG, as discussed in previous paragraphs, Kempen and Hoenkamp's (1987) are a procedural account of language generation but not a formal theory of grammar as LFG which can explain and implement different levels of PT's processing procedures.

The next section will discuss LFG and its adoption into the PT framework. To help us to visualize the connection between the processing procedures and LFG, we come back to Processing Procedure Hierarchy (Pienemann, 1998).

The processing procedures applied to ESL were ordered in 5 stages (Table 10):

At Stage 1, the learner has no grammatical features on single words;

At Stage 2, s/he acquires lexical features, which do not require grammar information exchange;

At Stage 3, s/h acquires phrasal features which require an exchange of grammatical information within phrase;

At Stage 4, s/he acquires interphrasal features, which require an exchange of grammatical information between different phrases; and

At Stage 5, s/he acquires interclausal features, which require an exchange of grammatical information between the main and subordinate clauses (Pienemann, 1998).

Table 10

*Processing procedures applied to English*

<b>Processing procedure</b>	<b>Grammatical information</b>	<b>L2 process</b>	<b>Morphology &amp; syntax</b>
6 - Subordinate clause procedure	inter-clausal (if applicable)	main & sub clause	cancel inversion
5 - S(sentence) procedure/WO rules	inter-phrasal	subject-verb agreement	Do2nd Aux2nd 3 <sup>rd</sup> person

- saliency		(= 3sg-s)	
4 - S-(entence)	inter-phrasal	* VP	Y/N inversion,
procedure/WO rules	* VP	agreement	Copula
+ saliency		* Aux-en	inversion
		* Aux-ing	(Particle verbs/shift)
3 - NP (Phrasal)	phrasal	NP agreement	ADV, Do-Front,
procedure	* NP	* Plural agreement	Topi, Neg+V,
		* Possessive -s	Wh-Front
2 - Category	lexical	* Past-ed	canonical order
procedure		* V-ing	(SVO, SVO?)
		Plural-s	
		possessive pronoun	
1 - word/lemma	'words'	invariant forms	single constituent
access			

Source: Pienemann (1998, p. 171)

According to Pienemann (1998, p. 87) the implicational order of the ESL procedures (indicated by the symbol '>') is as follows: lexical access (Stage 1) > category procedure (Stage 2) > phrasal procedure (Stage 3) > simplified s-(sentence) procedure (Stage 4) > S'-(sentence) procedure Stage 5) > subordinate clause procedure (Stage 6) (Table 10).

## 2.4 Lexical Functional Grammar

De Bot (2007) holds the view that the architecture of LFG coincides with most of the key aspects related to language processing. Pinker (1984, 1996, 2005)--one of the best-known researchers on language acquisition, uses LFG as the model for his theory of acquisition. Levelt (1989) derived his speech model based on LFG.

The architecture of LFG coincides with most of the key aspects in PT in relation to language processing. An example of this : Feature Unification process of LFG can capture the procedural memory required in the IPG incremental procedural processing (Kempen and Hoenkamp 1987), e.g. the SV agreement in English syntax, the diacritic features ‘third person’ and ‘singular’ have to be stored in the S-procedure until it is matched with that of the verb entry, and unified with subject.

The connection between language generation and language processing is not coincidental. As Kaplan and Bresnan (1982, p. 177) illustrated: *The major goal of psycholinguistic research is to devise an explanatory account of the mental operations that underline (these) linguistic abilities* (quoted in Pienemann et.al., 2005). LFG was designed to explain the mental representation of language.

The adoption of LFG is twofold. The transfer of information and feature unification process have already played an important role in PT language processing, and the description of grammatical information exchange of LFG can represent every level on the hierarchy of processing procedures (Pienemann,1998). When the PT extensions (Pienemann, 2005) seek to account for learners' variation and their structural choices on L2 syntactic development, LFG explanation is adopted as well

(Pienemann et al., 2005). Three hypotheses are added to PT's processing procedure to explain for the interlanguage development of PT: Lexical Mapping Theory (LMT), Unmarked Alignment Hypothesis (UAH), and the TOPIC Hypothesis (TOP).

**2.4.1 Lexical Mapping Theory.** The Lexical Mapping Theory (LMT) was adopted to explain beginner learners' speech production when they have no knowledge of the target language grammar. It was intended partly to replace the general mechanism of perceptual saliency with a psycholinguistic explanation. The general architecture of LFG has three parallel structures -Argument structure, functional structure and constituent structure:

1. Argument structure (a-structure) specifies *who does what to whom* in a sentence.
2. Functional structure (f-structure) specifies the grammatical function of constituents. (F-structure serves to connect a-structure and c-structure).
3. C-structure (c-structure) specifies the internal structure of sentences.

Lexical Mapping Theory (LMT) (cf. Bresnan, 2001) is the mapping of a-structure to f-structure (Pienemann 2007, p. 145). The predicate of the example sentence: Peter sees a dog. "see" is with the core argument roles < experiencer; theme>, each verb is annotated in the lexicon with its core argument structure.

The argument roles are mapped onto the grammatical functions (a-to f-structure):

The experiencer (a-structure-an argument of the predicate "see") is mapped onto the grammatical function Subject in f-structure; the semantic argument roles like 'agent', 'beneficiary', 'experiencer' etc are mapped onto grammatical functions:

So SUBJ=experiencer; and OBJ=theme. See below.



So SUBJ=experiencer; and OBJ=theme. See below.

The argument roles are organized from left to right with the most prominent argument role to the left. The Thematic Hierarchy is:

Agent > beneficiary >experiencer/goal >instrument >patient >patient/theme >locative  
(Bresnan, 2001, p. 307)

### **a-structure**

Peter sees a dog.

See <experiencer, theme>

SUBJ    OBJ

Note: the most prominent role “experiencer” is the subject of the sentence.

### **f-structure**

PRED                    "see" (SUBJ, OBJ)

TENSE                  PRES

SUBJ                    PRED        "Peter"

OBJ                     SPEC "a"

NUM                    SG

PRED                    "dog"

To show how grammatical features are stored and unified with what learners have already had in their memory, another LFG principle was brought in to explain the process, it is the Feature Unification.

**2.4.2 Feature Unification.** The mapping process of c-structure to f-structure (Figure 5) is carried out through the process of feature unification. The diacritic features NUMBER=3 and PERSON=singular subject “Peter” and the “verb” “see” must be unified. This is the process of feature unification, which is the transfer of grammatical information within [the constituent structure] (Pienemann, 2007, p. 142).

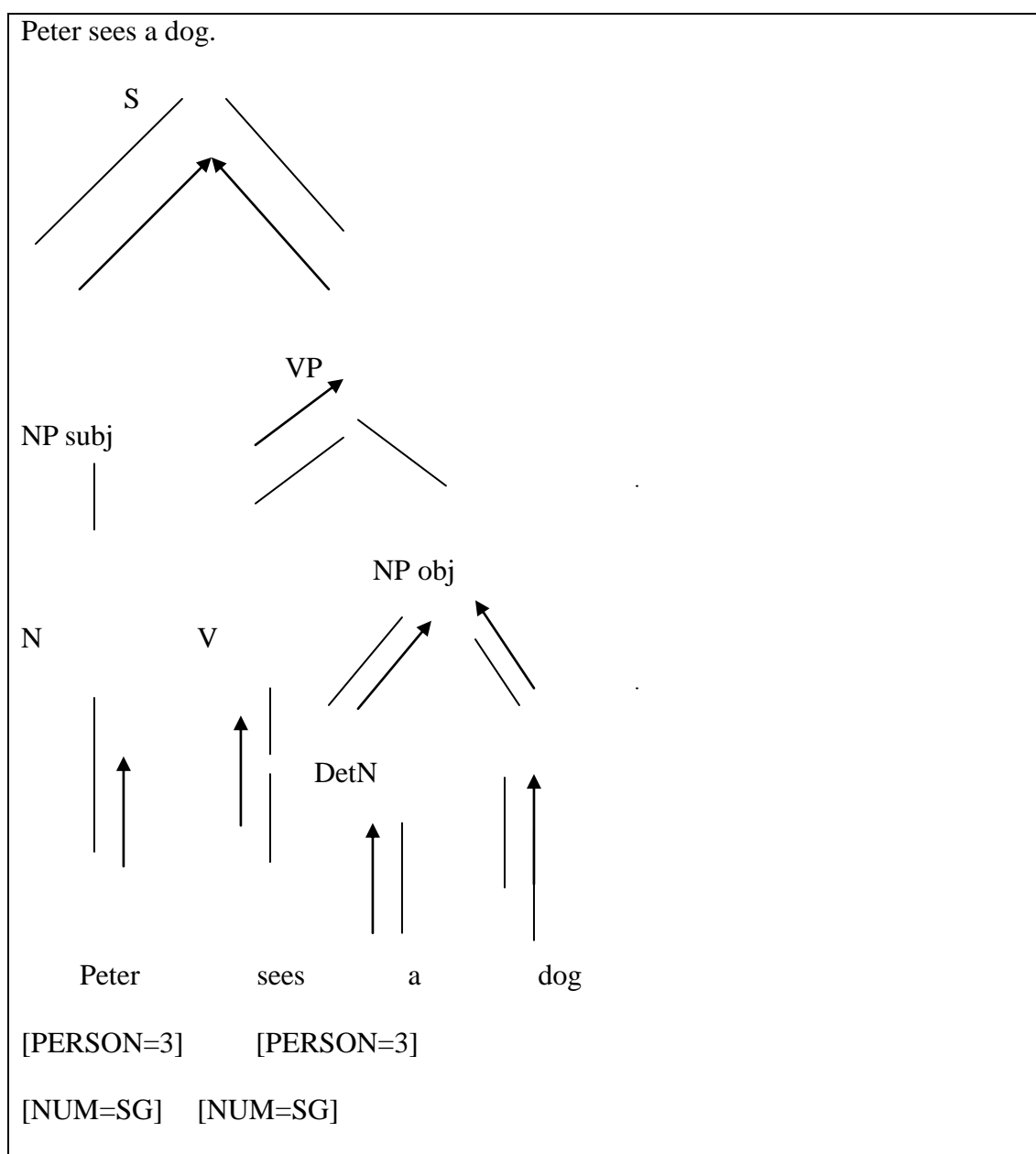


Figure 5. Feature Unification in the S- Procedure.

Note: For the feature NUMBER, a dog, grammatical information needs to be passed onto the NP, where the feature can be matched. Subject-verb agreement requires additional processing resources, so at higher processing procedures. (Pienemann, Biase, & Kawaguchi, 2005, p. 201).

Processing hierarchy relates to the point of unification within the sentence. NUMBER and PERSON can only be unified as sentence level, whereas, the feature NUMBER= singular in the NObj= a dog is unified at phrasal level. This means that in subject-verb agreement, the “grammatical information is passed on to the noun procedure (NP) and verb procedure (VP) respectively. From the phrasal level (NP. VP), the two sets of information are passed onto the sentence procedure(S) where they are matched” (Pienemann 2007, p. 143)

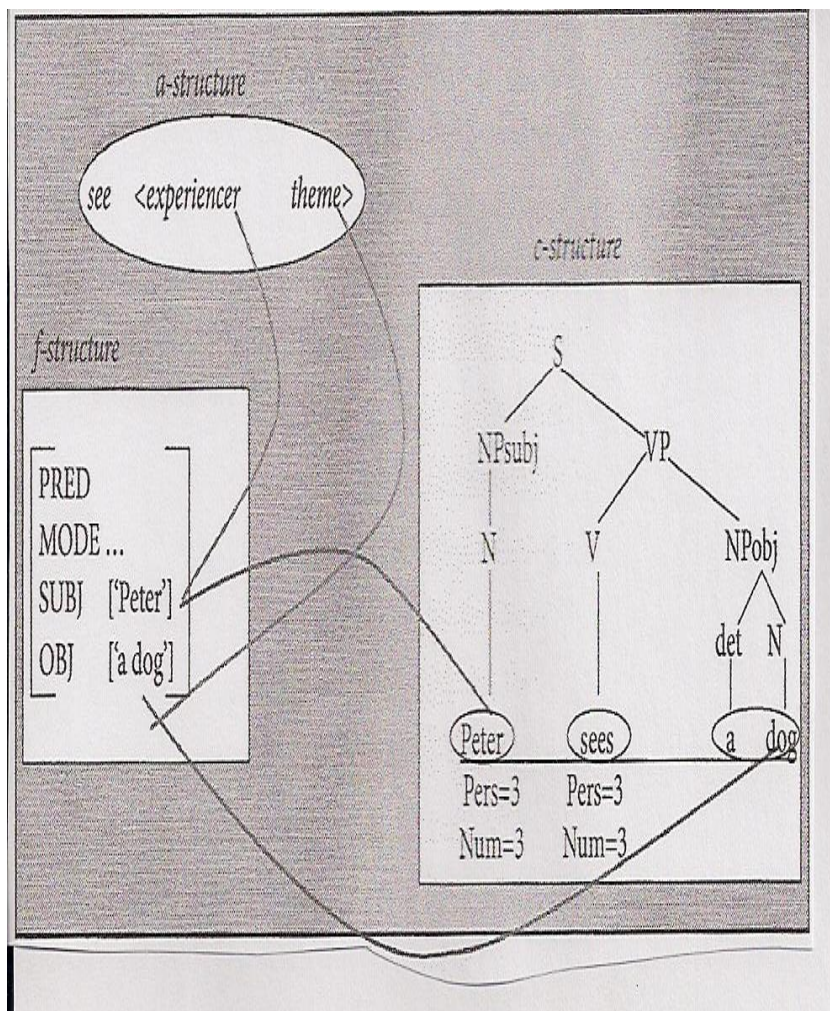


Figure 6. Mapping of Three Parallel structures in LFG (Pienemann et al., 2005).

Note: LMT is illustrated: the predictor —*see* and its associated argument roles (—*experiencer* and —*theme*) as an example of an a(rgument)-structure and a sketch of the f-structure that this a-structure, as well as the corresponding c-structure, has to be mapped onto. The lines indicate the two kinds of mapping processes mentioned above.

In the active sentence example: Peter sees a dog, the most prominent role “*experiencer*” is the subject of the sentence. On the other hand, if the example

sentence is changed to: A dog is seen by Peter, the argument roles are mapped different grammatical functions and less prominent argument roles (theme) takes the most prominent grammatical form(subject), causing non linearization. As L2 learning starts off with linear relationship between a-structure and f-structure, a change from this linear relationship would require additional processing. In a passive sentence (Figure 7), the experiencer would not be mapped onto the Subj. function, but would be left out or added at the end.

Seen<experiencer, theme>

SUBJ (ADJ)

(Pienemann, 2011, p. 42)

Figure 7. Linearization problem Illustration: A dog is seen by Peter.

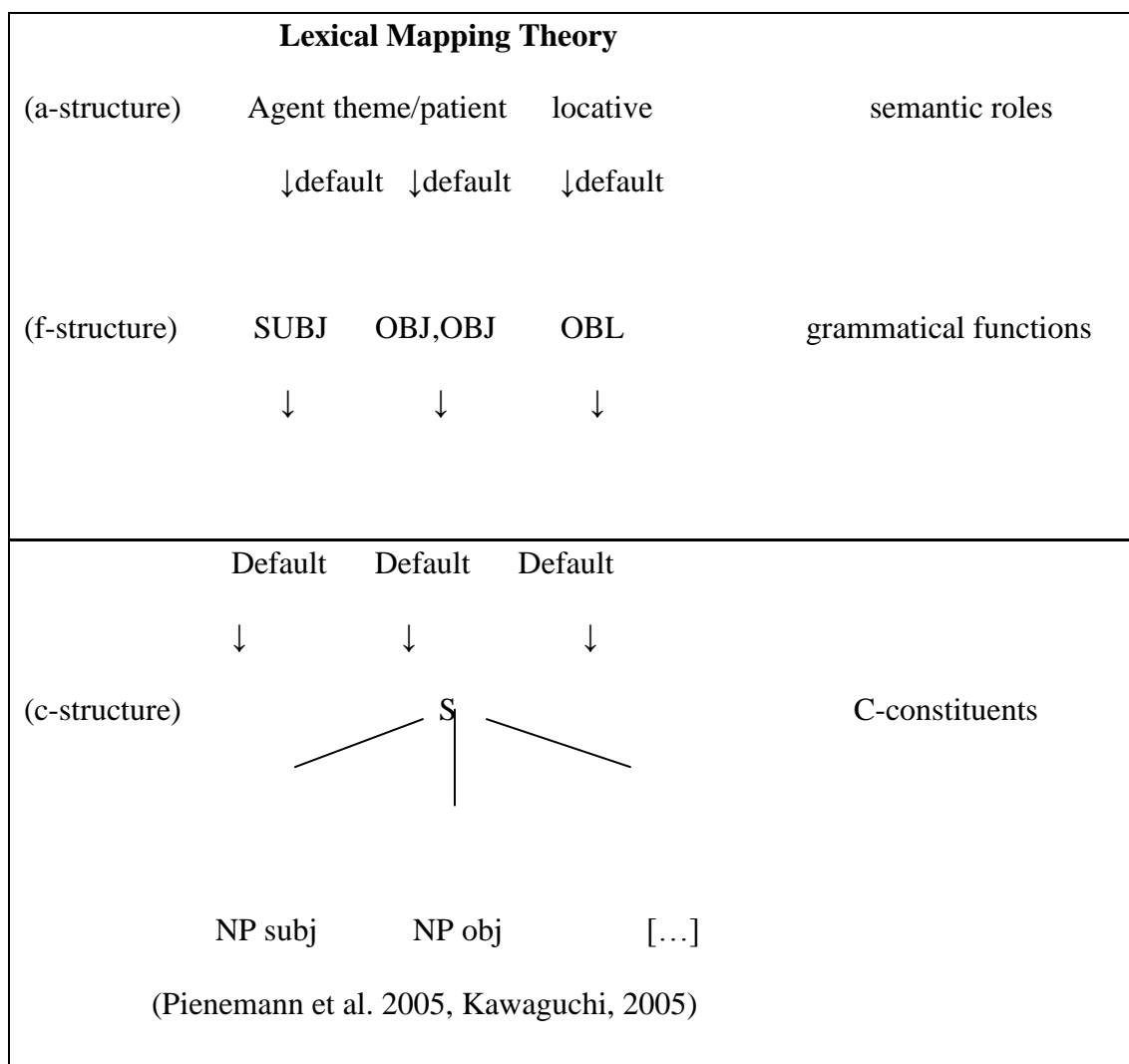
Note. The argument role-agent –can be expressed as SUBJ or as ADJ.

**2.4.3 The Linearization Problem.** One of the constraints for language learning is the variable relationship between what is intended and what is expressed in grammatical forms, which create expressiveness, but also the *linearization* problem, when the output is linear (from left to right) but the underlying meaning is not. In the passive sentence above, L2 learners are required to identify the functional assignment and unify information from different sources--the VP and the NP-which calls for inter-phrasal processing (KeBler, 2008). This means the respective structures require additional processing and can only be acquired at a higher stage (Pienemann et al., 2005, p. 206 ff).

Despite the linearization trajectory, L2 learners are assumed to gradually attain skills to map less prominent thematic roles (i.e. patient role) onto the subject function in structures like passives and causatives “promoting the patient (rather than the agent) role to SUBJ, first in single clauses such as in Passive constructions and later in complex predicates such as Causative constructions” (Di Biase & Kawaguchi, 2005). In short, before learners attain the necessary procedure, they would engage in Unmarked Alignment in producing L2.

**2.4.4 Unmarked Alignment Hypothesis.** While LMT accounts for the mapping of a-structure to f-structure, Unmarked Alignment Hypothesis (UAH) accounts for the default alignment, which is the one-to-one mapping of a-structure to f-structure, and c-to f-structure. UAH is the initial (beginning) state of L2 development. UAH results in canonical word order, SVO (stage 2) for ESL. UAH simplifies language processing for the L2 learner initially.

...by mapping the most prominent semantic role onto the subject, that is, the most prominent grammatical role. The structural expression of the subject, in turn, will occupy the most prominent linear position in c-structure, namely the initial position— (Pienemann et al., 2005, p. 229)



*Figure 8.* Unmarked Alignment Hypothesis.

Previous paragraphs discussed LMT and UAH and how the two LFG HYPOTHESES can predict interlanguage through the description of default mapping. The following paragraphs discuss the Topic Hypothesis (TOP), which captures one of the constraints of L2 learners, which is the difficulty in differentiating between Topic and Subject at the beginning of learning (Kawaguchi, 2005; Pienemann et al., 2005).

**2.4.5 The TOPIC Hypothesis.** TOPIC (TOP), a grammatical function, assumes the initial position of a sentence, is the most prominent position in grammatical function (Bresnan, 2001). The sentence: *Anne, he likes* allows a wider range of expressiveness in L2, but is not target-like L2. Unlike the LMT and UAH, which predict a-structure mapping to f-structure, TOP predicts the c- to f- structure relationship (i.e. constituent structure to grammatical function).

The sentence: *Anne, he likes. Ann* has two functions- OBJECT and TOPIC, Stage 1 learners cannot differentiate between the two functions; at stage 2, with an XP added to a string, learners can differentiate between TOPIC and SUBJ; at stage 3 learners will be able to provide a core argument other than subject—and produce sentences like--Peter likes Anne.

TOPIC hypothesis predicts the three different stages of L2 learners in the mapping of c-structure to f-structure, thus their resulted interlanguage will emerge at the three levels: category, phrasal, and sentence (Table 11):

1. L2 learners do not differentiate between TOP and the subject (SUBJ) of predicate. To them SUBJ=TOP. In order to form the canonical word order, the learners use direct mapping of c- to f-structure (Bresnan, 2001; Pinker, 1984). No procedure is needed, thus this is category level.
2. L2 learners are able to add an ADJUNCT (ADJ) to a canonical string: XP + canonical word order. ADJ is topicalized and it is indicated by TOP=ADJ. Knowledge of L2 phrasal procedure is necessary for L2 learners to come to this step.
3. L2 learners are able to differentiate in the topicalization of core arguments



other than SUBJ. This step is indicated by TOP=OBJ. The S-procedure emerges for this operation.

Table 11

*Predicted Developmental Sequence of the Topic Hypothesis*

	Processing	Linguistic	c- to f-	
Stage	procedures	principle	mapping	Structural outcomes
3	S-procedure	Topicalization of core arguments	TOP=OBJ	The TOP function is assigned to a core argument other than SUBJ e.g. OBJ
		↑	↑	↑
2	Phrasal procedure	XP adjunction	TOP=ADJ	TOPIC is differentiated from SUBJECT--Initial constituent is an ADJUNCT or a FOCUS (question WH-word)
		↑	↑	↑
1	Category procedure	Canonical order	SUBJ=default TOP	TOPIC and SUBJECT are not differentiated

(Kawaguchi, 2005; Pienemann et al., 2005)

This section has explored the revised LFG (Bresnan, 2001) in terms of PT and

processing procedures. UAH makes predictions for the L2 developmental trajectories, TOP predicts how c-to f- structure mapping develops from the constrained mapping to more target-like L2 principles, and LMT allows for predictions on how lexical mapping develops and facilitated by the non-canonical mapping principles of the target L2.

The next section presents Teachability Hypothesis (TH) and relevant studies. This study replicated Teachability Hypothesis studies (Pienemann 1984, 1987, 1989); the three studies which formulated TH were reviewed in details, along with three other TH studies (Dyson, 1996, Mansouri & Duffy, 2005; Spada & Lightbown, 1999) which tested the ESL word order in ESL framework, similar to my study in ESL. The two GSL studies (Boss, 1996; Ellis, R., 1989) were replications to Pienemann (1984, 1989), and served as examples of my studies.

## 2.5 Teachability Hypothesis Studies

### Teachability Hypothesis Studies Review and Research Question

Teachability Hypothesis says

1. Stages cannot be skipped, and that
2. Instruction is most beneficial if it focuses on structures from the next stage ( $X+1$ ) of learners ( $X$ ).

After a review of past TH studies, no study was found that satisfactory answered the part that *Instruction is most beneficial if it focuses on structures from the next stage ( $X+1$ ) of learners ( $X$ ).*

Mansouri and Duffy (2005) had proved that the processing order is implicational (in order of difficulty), and so *developmental readiness* could serve as a reference

point for teaching. Spada and Lightbown's (1999) results do not agree with that of TH in that instruction at all. Ellis, R. (1989) supported the *general claim that instruction does not affect the sequence of word order acquisition*. Dyson's (1996) study has provided no evidence that the immediate stage (X) of learners would make them *ready* for the (X+1) rule instruction. Boss's (1996) study had not proved that learners must be at one stage immediate before (X) the stage of rule (X+1) for which instruction is given (Table 12 shows a summary of Teachability Hypothesis Studies).

Moreover, no L1 Cantonese learners on English as Second Language (ESL) word order have been studied. The past studies' informants were from a variety of L1 mostly from Romance languages (German, Italian, Spanish) which are typologically close to the GSL L2 they were going to acquire. Pienemann and Johnston (1987) and Johnston (1985) raised the issue about typologically distant languages' interference to learners can be pursued further.

The informants of my research were secondary students in Hong Kong whose first language was Cantonese which is considered a dialect of China, yet it is spoken by a great majority of the 8 million population of Hong Kong. Any findings from a replication of the Teachability Hypothesis (Pienemann, 1984, 1987, 1989) would shed some light on the SL learning of Hong Kong secondary school learners, and contribute to English teaching and learning in Hong Kong. Adolescents were chosen for this study as they have not been studied in PT. ESL have both been researched in adults and children. I hypothesized that if common patterns were found in Italian and German adults and children in GSL, they could also be found in Chinese adolescents. With these reasons, my research question was:

Will Cantonese L1 speakers progress in ESL learning in line with Pienemann's Teachability Hypothesis?

## 2.6 Research Gap and Rationale for the Present Study

The studies reviewed have tried to test or replicate TH as studied by Pienemann (Pienemann 1984, 1987, 1989, 1998), but none have provided a satisfactory answer. Mansouri and Duffy (2005) tested the ordering of Pienemann's (1998) ESL processing procedure. If one teaches according to the procedure hierarchy, teaching is effective, in my opinion the best it can prove is that the processing order is implicational (in order of difficulty), and so *developmental readiness* could serve as a reference point for teaching (Mansouri & Duffy, 2005).

Spada and Lightbown's (1999) results do not agree with that of TH in that instruction should focus on the next stage of learners, as the Stage 3 learners in their study did not move to Stage 4, neither were the Stage 4 learners (Spada & Lightbown, 1999), but their results do support the of TH that no stages on the processing hierarchy can be skipped. Spada and Lightbown's (1999) study has only lent support to the strength of the processing order (Pienemann, Johnston, & Brindley 1988), but not the part on instruction most beneficial to the *ready* learners.

In terms of the claim that the core of the learners progress incrementally on the processing hierarchy, and premature teaching/learning could be counter-productive (Pienemann, 1989), Ellis, R. (1989) seemed to have provided an answer. Ellis, R. (1989) supported the *general claim that instruction does not affect the sequence of word order acquisition*, as both groups (not given instruction and given instruction) followed similar acquisition route, but suggested that in order to safeguard against

any premature teaching/learning, Pienemann's (1984) proposal on meaning-focused instruction, which interaction is nearer natural setting may be more feasible.

Dyson's (1996) study has provided some answers as to what kind of instruction that can make a difference in learner's acquisition. The results of the study supported Teachability Hypothesis's first claim that form-focused instruction can make a difference, and the second claim that effectiveness of instruction depends on whether the structure is learnable for individual learners. There was no evidence to show that the immediate stage (X) of learners would make them *ready* for the (X+1) rule instruction.

Boss's (1996) study seemed to be closer to support TH in that 7 out of her 8 learners produced non-target ADV-Pre-posing rule despite having been taught the structure. The 4 learners who applied INV had all acquired SEP, and the 1 learner who produced V-END had also acquired the rules of SEP and INV. The results of (Boss, 1996) confirmed that INV and SEP rules were not acquired in the order they were taught, but in the processing order, that is: SVO>ADV>SEP >INV>V-END. The evidence strongly supported the part of TH that no stage on the processing hierarchy can be skipped, but missed the mark of TH in proving that learners must be at one stage immediate before (X) the stage of rule (X+1) for which instruction is given.

My conclusion is that first, the past studies have not proved the part on learners must be at the X stage in order to be ready for the X+1 instruction, and second, no learners of Cantonese L1 have been studied. Although the processing procedures were built for the developmental dimension of SLA, possible interference from

learners' L1 should still not be discarded; such interference could contribute to the variational aspect of SLA (Pienemann, 1998). The issue rose in Pienemann and Johnston (1987) and Johnston (1985) about typologically distant languages' interference to ESL learners can be pursued further. In contrast to past studies in which informants were from a variety of and mostly Romance languages (German, Italian, Spanish) , the informants of this study whose L1 (Chinese) were more distant to English.

The informants were Hong Kong Chinese who have spoken Cantonese since they were born. Spoken by 98% of the population in Hong Kong, Cantonese is a daily language in Hong Kong. On the other hand, the target second language-English has long been a dominant language in Hong Kong, even after Hong Kong's return to China, The hegemonious status of English has changed little and studied by the informants since kindergarten school. This brings out the third reason for the study. The processing procedure hierarchy and its analytical characteristics can be quite appealing to the Hong Kong learners who are more inclined to skill-building learning English. With these three reasons, it is logical that my Research Question was: Will Cantonese L1 speakers in ESL learning progress in line with Pienemann's Teachability Hypothesis?

## **2.7 Chapter Two Summary**

The chapter described the predecessor models of PT- the Multidimensional Mode (MM), processing strategies model, and the Predictive Framework (PF). The chapter highlighted and discussed each model's contribution to PT, and noted that many of the important constructs still remain in the current PT model. These

constructs are implicational scaling, probabilistic rule, and emergence criterion. In addition, the developmental and variational paths of learners are also significant in understanding learner orientation. Besides the explanation of psycholinguistic architecture of linguistic processor, PT incorporated other theories as well: 1. Speech Production Model of Levelt, which details the Grammar encoding process, 2. its counterpart, the Incremental Processing Grammar, which explains how sentence is built in processing (section 2.3.), 3. The third important incorporation, the LFG (section 2.4), in which LMT, UMA, FU, and TOP concepts are illustrated and explained as to how they describe and explain interlanguage and the developmental trajectories in PT. In section 2.5, Teachability Hypothesis was reviewed through Pienemann's three publications (Pienemann 1984, 1987, 1989) and other Teachability Hypothesis studies, and the conclusion was that the part on instruction of X+1 stage is beneficial to X stage learners has not been proven, and that no L1 Cantonese learners in Hong Kong have been studied so far. Finally, the Research Question is stated as: Will Cantonese L1 speakers in ESL learning progress in line with Pienemann's Teachability Hypothesis? Chapter 3 will discuss the methodology of this study.

Table 12

*Summary Results of Teachability Hypothesis Studies*

<b>Participants:</b>						
<b>Study</b>	<b>L2-Structure</b>	<b>L1 / Sample</b>	<b>Setting of</b>	<b>Design of Study</b>	<b>Results</b>	<b>Findings/Discussion</b>
		<b>size</b>	<b>Study</b>			
Pienemann (1984)	GSL word order	Italian / N=3	Elementary school Children	Pre-test, Post-test, design; lot of contacts with German peers and instruction; instruction objective is INV (stage 4) on Processing Strategies Framework (Clahsen 1984)	Same instructions were given to all 3; unequal effect in learners due to readiness and non-readiness of learners	Teachability Hypothesis: stages cannot be skipped; instruction most beneficial if focused on structures from the next stage (X+1) of learners (X)
Pienemann (1987)	GSL word order	English / N=3	University Classroom beginners	Pre-test, Post-test; instruction of structures according to different	Target structure INV was produced by 1 learner two weeks before the end of the 19 weeks	Learners develop incrementally despite teaching schedule; gained





				stages of Processing Strategies (Clahsen, 1984) were given out to all learners	instruction	stages according to the processing order regardless of types of instruction
Pienemann (1989)	GSL word order	Italian / n=5	informal and instructed environments	Pre-test, Post-test: learners at different stage; aim to test the interplay of ADV(X+3) and INV(X+1); if stage can be skipped	After Instruction of INV, 2 learners dropped their use of ADV significantly;	Implicational processing order applies to developmental dimension of learners, i.e., stages cannot be skipped; premature teaching/learning is counter-productive
Ellis, R. (1989)	GSL Word Order	English, Spanish, French, Arabic n=39	Degree program-inst ructed classroom	Pre-test, Post-test, control group design: test formal versus naturalistic instruction effects on	Both groups (not given instruction), and given instruction) followed similar acquisition route, but formal	Results suggested that classroom learner may learn more rapidly; meaning-focused



			and uninstructed naturalistic setting	acquisition sequence; 2X elicitation task :one after 11 weeks, one after 22 weeks; setting	group (given instruction) have learnt faster than the naturalistic learners (who were not given instruction).	interaction should emulate more from naturalistic setting
Boss (1996)	GSL Word Order	English / n=8	University GSL	Pre-test, Post-test, and instruction according to textbook syllabus.	INV and SEP were not acquired in the order they were taught but in the order according to the processing strategies (Clahsen, 1984)	Support: Learners progressed in the predicted order regardless of the syllabus instruction
Dyson (1996)	ESL question formation	Spanish / n=3	Adult ESL beginners	Pre-test, Post-test, (2 x, after 1 month, after 1 year): form-focused instruction on one form (do-fronting);	Using form-focus instruction can facilitate SLA;	Support TH: effective instruction depends on learner readiness (despite learner variation)
Spada and Lightbown	ESL question formation	French / n=144	Elementary school	Pre-test, Post-test learners at stage 2 or 3; instruction	none at stage 4 moved to 5; most stayed at stage 2; 7/39 stage 3 ->	Stage 3 learners did not move to stage 4; and stage



(1999)			FL students	targeted at stage 4 and 5; ESL processing procedure hierarchy (Pienemann, Johnston, & Brindley, 1988): test whether stage can be skipped	stage 4; 23/79 stage 2 -> stage 3;	4 did not move to stage 5- <b>does not</b> support TH; does <b>support</b> no stages can be skipped
Mansouri and Duffy (2005)	ESL Grammar Acquisition	Varied (2 Thais, 2 Chinese, 1 Korean, 1 Indonesian) / n=6	English for Academic Purposes (EAP) pre-intermedi ate course	Pretest, post-test, design: Give Grammar instruction to a group in developmental order (2-6), another group in reversed order (6-2) ESL processing procedures (Pienemann, 1998)	Developmental Order group gained higher grammar accuracy than the reversed group	Supports that instruction is beneficial if focused on the acquisition order, developmental readiness can serve as a reference point



## CHAPTER 3

### THE STUDY

In this chapter, I will describe the methodology that I used to answer the research question of this study: Will Cantonese L1 speakers in ESL learning progress in line with Pienemann's Teachability Hypothesis? As mentioned in chapter two, this study attempts to replicate the experimental studies of Teachability Hypothesis (Pienemann, 1984, 1987, and 1989), and investigate the difference of results if there is any. The methodology is designed to emulate Pienemann (1984, 1987, 1989)'s studies on both the data collection procedure and data analysis, which are detailed below. Table 13 shows the overall plan for this chapter. There are three sections: 1. Data Collection Procedure; 2. Data Analysis; and 3. Research Issues.

Table 13

*Organizations for Chapter 3*

<b>Research Question:</b>  Will Cantonese L1 speakers in ESL learning progress in line with Pienemann (1984, 1987, 1989)'s Teachability Hypothesis?
<b>Data Collection:</b>  Informants and Convenience Sampling  Dual mode of Research Context  Data collection procedure
<b>Data Analysis:</b>  Three-step Procedure (Pienemann, 1998, pp. 134-139)

Applications of the 3-step procedure
<b>Specific Research Issues of this Study</b>  Reliability and Validity  Emergence criterion coding  Coded /Transcribed Data Samples from this study

### 3.1 Data Collection

This section consists of four subsections: the informants, the research contexts, data elicitation procedure including transcription convention, and section summary.

**3.1.1 The Informants.** The informants were adolescent boys and girls in the age group between 17 and 18 years old, who spoke Cantonese as their first language. The informants were tutees of a tutorial center where the researcher worked as a tutor. The average years that these informants had been with the center were 4.25 years. The selection of these subjects was random in a sense that they were not selected by the researcher, but happened to attend the small class the researcher tutored. In short, they were convenience samples.

The informants were full-time secondary 5 and secondary 6 students, meaning that they attended regular school classes from 8.15 in the morning to 3.30 in the afternoon, Monday to Friday. The informants went to the tutorial center on Sunday mornings for 1.5 hours. This meant that all six informants had some kind of contact with English, either through written materials or oral communication. The group started with eight adolescents, but two tutees could not attend on Sundays, so dropped out of the research.

The tutorial center provides enrichment lessons for English that is in general conform to the Hong Kong secondary school syllabus. Each of the informants had learnt English according to the Hong Kong SAR Education Bureau English Language Guidelines since they all attended Hong Kong secondary schools. However, six informants were from six different schools, and each school had its own timetable in language teaching. All six informants may or may not have been taught English question making, and how much of the question structure that each informant knew could not be ascertained.

English question structure does not seem to be part of the review syllabus on the English Language Curriculum Guidelines S4-S6 (updated in January 2014) (Appendix 1). Yes/No questions appear on the P1-P6 curriculum. However, the question words: who, what, which, and where do not (Appendix 1). Question structures do appear on some textbooks for P5-P6 but are not specific on their word order. Individual schools in Hong Kong follow the School Based Curriculum, which allows schools to choose their own textbooks as long as the Education Bureau has approved them. In other words, schools have some flexibility over when and what to teach. Since this study aimed at exploring the relationship between informants' readiness and instruction on processing procedure hierarchy, the relationship between the Hong Kong Education Bureau curriculum and other environmental factors would not affect this study. Figure 9 gives the class level of individual informant.

Informants	Grade	Sex	Age
BM	S6	M	17
SY	S6	M	16
JS	S6	M	17
CW	S5	M	17
IP	S5	M	17
ST	S5	F	18

*Figure 9. Distribution of Informants.*

**3.1.1.1 Informed consent.** Before the research began, informants were informed that the purpose of the study was to investigate the oral skills of secondary school students, and the indirect benefits of their participation was to contribute to second language learning. After being informed that the confidentiality of their names and identity would be kept, and that the data were collected only for the purpose of research on the specific topic of their consent, they each signed a consent form (Appendix 2).

**3.1.1.2 Convenience Sampling.** A convenience sampling is a sample selected because it is readily available and convenient as the researcher is drawing on networks s/he has access, such as engaging tutees as informants in this current study. Because of the nearness, to most researchers, a convenience sample is not scientific enough, and so results generated from a convenience sample cannot be generalized to represent the total population, and the most it can serve is a pilot testing. As mentioned at the beginning of this chapter, this study was intended to be a replicate of Pienemann (1984)'s study, as such the result of this current study will be used as a pilot testing.

I would also argue for the evidences of randomness in this sample, however.

Firstly, all six informants were from six different schools across the Western New Territories District. Secondly, informants from this study joined the research at their own free will and have the freedom to leave anytime or stay with the tutorial class. In fact, the number of informants had decreased to six from the original ten because of the voluntary participation. The informants although selected because of easy access, are selected randomly nevertheless.

**3.1.2 A Dual Mode of Research Context.** Longitudinal research in SLA is undertaken to track and investigate linguistic development for individual learners' acquisition. Individual learners are checked at different moments over a chosen period. An example is Pienemann (1984) in which Pienemann found the Teachability Hypothesis, Pienemann (1989, 1998) also tested German L2's from this longitudinal view; he captured the change in the L2 progress through intervals overtime, and presented an explicit picture of the German L2 development process.

The main advantage of longitudinal studies is that "certain structural properties of the learner's performance can only be explained if one also knows preceding and following developments" (Meisel et al., 1981, p. 114). This was how Pienemann (1984, 1989) discovered the Teachability Hypothesis. The main disadvantage of a longitudinal study is the length of time of the study since data need to be collected at regular intervals. It is very difficult to find informants for a study covering a long period (Pica, 1983); and some researchers opted for the alternative method-the cross-sectional study (Cox, 2005).

As Meisel et al. (1981, p. 113) outlined, cross-sectional studies contrast with longitudinal studies in that "the procedure generally followed in such works is to analyze the linguistic performance of a *group* of L2 learners at a certain point in



time”, in which language data collected from a number of informants are often at different levels. Nunan (1987) assumed that a cross-sectional study should yield a picture similar to data collected from an individual learner over a long period. For the reasons above, this study carried out a dual mode of longitudinal and cross-sectional studies.

**3.1.3 The Collection Procedure.** The data collection procedure was similar to those used in the model (Pienemann 1984, 1989), which had the following subsections:

1. Pretest interview--directions and task instrument (pictures for elicitation), and recording;
2. Tutorial period-- schedule, teaching material (specially developed for this study on target structure), tutorial format (interactive/natural communication); and
3. Posttest interview—directions and task instrument (pictures), and recording

**3.1.3.1 A mixed setting for data collection.** PT assumes that the language processing mechanism constrains SL learning; speech data is desirable for PT studies in the sense that speech samples embody the effects of these constraints. Such data should be collected naturally and elicited conversations (Pienemann, 1984, 1998). For natural speech collection, speech production under stress-free environment is sought, hence the hidden recoding in the Teachability Hypothesis study (Pienemann, 1984); for eliciting the target structures, conversational interviews were used (Pienemann, 1984, 1987, 1989, 1998).

Although learners’ speech samples in naturalistic situations would be preferred,

it would have been impossible for this study to obtain such data due to the limited hours (1.5 hour weekly) of contact with learners. Another mishap is learners' avoidance in the use of questions. Learners may avoid the "difficult" expressions in spontaneous speaking because of the feeling of anxiety or stress from the situation (Wang, 2013 quoting Eisenstein, Bailey, & Madden, 1982; Smith 1994). However, tasks designed to elicit the targeted structure may help to put informant at ease and draw out more data from informants as well.

**3.1.3.2 The Target Structure and Tasks.** The linguistic structure of question-making and subject-verb agreement in the questions was the target for this study. In order to achieve this goal, the tasks were modified / designed for this group of informants.

To encourage informants to ask questions, speech bubbles were used on some pictures, including wh- questions words and question marks, which were intended to prompt questions. To ensure that the referents extended over singular and plural objects and people (3rd person singular and plural), the informant (1st person singular) and the interviewer (2nd person singular), subject-verb agreement in main verbs and auxiliaries can be checked.

One of the reasons that question structure was chosen was that question asking is a meaning-focused interactive activity. The Wh-word question is asked for seeking information, and yes/no question for seeking confirmation; what is more, subject-auxiliary inversion in questions involves syntactic operations as well. Thus, the studied structure itself forced the design to be interactive and communicative.

Another reason was that questions were word order structures, like the GSL word order rules, and so were key structures for testing the developmental stages

(Pienemann, 1998; Pienemann & Johnston, 1986; Pienemann, Johnston, & Brindley 1988). Thirdly, questions in ESL are very useful for distinguishing a learner's stage because different question types are already predicted at all six stages (Table 1), therefore, data on development in questions would allow checking Pienemann's (1998) predictions on development as well.

*Steadiness hypothesis.* Processability Theory (Pienemann, 1998, pp. 273-208) claims that the interlanguage is stable across different contexts and tasks, despite different tasks provide different interactive and linguistic contexts. The *steadiness hypothesis* affirms that a learner's stage will not differ if measured on different tasks at the same time, even though there may be other differences.

**3.1.3.3 Pretest interview.** The purpose of this interview was to determine the current stage of the informants on the Processability hierarchy (Table 17). Informants were shown one/two cartoon pictures with directions that they should ask as many questions as possible. The two pictures were chosen because they provoked curiosity – informants could be stimulated to ask many questions. The researcher-interviewer acted as a sounding board and tried to stimulate questions. Each interview lasted for 20 minutes and was recorded on tape. (Appendix 3 provides a summary of one picture).

**3.1.3.4 Posttest interview.** The purpose of Post-test was to determine whether the tutorial had any effect on the informants, regardless of their current stage before the tutorial. The interview was conducted during the 10<sup>th</sup> session, one week after the end of the tutorial sessions. The interview consisted of three tasks. In the first task, informants were instructed to ask questions as if s/he was interviewing /her/his favorite idol. The idols chosen by informants were popular Canto pop figures, e.g.,

Eason Chan was the idol of two informants. Informants were instructed that they should ask all types of questions, and they could use what were presented in the tutorial (Appendix 3 has a summary of the cartoon). In the second task, informants were asked to report the interview in indirect statements. In the third task, informants were asked to change two indirect statements back to direct questions. The second and third tasks aimed to check informants for stage 6. All three tasks were recorded in one interview. The total recording time of each informant lasted for 25 minutes.

*Triangulation with writing task:* Informants were asked to write a paragraph describing what her/his best friend does on the weekends. This written work helped check the question developmental order predicted in the ESL stages (Pienemann, 1998). Written work was compared with the oral recording for triangulation (Missouri & Duffy, 2005). The two may differ as participants have more time to attend to form in writing.

**3.1.3.5 The Tutorial.** The tutorial consisted of an eight weekly session with each lasting for 25 minutes. Informants were given explicit explanations on the word order and tense forms. Form-meaning connections were highlighted for informants on the whiteboard. Written fill-in exercises, scrambled sentences, and oral activities for interaction followed. The tutorial sessions consisted of all types of question formation: Yes-no questions (Do-SVO? Aux SVO?) Wh-questions (Wh-SVO?), indirect questions (Cancel Aux-2<sup>nd</sup>), Question form in Tenses (simple present, simple past, present continuous, future, and present perfect), and Word Order form for direct question, and cancel inverse (indirect) question (Please see Appendix 3: tutorial focus of each session).

Each tutorial session took 25 minutes, targeting different stages of PT at each

session (schedule below). The activities followed the sequence as follows:

- 1 explicit instruction of the grammar topic;
- 2 exercises for the session's topic; and
- 3 lesson notes with instruction for oral practice.

Exercises were designed to be meaningful interaction, where learners shared information in order to complete the task. The tutor provided feedback and answered questions related to vocabulary and/or the grammatical topic. A schedule of the tutorial session is listed below:

<b>Week/Stage</b>	<b>Tutorial Topics (See Appendix A for details of each session)</b>
Week 1	Pre-test Interview
Week 2/ Stage 3	Do and Wh-words before the subject, verb, and complement (SVO).  Short answers and negative verbs; Y/N questions; Wh-questions and appropriate responses
Week 3 /Stage 4	wh-questions (inversion wh-words and copulas and subjects and auxiliaries);
Week 4/Stage 4	yes/no questions(inversion wh-words and copulas and subjects and auxiliaries)
Week 5/Stage 5	Do-2 <sup>nd</sup> (question with “does” after a Wh-word) e.g. Why does she read?  Relate this to the 3 <sup>rd</sup> person singular statement
Week 6/Stage 5	Aux-2 <sup>nd</sup> (question with an aux other than “Do” after a Wh-word) e.g. Where are you going?

Week 7/Stage 6	Subordinate clause procedure- statement word order in indirect questions- Indirect yes/no questions
Week 8/Stage 6	Subordinate clause procedure- statement word order in indirect questions-Indirect Wh-(Information) questions
Week 9	Review
Week 10	Posttest Interview

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*Figure 10.* Schedule of the tutorial sessions and interviews.

**3.1.4 Data Collection Section Summary.** In the data collection, I have described the informant-tutees who were a group of senior secondary students who either had or had not been taught the specific question structure studied in this research. A dual mode of longitudinal and cross sectional research context was adopted because of the learning and teaching context. The interactive and communicative nature of questions greatly enhanced the effects of task design, and the tutorial sessions focused especially on question word order and were conducted weekly. The pretest and posttest recording were transcribed and changes between Pretest and Posttest were analyzed using the PT method of data analysis, discussed in the following section, Data Analysis. Some samples of tutorial materials are listed on Appendix E.

The transcription conventions used	Explanation
1. 2. and so on	Turn numbers
I, SY	Interviewer, informant
Question marks (?)	These indicate that the speaker intends to ask a

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	question e.g. by rising intonation.
Pauses (...)	Utterance To be continued
Unclear speech	(XXX)
Comments	Written in brackets (laugh)
(/)	Within a text-interruption
(/)	At the end of an incomplete sentence

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*Figure 11.* Transcription conventions.

A sample of transcriptions is listed in Appendix D.

### 3.2 Data Analysis

To investigate the research question: Are Cantonese L1 speakers' progress in ESL learning in line with Pienemann's Teachability Hypothesis? In other words, according to the Teachability Hypothesis, the test was whether tutorial sessions benefit only tutees who is/are at one stage (X) below the stage that is taught (X+1), or not. Following the Pienemann (1984, 1987, and 1989) model, I would need to document any changes between the pretest and posttest utterances of informants. This meant that I first decided on their current stage in the pretest and the stage at the posttest and compared the differences.

This section first outlines Pienemann's (1998) method of analysis; second, addresses the reliability and validity of this study; and last explains the Emergence criterion (EC) this study used with some samples from this study. In this last subsection too, I show how I classified learners into her/ his respective stage based on the emergence criterion principles.

**3.2.1 The Purposes of Emergence Criterion Analysis.** In the empirical study for Teachability Studies, Pienemann (1984) argued for the purpose of emergence

criterion this way (p. 191):

The main purpose of emergence criterion is not to describe the point in time during the process of language development when a structure is mastered (in terms of correct use of target norms), because this is only to pinpoint the end of the acquisition of a certain structure. Rather, the emergence criterion is intended to define the first systematic use of a structure, so that the point in time can be located when the learner has-in principle-grasped the learner task. For these reasons, PT uses the emergence criterion (EC) to identify the point where certain procedural skill has become operational in a learner's IL system (Kawaguchi, 2005).

**3.2.2 Method for EC analysis.** Specifically, all valid types and tokens from informants' inter-language productions undergo three steps of analysis:

1. Quantitative distributional analysis (Pienemann, 1998, p. 139);
2. Application of an emergence criterion for emergence and acquisition (Pienemann, 1998, p. 138); and
3. Application of implicational scaling to derive an emergence order (Pienemann, 1998, p. 134).

The following paragraphs elaborate on these three steps.

**3.2.2.1 Quantitative distributional analysis (Pienemann, 1998, p. 139).** The first of the three steps is to construct a distributional table displaying form-function relationship of various structures on the vertical axis. "For each structure used, (*the distributional table*) records the frequency of tokens and contexts and determines whether the form is mapped into a specific function" (Dyson, 2010, p. 30.8).

However, learners may produce a part/subset of a structure of the target



language, linguistic contexts of the target language should be “*atomized*” and the related contexts into specific structures should be grouped together. Pienemann (1998) gives an example on the 3<sup>rd</sup> person s-marking in English (the target rule): the target sensitive features of “Tense, number, person, auxiliary, verb, and modal, subject” are fine-grained to the more specific covering various interlanguage-“present progressive, 3<sup>rd</sup> person singular, +/- auxiliary, lexical verb +O/S/ing” (Pienemann, 1998, pp. 138-139).

For each individual learner and each structure, the number of linguistic contexts was calculated; then the number of occurrences of both types and tokens of valid form were assessed in terms of (1) Rule application (2) non- application, (3) insufficient contexts, or (4) other strategies (such as overgeneralization, over/suppliance of contrasting forms) used by learners (Table 17).

**3.2.2.2 Application of an emergence criterion for acquisition (Pienemann, 1998, p. 138).** As the point of emergence in which the first productive use is significant in PT in assessing learners’ development, it cannot be reduced to chances, a sufficient number of contexts are required to confirm emergence, and the figures are expressed in terms of the probability of application of a rule. The second step in the analysis was to test 1. Whether these relationships between tokens and contexts are systematic (sufficient number of tokens produced); and 2. Whether the words/syntax are productive (in a variety of contexts) (Pallotti, 2007, p. 364).

At present, the minimum number of rule application context needed to test the *systematic and productive* point has varied across different research studies. Noting that criteria for detecting productivity differ for morphology and syntax, PT applies the criteria of one productive token in four contexts for emergence of syntax, and zero

productive token in four contexts for non-emergence (Dyson, 2010, p. 30.9; Pienemann, 1998, p. 133).

Spada and Lightbown (1993, 1999) applied a more conservative approach and required two different types of question for each stage for emergence of the particular stage (Spada & Lightbown, 1993, 1999). A third approach was originally developed for morphological development and later adopted for syntax emergence; a structure had to have been produced at least four times in a sample set to qualify as acquired, and at least two of the four tokens had to be lexically different (Zhang, 2004). The same criterion was used by Dyson (2008, 2009, 2010). Syntax or a structure is considered to have acquired if produced in a minimum of four different tokens in a variety of four linguistic contexts (Jansen, 2008; Mansouri & Duffy, 2005; Pienemann, 1998).

### ***3.2.2.3 Application of implicational scaling to derive an emergence order.***

Implicational scaling (DeCamp, 1973; Guttman, 1944; Meisel, Clahsen, & Pienemann, 1981) has long been recognized as very useful in representing linguistic dynamics. The basic idea is that the cumulative processes of acquisition can be represented by the “successive additions of linguistic rules to the interlanguage system: rule 1+ rule 2 + rule 3 etc.” Through this addition of rules, change of learners’ individual IL can be accounted for and explained (Pienemann 1998, p. 134).

Following the logic of implicational scales, any set of rules is learnt cumulatively, rules learnt later imply the presence of rules learnt earlier:

Rule 3  $\supset$  rule 2  $\supset$  rule 1

Implicational scales make orderliness out of the complex, non-static acquisition process. In Table 14, the rules of the target language are listed on vertical axis in

relation to the horizontal axis-the schedule of time for development. The table represents the interlanguage progress of one learner.

Table 14

*Implicational Scale of a Learner*

	Time 1	Time 2	Time 3	Time 4
Rule 1	-	+	+	+
Rule 2	-	-	+	+
Rule 3	-	-	-	+

Source: Pienemann, 1998, p. 134

The table can also be adjusted to show cross sectional data of a number of learners. Different learner productions can be represented on the horizontal axis (the time- axis), and the rules on the vertical axis, if a valid implicational relationship exists between the rules on the vertical axis, then the order of development of these rules can be hypothesized to follow an implicational pattern (Pienemann, 1998, p. 135).

Guttman Procedure (1944) tests the distribution of 1s and 0s for a series of variables to see if they can be ordered for difficulty (Hatch & Lazaraton, 1991, p. 212). Two resulted figures from Guttman Procedure on the computer are significant in determining whether the data support the order: coefficients of reproducibility, and coefficients of scalability. An implicational hierarchy derived from the data has to reach a minimum coefficient of reproducibility of 90%, which is needed to calculate a valid scalability coefficient number; the required coefficient of scalability is 60% for any order to be considered supported by the data (Hatch & Lazaraton, 1991, pp.

210-213).

*An Example from PT.* Table 15 demonstrates how the above three-steps were operationalized in PT. To describe learner development, Pienemann (1998, pp. 144-53) combined the use of emergence criterion of acquisition with a two-structure on the vertical axis for distributional analysis (Meisel et al., 1981, p. 125) in one table. Table 15 shows how Pienemann (1998) categorized the production of a learner language into four types:

- (1) no linguistic contexts
- (2) not enough contexts(smaller than four contexts)
- (3) non-application of rule
- (4) rule application, (sufficient) examples of rule application in the presence of (more than four) contexts”

Table 15

*Distributional Analysis of Guy’s development of SEP and INV*

	1	3	5	7	9	11	13	15	17	19
Weeks										
SEP	-	-	-	(0)	(0.5)	0.	-	0.75	0.46	0.41
INV*	-	-	-	0.	0.	(.22)	0.	0.	0.1	0.36

Note: \* indicates that these structures both have V-complements (objects) Pienemann

(1998, p. 145). Four categories are indicated by:

- (1) ( –) in the columns for weeks 1 to 7.
- (2) the bracketed figures( ) in the columns for weeks 7, 9 and 11, “smaller than four” contexts.
- (3) the difference between the un-bracketed figures and 100% ( $.75=1-.25$ ), in week 15 shows the learner did not apply Verb Separation in 25% of contexts.
- (4) the un-bracketed figures in week 15 - the learner applies Verb Separation in 75% of contexts.

Referring to Table 15 again, the data from the table would have gone through **implicational ordering** to find which structure had type (3) and (4) evidence and which one was before the other, Pienemann (1998, p. 145) found that SEP was acquired before INV. It was after applying the 3-step analysis that Pienemann (1998, p. 145) argued SEP is indeed acquired before INV.

### 3.3 Research Issues

**3.3.1 Reliability and Validity.** In research design and experimentation, reliability refers to the consistency or quality of an assessment. That is, reliable results can be repeated under the same conditions. One of the ways to determine a reliable design is the measuring instrument used. A reliable instrument will produce similar results in different contexts (Morris & Adamson 2010, p. 127) and will elicit effective data.

The assessment instrument *assessing* interlanguage was implicational scaling, and the data presented were on an implicational scaling distributional table for analysis. Implicational scaling was used to see if a distribution existed within a series of nominal data (variables) frequency counts, and whether observations could be

reliably rank-ordered in the distribution (Hatch & Lazaraton, 1991, p. 204). The instrument has long been used in interlanguage research--since the 1970s in English morpheme studies; for documenting the acquisition of learners over time, and to generate a sequence for learners. Implicational scaling was suitable for ranking linguistic features into hierarchy (Pienemann & KeBler, 2011). In order to claim scalability, a minimum coefficient figure (.60) has to reach while a (.90) figure must be attained for coefficient of reproducibility. (Please refer to the subsection on Implicational Scaling).

While a reliable assessing instrument will assure appropriate data elicitation, a study with validity refers to what degree the study can answer the questions it intended to answer. It is the relationship between the assessment instrument and the intended outcomes that the instrument measures (Morris & Adamson, 2010, p. 127).

Validity has two aspects: internal and external validity. Internal validity refers to the control of subject selection, task effectiveness, and a clear and explicit operational definition. Subjects/informants of this study were random in the sense that they were convenience samples who had been attending a tutorial class in the tutorial center (See Data Collection-the informants). The tasks in this study were designed after a review of the previous literature which tested similar topics, either in teachability or processability (Data Collection-tasks and studied structure).

External validity refers to the degree a research can be generalized to similar situations. I have confidence that external validity can be satisfied if all other things being equal, that is, the informants, the tasks, the target structure, etc., Cantonese L1 speakers' progress in ESL learning in terms of Teachability Hypothesis would generate similar results as this study. The EC operationalization of this study and how

learner stages were classified are presented in the following paragraphs.

**3.3.2 Emergence criterion for acquisition.** Evidence shows that the procedure/rule that has been used systematically and productively is a minimum of two lexical and/or structural /morphological varieties (Pallotti, 2007). The evidence that a structure has acquired is a minimum four different contexts/types (Jensen 2008; Pienemann, 1998). This study had the following criteria in coding for emergence and acquisition of a structure. If a structure were produced in a minimum of **two** tokens in different lexically varied/usage/contexts, the structure was considered emerged. If a structure were produced in **four** different contrasts (i.e. in four different types/usage/contexts) or more, the structure was considered acquired.

**3.3.2.1 Emergence sample from this study.** ST emerged into stage 4 in the post test--frequency 2/4 (1/3 Yes/No Inversion, 1/1 Copula Inversion=2/4) which showed emerging-- The ability to correctly use the appropriate inflections was lacking in ST's speech data, but she has started to process the interphrasal procedure. She needs to show more *systematic* use of stage 4 question structures for acquisition:

25 Is your family like you to be a singer?

30 Where did you have been?

**3.3.2.2 Acquisition sample from this study.** SY has acquired the question structures of Stage 5 in the posttest-S procedure (Do2nd /Aux2nd) questions:

5When will you have your next concert?

7 Eh... Why do you choose this theme?

21 ...who do you invite to join your performance?

24 What do you want to talk to your fans in front of the camera?

42 What else do you do in that place?

For the purpose of understanding the interlanguage of informants, I used both the form of emergence and acquisition in counting the stage gain and structure gain. That is, I treated *emergence* as the point where the individual learner has started the acquisition (Pienemann, 1998, p. 144).

**3.3.3 Coding for this study.** All non-formulaic tokens were transcribed for analysis. Pienemann, Johnston, & Brindley (1988) also included IL forms in their analysis because forms such as Do fronting are the starting point for the target language (TL), in this study Do in yes/no questions. Pienemann (1998) took a similar approach, for instance, the analysis of the 1st person singular form of the German copula with non-1st person singular subjects (Pienemann, 1998, p. 125). Coding learner stage was performed by checking the corresponding processing procedure on the processing hierarchy.

First, when learners have not yet acquired the respective processing procedure, Steadiness Hypothesis says that IL are predicted to fall into one of these three categories:

1. She live where (non-target like, stag 2-SVO?)
2. Where she live (non-target like, stage 3-Wh-Fronting)
3. Where does she live (target like, stage 5-Aux2nd?)

Although both sentences 1 and 2 are non-target like, sentence 2 uses a higher processing procedure than sentence 1, so sentence 2 is placed on stage 3 (KeBler & Keatinge, 2008, p. 174).

Second, Learners' orientation (omission, violation, and avoidance) can affect utterances and, thus, stage development. When individual shows s/he is not yet ready



to produce the respective structure, I classified the informants using the guidelines below: Considering the following four possible utterances, which showed the AUX2nd question structure-stage 5: *Where is (AUX2nd) he going?* The following utterances:

- Where he go (omission of “is” and +ing)-stage 1, no progress
- Where is going (omission of “he”)-stage 1, no progress
- Where he is going (Violation of AUX2nd rule)-stage 3, creative
- He is going where (Avoidance=staying at stage 2-SVO) not beneficial

Third, repeated structures were counted once only. If self-correction results in grammatical production the token was counted correct, if self-correction resulted in a non-grammatical token, the token was counted as incorrect. However, formulae can be useful in discerning development. In isolating formulae from productive tokens, it is useful to compare the learner’s stage with apparent formulae, and any changes to a formulaic structure may mean some kind of progress.

Next, I present the ESL framework of PT in three tables: Table 16 shows a comprehensive view of PT’s Processing Hierarchy; Table 17 shows the relationship between processing procedures and different stages, and different ESL structures; and Table 18 specifies the respective question structure with the stage and processing procedure. It is hoped that the presentation in table forms will guide readers in the coding of this research.

Table 16

*The ESL Processing Hierarchy (modified from Pienemann, 1998, p. 7)*

Stage	Processing	L2 process	Morphology	Syntax	Examples
-------	------------	------------	------------	--------	----------

procedure					
6	subordinate clause procedure	main and subordinate clause procedure		Cancel INV	I wonder what he wants. / I wonder where he has gone. I asked when he could come home.
5	S-procedure/ WO-rules/ -salience	inter-phrasal info-exchange	SV agreement (= 3sg -s)	Do2nd, Aux2nd, Neg Aux 2 <sup>nd</sup>	Why did he sell that car? Where has he gone? What can't she come? What will you do? The sweet girl likes dancing.
4	VP-procedure/ WO-rules/ +salience	inter-phrasal info-exchange	tense agreement	Yes/No, WH inversion, pseudo inversion	Where is she? / Has he seen you? Can he come? Do he see it? / Are they there?
3	Phrasal procedure (Noun Phrase)	Phrasal info-exchange	NP agreement: add (+ed) Add (+ing); possessive pronoun: Tom's pen; two kids two dogs /	Adverb-fronting Wh-fronting Do-fronting Negation + Verb Topic fronting	Why you go/ Where you have been? Do he going home? Do he live here? No I like fish. Spaghetti I like I no see him / I not eat fish
2	category procedure	Lexical morphemes	plural marking: kids (add +’s’) two children (inter-language) two women Past tense (+ed): telled	Canonical word order(SVO)	many houses my house, I like spaghetti You live here?
1	word/ lemma	“words”	invariant forms	single constituent	Good morning / How are you / Sit down, please

**3.3.3.1 ESL Stages in question formation.** The six stages in question formation were first hypothesized (the Predictive Framework please see section 2.2- ESL stages Table 6 this study) in the work of Pienemann and Johnston (1986, 1987), and were built on a firm empirical foundation (Larsen-Freeman & Long, 1991). Two new research methods – the emergence criterion and implicational scaling–were applied to detect stages in the development of questions and 50 other English structures. The study was a cross-sectional study of spoken language development of 16 adult ESL immigrants, and data were collected through an Adult Migrant English Program (AMEP) initiative (the SAMPLE project) (Johnston, 1985, cf 1997). Emergence criterion and Implicational ordering were used in this study. Emergence criterion means that rather than assessing for mastery, the researchers based the acquisition of a question-type on **one** productive token (Pienemann, Johnston, & Brindley, 1988, p. 235). The questions acquired by each of the informants were then ordered implicationally. Implicational ordering (or scaling) is a procedure based on the rationale that ‘if sample A contains rule 3, then it will also contain rules 2 and 1’ (Pienemann, 1998, p. 134).

The 4<sup>th</sup> and 5<sup>th</sup> stage on the hierarchy need some clarification. In Pienemann (1998), there are two stages of acquisition for the S-procedure: the fourth stage of acquisition, that is, the simplified S-procedure, which allows the exchange of information from an internal location to a salient constituent such as the sentence beginning or end. In Pienemann (2005), the fourth stage of acquisition is referred to

as the verb phrase procedure, and the fifth is the S-procedure, which allows for the exchange of information between internal constituents, not just salient ones, with the predicted order of acquisition the same in Pienemann (1998) and (2005).

This study used a similar hierarchy of stages (Table 17). Table 17 shows the ESL hierarchy of processing procedures (Pienemann, 1998) while Table 18 shows the corresponding to English Question structures (Pienemann, 2005).

Table 17

*Processing Procedure applied to ESL*

Processing procedure	Grammatical information	L2 process	Morphology & syntax
6 - Subordinate clause procedure	Main & subordinate clause	main & sub clause	Cancel inversion
5 – S-procedure /WO rules - saliency	inter-phrasal	Subject-Verb agreement (= 3sg-s)	Do2nd Aux2nd
4 – S-Procedure /WO rules + saliency	inter-phrasal * VP	* VP agreement * Aux-en * Aux-ing	Y/N inversion, Copula inversion (Particle verbs/shift)
3 -Phrasal procedure	phrasal * NP	NP agreement * Plural agreement * Possessive -s	ADV, Do-Front, Topicalization, Neg+V
2 - Category procedure	lexical	* Past-ed * V-ing Plural-s possessive pronoun	canonical order (SVO, SVO?)
1 - word/lemma access	'words'	invariant forms	single constituent

Source: Pienemann (1998, p. 171)

Table 18

*Processing procedures applied to English Question (Pienemann, 2005)*

Processing						
Procedures/ Stages	T1	T2	T3	T4	T5	T6
6. Subordinate clause procedure	—	—	—	—	—	Cancel-Inversion
5. S-procedure	—	—	—	—	Do/auxiliary-2 <sup>nd</sup> (questions w/’does” “do” “auxiliary” after a wh-word and before subjects);	+
4. V-Phrase procedure	—	—	—	In yes/no questions an auxiliary/modal(can/could) is in sentence-initial position; In wh-questions the verb <i>to be</i> and the subject	+	+

			change positions			
3. N-Phrase procedure	—	—	Wh/Do-fronting(a wh/do-word is placed at the beginning of a sentence)	+	+	+
2. Category Procedure	—	SVO? (the word order of subject, verb, and objects/complement)	+	+	+	+
1. No Procedure	Word/s? Formulae?	+	+	+	+	+

Note. (T n)= the time of acquisition, (-): not acquired, (+): acquired.

Source: Processing procedures applied to English Question (Pienemann, 2005)

**3.3.4 Distributional analysis in tables.** For stage analysis, I put the informant utterances in their respective boxes on the hierarchy (Table 18) and produced a table similar to Table 19 for individuals. I have provided a sample of the distributional analysis in Table 19.

Table 19

*Distributional Analysis Table of BM*

		<b>Pretest</b>				<b>Post-test</b>	
<b>Stg</b>	<b>Procedures</b>	<b>Question order</b>	<b>Word</b>	<b>Wh-questions</b>	<b>Yes/No questions</b>	<b>Wh-questions</b>	<b>Yes/No questions</b>
6	Subordinate clause procedure	Cancel-Inversion		5. She's wondering why people would ask proof of these thing?		26 You mentioned that you traveled a lot. / 39 I asked him where he had been. / 40 I asked him which place was the best. /	44. I asked(...) if he had prepared a lot before this successful concert./ 45 ...he said he did (pause) prepare a lot. /38. I asked him if he loved his family. /
5	S-procedure	Do-2 <sup>nd</sup> (question with "does" after a Wh-word)		22. Why does she still put in a coin? /		31. Which place do you think best?	8 It seems you love your family, don't you?
		Aux-2 <sup>nd</sup> (question with an aux other than "Do" after a Wh-word)		3. So...why's she interested in this machine? 1. What's the woman looking at? 26. Why can't you put something in reward...? 11. What's the woman's job?		24 What's your plan next year on either career or family? /27. Where have you been? /	
4	VP-procedure	Yes/no-Inversion (Y/N question in which there is an inversion of the auxiliary and the subject)					4 Is she beautiful?
		Copula Inversion (question with the copula verb "to be")		28 Why does you want to give out disappointment...? 25 Why does you operate this		12 Have you prepared a lot before this concert?	



		<b>Pretest</b>				<b>Post-test</b>	
<b>Stg</b>	<b>Procedures</b>	<b>Question order</b>	<b>Word</b>	<b>Wh-questions</b>	<b>Yes/No questions</b>	<b>Wh-questions</b>	<b>Yes/No questions</b>
				machine? 30 What is the lesson?			
3	Phrasal procedure	Wh-Fronting( a Wh-word is placed at the beginning of a sentence)		8 Why you operate this machine? / 13 Why woman's here?		5 What about your daughter? / 21 a.What your plan? /21b.What your celebration?	
		Do-Fronting("Do is placed at the beginning of a sentence)				16 Do you wish to spend more time with your family? /	
2	Category procedure	SVO? (the word order of subject, verb and object or complement as a question, i.e., with rising intonation)			15 ...the job relate to life? / 9 You want to show ...you disappoint in life? /	21. You're going to have a party with them? /	
		SVO					
1	Word/lemma	Word/s?		19 Why?		1. How old are you?	
		Formulae?		6 so...do you think there's someone put in a coin?			

Source: Pienemann 1998, 2005





### **3.5 Data Analysis and Research issues Section Summary**

This section discussed the three-step EC analysis of PT, exemplified with Pienemann's (1998) table. It is argued that the assessing tool of implicational scaling has long been accepted in linguistic fields, thus, has ensured reliability of the analysis. To ensure validity, the task designs, informant selection, and operational definition of emergence criterion of this study have been meticulously explained and described. In following the Teachability Hypothesis studies convention, I demonstrated how I used the emergence criterion and frequency distribution to classify learners' utterances into stages for analysis, findings from which I will discuss in detail in Chapter 5.

Before the presentation of findings, I need to give a picture of the environment in which the informants of this study learn English, thus, the next chapter, Chapter 4, will discuss English Language learning, including curriculum and assessment in Hong Kong.

## **CHAPTER 4**

### **ENGLISH LEARNING IN HONG KONG**

The child informants of Pienemann (1984) Teachability studies' were immigrants of Germany and studied L2 German in Germany; the informant-learners thus "had relatively intensive contact with their German-speaking peers". The L1 Cantonese informants of my study, on the other hand, lived and learnt English in their home city--Hong Kong. English is one of the two core language subjects the informants studied in school. Knowing the environment in which the informants acquired L2 English should help any researcher to understand the informants and, thus, more accurately to answer the research question of this study: Will L1 Cantonese learners in ESL learning progress in line with the Teachability Hypothesis?

Chapter Four describes English Learning in Hong Kong in three sections. First, the Hong Kong education system, including its historical development, current system, and the new curriculum is discussed. Second, English in the Hong Kong Curriculum, its historical development of the three main languages of Hong Kong and Hong Kong language policies, its recent pedagogical changes including the adoption of TBLT, standards-referenced assessment, and ELT teacher development are discussed. Third, I explain the specific difficulties in English learning for Hong Kong secondary students.

#### **4.1 Hong Kong Education System**

As of the 2014/15 school year, there were a total of 571 primary schools, 509 secondary schools, and 61 special schools in Hong Kong. The Education Bureau of the SAR Administration administers and enforces the education ordinance (Laws of Hong Kong,

Education Ordinance Chapter 279) in Hong Kong. Attending school is mandatory for children between starting at age 6. The law also requires children to attend a secondary school after primary education to be completed before he attains the age of 19 years.

Since 1978, the Hong Kong Government has provided nine years of free primary and junior secondary education (P1-P6 and S1-S3) to all children attending public or subsidized schools. Beginning the 2008/2009 school year, the Government has also provided grants to Vocational Training Council (VTC) full-time courses, which is a vocational training institute for secondary three school leavers who choose to train in jobs. The Government also provides grants and subsidies for kindergartens and kindergarten-cum-child care centers (KG). All children under 6 years old in Hong Kong can apply for fee assistance under the Kindergarten and Child Care Centre Fee Remission Scheme. Hong Kong also provides grants and subsidies to special education services for children with social educational needs (SEN).

**4.1.1 Historical Development.** It is believed that British missionaries started small village schools when they arrived in 1843. By 1860, Hong Kong had 20 village schools. Wealthy Chinese did not educate their children in Hong Kong but sent them to major Chinese cities in Guangzhou (the capital city of Guangdong Province, China) for traditional Chinese education. The beginning of British Colonial Government in 1841 changed this somewhat when education in Hong Kong started to run the Western system; at the time, schools were largely provided from missionaries. The London Missionary Society founded Ying Wa Girls' School in 1900. Belilios Public School was a girls' secondary school founded in 1890, and was the first government school in Hong Kong that provided bilingual education in English and Chinese.

In the nineteenth century, education was considered a luxury for the elite and the rich,

and a much contested debate was whether schools should offer vernacular education--giving instructions in Chinese. However, the push for educating in Chinese under the British Education system was not even contemplated by the British government until the Chinese community was on the rise, and the social awareness that offering basic education to the poor should become a priority for social order.

**4.1.2 Current Hong Kong Education System.** All schools are required to register under the Education Ordinance, including Kindergartens and kindergarten-cum-child care centers (KG) and special education services. Pre-school education in Hong Kong is not free and fees are payable by pupils' parents. However, parents whose children have the right of abode in Hong Kong can pay for part of their fees with a voucher from the government under the Pre-primary Education Voucher Scheme (PEVS). In 2014, the amount of subsidy under the PEVS was about \$17,000.

Children with special educational needs (SEN), such as visual impairment, hearing impairment, physical disability, intellectual disability, etc. go to special education schools, while non-SEN go to regular schools. The regular school system of primary and secondary has gone through a curriculum and structural change since 2007.

Before 2007, besides the six years of primary school (P1–P6), the secondary school system followed the British education structure of 3+2+2+3. The schooling includes 5 years of secondary schools leading to the Hong Kong Certificate Examination (HKCE), two years of pre-university leading to the Advanced level Examination (A-level), and after a public examination, depending on the results of the secondary graduates, candidates may be allocated in one of the eight universities for a three-year study leading to a Bachelor degree.

Different from the previous British education structure, New Secondary School

Curriculum (NSSC) follows a 3+3+4 academic structure, which consists of three years of junior secondary school, three years of senior secondary schools and a four-year-university leading to a Bachelor degree. In an attempt to build Hong Kong to be the “bi-literate and trilingual” society, the Education Bureau incorporated into the NSSC curriculum the following components: the development of critical thinking, problem solving, creativity, and information technology skills, which were believed to be critical in preparation of Hong Kong human capital to face the challenges of globalization (Curriculum Development Institute, 2001).

For tertiary or higher education, Hong Kong has nineteen degree-awarding local higher education institutions. There are eight institutions funded by the public through the University Grants Committee, ten self-financing institutions (Note 1), and one publicly funded Hong Kong Performing Arts.

**4.1.3 Curriculum Reforms -- Learning to learn.** A few years before the handover of Hong Kong sovereignty in 1997, the Hong Kong SAR government launched a series of education reforms. One of them was a reform in the education curriculum, which aimed at enhancing the Hong Kong school curriculum in order to keep up with international and global technological standards in learning and teaching. The curriculum reforms are documented in four government publications which are divided into nine specific key learning areas (KLAs) in the school curriculum. The four government publications are:

1. Learning for Life, Learning through Life (Education Commission, 2000);
2. Learning to Learn--the Way Forward (CDC, 2001);
3. Basic Education Curriculum Guide--Building on Strengths (CDC, 2002);
4. Senior Secondary Curriculum Guide (CDC, 2007);

The goal of lifelong education is to develop in the learner a capacity for lifelong learning, to equip students with generic skills for participation in a global community. In lifelong learning, learning is seen as a continuum which is broken into several key stages. The importance of purposeful learning and its alignment with teaching, and assessment is stressed; and for that reason specific learning targets are set from the general level of learning.

From the documents, their main theme --Learning to learn and lifelong learning—is broken down into nine Key Learning Areas (KLAs) for implementation. They are included in the Basic and Senior Secondary Curriculum as: the Chinese language education, English language education, mathematics education, personal, social and humanities education, science education, technology education, arts education, physical education and liberal studies. In addition, a progressive series of four stages are used to describe the learning targets from primary to secondary schooling. They are: key stage 1 from P. 1 to P. 3; key stage 2 from P. 4 to P. 6; key stage 3 from S.1 to S. 3; and key stage 4 from S. 4 to S. 5. ((*Syllabuses for Primary Schools English Language Primary 1–6* (CDC, 1997); *Syllabus for Secondary Schools English Language Secondary 1–5* (CDC, 1999)).

Other than the promotion of learning promoting lifelong learning, the progressivist approach is to assess for learning, in which different types of formative assessment in classrooms are used for the purposes of teachers' constructive feedback to students (Adamson & Morris, 2010, p. 129). Formative assessments can become the foundation for better learning and teaching in Assessment for Learning. Each feedback, peer evaluation and self-evaluation performed by students are an integral part of learning and are emphasized in the assessment process of AfL. In the *Assessment for Learning* policy document:

Students' learning is promoted by using Assessment is the practice of collecting

evidence of student learning. It is an integral part of the learning and teaching cycle rather than a separate stage at the end of teaching. It helps to provide information for both students and teachers to improve learning and teaching (assessment for learning) (Curriculum Development Council, 2001, p. 80).

## **4.2 Languages in the Hong Kong Curriculum**

Languages of people often intertwine with the social, political, and economic aspects of the people's lives at the time (Morris & Adamson, 2010, pp. 154-156). The changes of status of the three main languages-Cantonese, Putonghua, and English—have not only been reflected in the governmental language policy but also have told about the social changes in Hong Kong.

**4.2.1 English Language.** English in Hong Kong has always symbolized more than the language itself. Since colonial times, English has been seen as the language for education and upward mobility. Even today, the predominance of English has surpassed the vernacular Cantonese and the newcomer Putonghua in Hong Kong.

Between 1886-1950s, the colonial government needed a buffer class to liaise between the ruling government and the Chinese populace (Morris & Adamson, 2010, p. 150), so they set up education in English to create a class of elite to work in this capacity. This privileged class, who studied English, worked for the colonial government, made a good salary and brought economic advantages to their families. English became synonymous with upper social class among Chinese.

Nowadays, Hong Kong people still link English language to prospects of higher education and job opportunities. Many multinational corporations which set up branches in Hong Kong also require their employees to have a good level of proficiency in English, and

for many who go aboard for higher education, they need to communicate in English as many of these countries are English-speaking. Every year, Hong Kong secondary school students must pass the *Use of English* examination in their seventh year, before 2010, and in their sixth year for the *Hong Kong Diploma for Secondary School* after 2010, before they can gain access to one of the eight local universities.

The significant role that Hong Kong society has ascribed to English has made the schools, which use English as medium of instruction (EMI) very popular among parents in Hong Kong (Choi, 2003).

**4.2.2 Cantonese and Vernacularization.** About 97% of the population in Hong Kong speaks Cantonese, a dialect spoken in the nearby Guangdong Province, China. Yet, Cantonese has not always enjoyed its popular language status in the past.

In the 1950s, when the blooming Cantonese population was on the rise fueled by the huge influx of refugees fleeing from the Guangdong Province, Mainland China; British Empire's influences around the world was in a downward trend. Hong Kong needed to strengthen its own economic base to face the different challenges arising from its *entrepot* and manufacturing industry. With the potential social crisis looming in the background, the Colonial government had to do something to defuse such a potential bomb, and allowing the set-up of CMI schools (using Chinese as a medium of instruction) was one way to go.

Economically, the Cantonese language has driven communication with the mainland China through its neighboring province, Guangdong. Hong Kong started to have a distinctive Cantonese culture, consolidated by the increasingly popular Canto pop in local mass media and the characteristic Cantonese movie industry. The official status of Cantonese had been confirmed when Cantonese was adopted into the government and legal system as one of the



official languages in 1975 (Adamson & Morris, 2010). Chinese language learning had also moved toward more literary and cultural studies called Chinese Literature. This was vernacularization in Hong Kong, but the non-committed attitude to CMI of government continued until the 1997 handover, when the Hong Kong SAR administration began to signal its separation from the Colonial non-intervention policy in education (Adamson, 2010) and moved toward governmental guidance in MoI.

**4.2.3 Putonghua.** Originally one of the dialects spoken by the traditional Chinese ruling class, Putonghua-the language for common folks-was adopted to be the national spoken language in the People's Republic of China (Mainland China as called among Hong Kong citizens) to facilitate oral communication among Chinese minorities who spoke a numerous variety of indigenous dialects in the fifties. Putonghua (Mandarin) was not popular in the sixties for Hong Kong people because of its strong political undertone (Adamson, 2010), and as Putonghua was the official language of the Communist Mainland China and the KMT (Democratic) Taiwanese Government.

To keep the status quo within Hong Kong, British Colonial Government Education curriculum did not support Putonghua at all. The low status of Putonghua, however, switched entirely after the 1984 confirmation of Hong Kong retrocession (handover), and included into the school curriculum. The move was seen by many to bolster the differences between the “two systems”, and at the same time acknowledge the “one country” (Adamson, 2010); it was seen as an important gesture to move toward Chinese patriotism (Leung & Ng, 2004) as well.

Before 1997, Governmental favoring toward English language education was clear in the colonial elitism period. After 1997, Firm Guidance of Medium of Instruction (MoI),

Fine-tuning of the language policies, and Education reforms have dominated the agenda of the Education Bureau.

**4.2.4 EMI versus CMI Debate.** In Hong Kong, English language proficiency has always been deemed to provide enhanced job prospects. Secondary schools that used EMI has always enjoyed a higher status than their Chinese (CMI) counterparts. The EMI schools (also known as the Anglo-Chinese schools in 1980s) where all subjects, except Chinese, Chinese History and Chinese Literature were supposed to be taught in English, grew and rose to over 90% by the 1990s (Lee, 1993, p. 206).

The Burney Report (1935) did call for greater attention to be given to the teaching of Cantonese (vernacularization), and for a shift from an academic to a more vocation oriented curriculum (Adamson & Morris, 2010). Various consultation reports documenting the benefits of Chinese as a medium of instruction (CMI) in teaching: the Marsh and Sampson Report (1963), even the Green Paper (1973) by the Board of Education, also called for the strengthening and expansion of (CMI) in schools.

This debate of CMI or EMI continued in the 1970s, while the twin-track MoI (CMI and EMI) emerged (Adamson, 2010). The final word came from the government policy in 1974, the colonial policy in respect to the MoI had been one left to the choice of individual schools (Poon, 2010). This non-committed attitude to CMI policy was read by many as part of the governing principle in ruling Hong Kong hoping to avoid conflicts with the communities that may threaten its existence. It was believed that firmer control would have been exercised if the MoI policies were under a Hong Kong administration, and that the majority of Hong Kong people would have wanted CMI.

In an attempt to come clean of any colonial liabilities, the Education Department issued

the Medium of Instruction Guidance for Secondary Schools. The *Guidance* required all secondary schools to adopt CMI unless the schools had demonstrated the ability to opt for EMI. This measure was very controversial and as part of the shift to CMI, with only 100 secondary schools designated as EMI schools. That is only about 25% of the total 400 schools, a sharp drop from the 90% in the 1990s; the policy sparked an *immediate* furious backlash from schools that were omitted from the list (Adamson & Mok, 2001, p. 7). However, the SAR government's commitment to CMI was found to be tenuous and was more of an appeasing gesture (Kan & Adamson, 2010), as the latter two reports-- Review of the firm guidance policy, and the fine-tuning policy report (2009) revealed.

**4.2.5 Firm Guidance Review.** The Education Commission commissioned a public consultation to review the implementation of the Firm Guidance policy to give recommendations, the gist of report were to:

1. Uphold the existing policy on CMI for S1-S3
2. Modify the criteria for schools wishing to adopt EMI
3. Enhance the English proficiency in schools (Kan & Adamson, 2010, p. 14)

Kan and Adamson (2010, p. 14) found it ironic that English language enhancement was prioritized even though the overall objective of the report was to foster biliteracy (English and Chinese) and trilingualism (Cantonese, Putonghua, and English) with an emphasis on education in Cantonese.

**4.2.6 Fine Tuning Policy Report.** In analyzing the three sub-objectives (Education Bureau, 2009) of the fine-tuning of Firm Guidance Policy, Kan and Adamson (2010) commented that had three sub-objectives are contradicting its 1997 MoI policy. The three sub-objectives are:

1. To increase exposure to English for S1-S3 students
2. To allow greater based autonomy on the choice of MoI
3. To remove the differentiation between CMI and EMI schools

The first sub-objective “greater exposure to English” “is defined as an increased allocation of time” represents a quantitative tone in ELT. The other two sub-objectives are reversing its 1997 MoI policy. CMI schools that met certain requirements to have some approved classes, could adopt a different MoI for different subjects, groups, or time periods, according to the needs and ability of the students and teachers. The policy was undoing what it was set out to do in the original Firm Guidance Policy. The report was hailed as “consensual” and “progressive” (Education Bureau, 2009), but the debate between EMI schools and CMI schools has remained largely unchanged.

The strong attachment of English competence to significant economic and social benefits among Hong Kong community is undeniable, thus, English has outstayed the colonial government in Hong Kong, and the message that Hong Kong peoples’ preference of EMI in schools is clear. It is almost a certainty that English Language will remain a core subject in the Hong Kong school curriculum. Meanwhile, English Language policy will continue to succumb to the exigent political and economic priority, while students will struggle their way through school and traverse among the three different languages, with English language learning as their primary concern.

The concern about maintaining the standard of English language started as early as when the free basic education was implemented in 1970s. The decline was pronounced in the EC report in 1988: “Certainly the broadening of the education base by the introduction of nine years’ free and compulsory education has lowered the average standard in English of

Secondary 3 students” (pp. 21–22). The perception of an English standard decline brought a series of ELT pedagogical changes. They included the area of English language pedagogy, and English learning assessment, and the professional ELT teacher development.

**4.2.7 English Language Pedagogy.** In ELT pedagogy, three frameworks were introduced in the Hong Kong curriculum, and a shift in the assessment. The first teaching framework designed to address the learning problems of Hong Kong primary school education were Targets and Target Related Assessment (TTRA) framework and the Target Oriented Curriculum (TOC) framework. The specific problems of Hong Kong schools were specified as:

- an overcrowded and fragmented curriculum
- an overemphasis on the rote-learning of discrete chunks of information
- lack of awareness of the role of language in learning
- little catering for individual learner difference
- assessment methods focused primarily on ranking students (Clark et al., 1994).

To improve the situation, both TTRA and TOC emphasized on purposeful and contextualized learning, as well as the alignment between teaching and learning with assessment. In particular, in TOC Learning Targets are set for the learning directions. This is to assure that targets are consistent with the purpose of learning.

Not long after, another progressive approach to language learning—Task based learning (TBL) in English language was introduced in the secondary school syllabus (Curriculum Development Council, 1999) and in senior secondary schools curriculum (Curriculum Development Council & Hong Kong Examinations and Assessment Authority, 2007).

Task based learning (TBL) is a student-centered methodology. In TBL, the

communicative role of English language, as “a medium of thinking, studying, and expressing one’s own experiences” was made clear and stated (Chow, 2014, p. 226, quoting Pang & Wong, 1999, p. 206). TBL takes *tasks* as the key units for designing and implementing language instruction. TBL aims at providing L2 learners with a natural context to speak and write the target language through activities designed to engage them in the authentic, practical and functional use of language.

Another important feature of the TOC and TTRA initiative was the shift away from the use of norm-referenced assessment principles to the use of criterion referenced assessment. A norm-referenced assessment is assessment that identifies whether the test taker performed better or worse than other test takers, not whether the test taker knows the material for a given purpose. It refers to the process of comparing one test-taker to his/her peers.

In contrast, the objective of a criterion referenced assessment is to see whether the student has learned the material. The *criterion* is the domain of subject matter that the test is designed to assess, not any particular cut off score. An example of the criterion may be “Students should be able to correctly add two single-digit numbers,” and the cutoff score may be that students should correctly answer a minimum of 80% of the questions to pass. The adoption of criterion referenced assessment can monitor “the learning progress of all students against progressive standards the results can inform the teaching/learning process” (Clark, Scarino, & Brownell, 1994, p. 52).

**4.2.8 English Language Assessments.** Public examinations and assessments are very competitive in Hong Kong, partly because of the large number of secondary school graduates, partly because of the Chinese families which places emphasis on success in school. The centralized control of the Hong Kong school examinations and assessments started in the

1950s, when the colonial government was facing the imminent threat of Mainland Chinese Communist infiltration from the border, and the local Communist propaganda to topple British colonial rule, education was a means for stability. The government controlled the content of subjects, textbooks and examinations (Morris & Adamson, 2010). Pupils' progress was as a rule determined by their performances in highly competitive public examinations. Teacher involvement in the process of curriculum development was not allowed. The two new assessments introduced as a part of the reforms would make examinations more aligned with the Assessment for Learning (AfL) initiative.

Contrast to this controlled tradition, a new assessment component in the Hong Kong Diploma for Secondary schools Examination (HKDSE), the School-based Assessment (SBA) component, is administered in students' schools by their teachers; students are given the choice to select and adapt to a range of assessment tasks, and the SBA component aims to give students the opportunity to perform to the best of their abilities in a culture of Assessment for Learning (AfL). The SBA component accounts for 15% of the total score of the English paper.

Another measure for AfL is the Territory-Wide System Assessment (TSA). TSA is conducted to ensure minimum standard in core curriculum-Chinese Language, English Language and Mathematics-for each stage. TSA is a pen-and-paper assessment for P3, P6, and S.3 learners of all local schools to ensure minimum standard (as set out in the EC's report entitled *Learning for Life—Learning through Life* (Education Commission, 2000)). Thus far, it seems some achievements have been made in connection with the implementation of Target Oriented Curriculum (TOC), the Basic Competency Assessment (BCA) and SBA (Berry, 2011).

**4.2.9 English Language Teacher Training.** The 1990s was a period to professionalize language teachers. Various initiatives targeting enhancement of teacher competence for enacting innovations in the classroom have been introduced. The Institute of Language Education (ILE) was formed in the late 1980s to raise the quality of language teaching. Beginning 2004-2005 school year, Chinese and English Language teachers (primary and secondary schools) must either hold an education degree in the relevant language subjects (Chinese, English, etc.) or a first or higher degree in relevant language subjects in addition to a recognized teacher qualification in the relevant subjects.

**4.2.9.1 Pre-service.** Before entering into a pre-service education program, most students would have obtained a university degree, in a subject of their choice, (*e.g.*, English, math, science, religion). The alternative to this is that students work simultaneously on an undergraduate bachelor degree and a pre-service education program. The latter route incorporates education courses throughout the program's 4 or 5 years, and culminates in a final year of specific pre-service training. Students who complete a bachelor's degree before returning to a university to complete the pre-service education program are in a *consecutive* pre-service program, while students who complete their pre-service training at the same time as their undergraduate degree are in a *concurrent program*.

A major focus in the pre-service education program is the practicum-- the pre-service teacher is placed within a school setting (either primary, or secondary) and shadows an experienced teacher. The pre-service teacher will be given opportunities to develop skills through observing their associate teacher, creating lesson plans, teaching lessons and experiential learning about classroom management. Pre-service programs offer academic based courses to complement the practicum.



**4.2.9.2 LPATE results and ELT training.** Teachers without the qualifications stipulated have 3-5 years to either undertake professional training, or to take the *Language Proficiency Assessment for Teachers of English* (LPATE)-a benchmark exam of minimum standards of competence in English language –to meet the requirement. Initiated in 1996, the assessment consists of Reading, Writing, Listening, Speaking, and a live performance test of Classroom Language. The Reading and Listening Tests are analytically marked, while the composition element in the Writing Test, the Speaking Test and Classroom Language Assessment (CLA) components are scale-based with descriptors of different levels of achievement on scales (Coniam & Falvey, 2013). Candidates must have attained Level 3 or above in all papers of the assessment for meeting the Language Proficiency Requirement for teaching the relevant subject in schools. The LPATE was administered first in 2001, again in 2002 and 2003, twice yearly from 2004 to 2005 and once a year thereafter. After 2006, the test would only be offered to new teachers. Table 20 presents the candidature and test results from 2004 to 2014 (Table 20.)

Table 20

*LPATE results*

Year	2004	2004	2005	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Candidate	2177	1494	1115	1445	953	1836	1285	1298	2058	1867	1826	1739	1631
Reading	71%	66%	71%	59%	86%	79%	83%	80%	66%	89%	88%	89%	84%
Writing	40%	28%	41%	30%	46%	40%	42%	46%	43%	37%	37%	45%	53%
Listening	49%	71%	62%	64%	74%	80%	72%	70%	72%	83%	83%	78%	83%
Speaking	47%	43%	45%	9%	37%	48%	62%	51%	44%	50%	50%	52%	52%

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Source: [www.edb.gov.hk/LPATE/assessment](http://www.edb.gov.hk/LPATE/assessment)

The LPATE results show that even though scores on the other three components were reasonably high, the lower scores for Speaking and Writing have pulled the total scores lower. Coniam and Falvey (2013) commented on the LPATE effect to teacher qualifications and believed that LPATE does have some effect in ensuring qualifications of Hong Kong English Language Teachers, because of the necessity for non-English majors to establish their competency; and the requirement for *all* teachers of English to be university graduates also helped to ensure the minimum standard.

The LAPTE results resonate with the conclusion of Hyland's (1997) study of the eight local universities in Hong Kong--students' language problems centered on the productive skills of writing and speaking and the acquisition of specialist vocabulary. After Hyland (1997), researchers (Carless, 2006; Li, 1996; Littlewood, 2007) observed that some secondary school English teachers in Asia lack confidence in conducting communication activities in English because the teachers themselves feel that their own proficiency is not sufficient to engage in communication. Performing in an under-developed interlanguage (English) imposes a large burden on the teacher candidates, and gaps in lexical knowledge can compromise speech fluency and make it hard for an individual to engage in the meaning communication if his/her working memory is engaged by non-automated, lower-level L2 processes. A corollary of this argument is that anyone who wishes to speak a second language must learn the grammar and vocabulary of the language (Pienemann, 1998).

Speaking practice, therefore, can help expose gaps in learners' vocabulary and grammar; pronunciation and eventually improve their oral fluency (Gan, 2012). The implication is that

more speaking training in the curriculum of teacher education is needed.

**4.2.9.3 In-service.** People interested in pursuing a career as an English language teacher should invest in credit-bearing programs that result in a university recognized certificate (Postgraduate diploma in education) (PDE) or degree program (Master of Arts in Teaching English to Speakers of Other Languages (MA/TESOL, MA/Applied Linguistics). The MATESOL program provides a practical, professionally-focused Master's degree for graduates who are in need of an advanced academic qualification in TESOL. It is designed for English language teachers, teacher educators and language professionals working in areas of language teaching, language-in-education policy, curriculum design and planning, materials development and assessment in Hong Kong, mainland China or overseas.

**4.2.10 English Pedagogical Section Summary.** This pedagogical section has discussed the implementation of TOC and TBL as part of ELT methods. The innovative methods of TOC and TBL, however, have been met with obstacles in implementation (Adamson & Tong, 2008). The overemphasis on rote-learning has changed little and is very much of a way of learning English, and learners including teacher candidates are laggard in English productive skills of writing and speaking (Hyland, 1997), which is evidenced in the LPATE results. Despite the reforms, learning English is still a daunting task with many impediments for secondary learners; some of these impediments are highlighted in the following section.

### **4.3 Problems in learning English in Hong Kong**

Problems in learning English in Hong Kong can be attributed in part to the limited use of English, the learning style, the diverse languages, and the typological distance between English and Chinese in parsing.

**4.3.1 The use of English.** Despite the claim that the city is “trilingual” in Cantonese,

Putonghua, and English, English remains mostly a *working* language, which is not largely spoken among families and friends except for a small percentage of the population (Adamson, 2010, p. 11). For secondary schooling and most of the population, speaking English is limited to the classroom of EMI schools. To compensate for the lack of oral exposure, the Education Bureau introduced the NET scheme in the implementation of “trilingualism and biliteracy”, in which Native Speaker of English (NET) is imported to teach English, so that students can be exposed to *natural* English in the classroom.

The good intention, however, is somewhat of amiss. Secondary schools are places in which students have to learn different subject content, and if English is the only means of delivering the material, creating a natural speaking environment would not help the low proficiency students to understand the subject content delivered in English. Many EMI schools and teachers have adopted a language of code-switching between Cantonese / Putonghua and /or with lexical items of English / English technical terms (Adamson & Mok, 2001; Johnson, 1983; Lo & Lo, 2014).

**4.3.2 Teaching and Learning style.** Past Chinese societies were dominated by the Confucian Culture, which had a long history of competition through public examinations (Barber, Donnelly, & Rizvi, 2012) in which examination was a step toward personal exemplification and sage hood (Salili, 1996). Education in China is heavily influenced by the Confucian style of knowledge transmission thus is examination-oriented (Biggs & Watkins, 1996). In the twenty-first century, the examination system is a progressive selection process from learner’s school performance, academic advancement to his/her career opportunities (Tang, 2009). Lam (2011, p. 24) succinctly elaborates on the role of examinations to Chinese society:

Chinese education is commonly seen as relying solely on rote learning with little understanding . . . This can be seen as a result of the overemphasis on studying for examinations and the high level of compliance to authorities demanded by the Chinese culture . . . Teachers often ‘teach for the test’ and concentrate on drilling students to attain the best results for entry to universities.

Teaching and learning approaches in Hong Kong are like many Chinese societies. In addition to the emphasis on examination results, Confucian assumptions in the teacher-pupil relationship, the use of rote learning, and that teacher (*or textbooks*) should serve as a role model (Morris & Adamson, 2010, pp. 114-115) are deeply ingrained. Among them, rote memorization has much more enduring and devastating effects.

Rote memorization is engaged by ancient Chinese scholars to handle materials that are too demanding but needed for examination. The teaching of English writing in some primary schools manifests this rote learning style. Pupils are told to copy the sentence structures onto their passages for examinations. This learning by imitation from the old school is adopted for learning English. Students are to memorize first, process later. In this shortcut and seemingly win-win situation, the students get to pass the exam, and the school can harvest the *good* exam report to the Education Bureau. The language constituents, however, have not passed through the processing of pupils therefore not in the students’ system--the learners have not acquired the material.

Depending on the individuals, few of the high proficient learners might remember the expressions and might apply the formulaic expressions correctly in future contexts; the low

proficient students will stall in progress or stay in fossilization (a standstill in development); the consequence to majority of them is the students have not be guided to string words together to speak and/or to write on their own. These students will take more time to react in speaking and writing.

**4.3.3 Diversity among languages.** The diversity among languages has compounded the learning problems. There is a wide discrepancy between written Chinese (MSC) and spoken Chinese (Cantonese). The vernacular Cantonese vocabulary and phrases cannot be written word-for-word in Modern Standard Chinese (Kan & Adamson, 2010). In order to write Cantonese in MSC, students need to acquire the MSC system. In learning MSC characters there is another new system to learn. There are two different forms of characters in MSC. The written characters used in Mainland China were simplified in the 1950s to encourage mass literacy, which may be too simplified for many Hong Kong people who were taught the traditional, full-form characters in school (Kan & Adamson, 2010). The last but most significant factor is the typological distance between Chinese and English, which will be elaborated in section 4.3.5. The three languages used in Hong Kong demand learners to set up different interlanguage systems and may cause overload in the learners.

**4.3.4 High Demand of Speech Production.** Oral production requires much more vigor than written production. Chinese college students have been found to have done better in written English than oral English due to three essential factors. They are specific linguistic knowledge, focus on forms, and the time needed for planning (Tang & Zhang, 2015, p. 211). Real-time speaking demands a lot more from speakers.

Levelt's (1989) Speech Production Model explains the process of speaking: that a message first pass through the conceptualizer for comprehension before it passes to the

formulator for grammar encoding (Pienemann, 1998, 2005), after grammar encoding, the message can then pass to articulator for speaking (Section 2.3). Rote learners do not seek to understand, but to memorize, in other words, they skip the conceptualizer (Izumi, 2003) and go directly to the formulator, causing them misunderstood or unable to understand spoken messages. When rote learners rely on rote memory instead of memory store for specific linguistic knowledge, they often string the sentences incorrectly.

**4.3.5 Typological distant L1 and L2.** German, Dutch, Swedish, and English, all belong to the Germanic family, and many English words are based on Latin (*ancient predecessor of Italian*) (Janson, 2012). Processing between these languages is not as complex as between two typologically dissimilar languages, such as Chinese and English, which had totally different writing and spelling systems (Adamson & Morris, 2010; Janson, 2012). Compared with the Germanic languages, Chinese has no gender, no numbers, no case markings, no agreement markings and no tense suffixes (Chen & Tzeng, 1992 cited in Wang, 2013, p. 41). Time reference is represented either lexically or aspect marking. In syntax, word order structures such as OSV, VOS are also permissible in addition to SVO (Wang, 2013, p. 41). Subject position, besides the normally accepted nouns, can be filled with verbs, adjectives, or even prepositional phrases (Gao, 2010).

The exclusive use of English, the rote learning style, the diverse languages, and the typological dissimilar between English and Chinese have all put strain on Cantonese learners in learning L2 English. We can see that student-informants in Hong Kong face far more problems in parsing for speech production than their Italian counterparts in Pienemann (1984)'s Teachability Hypothesis study, compounded by the fact that English is not a daily language in Hong Kong as German to the immigrant-informants.

#### **4.4 Chapter Four Summary**

This chapter has given a brief description of the current Hong Kong education system and its recent curriculum reforms in the first section. The first part of the second section described the languages spoken in Hong Kong and their social significance at different times as reflected in their treatment by the government language policy. The second part of this section discussed recent ELT pedagogical reform including curriculum reform in ELT method of TBLT, English language assessment, and AfL assessment. The third section discussed the English learning obstacles in Hong Kong environment. It is said that the factors of exclusive use of English, the learning style of students, the diverse languages and the high demand of real-time oral production, as well as the typological distance between Chinese and English contribute to the learning difficulties in ESL acquisition.

With this detailed background of the environment in which my student-informants learnt English, the findings of individual learner-informants shall next be discussed in Chapter 5 and Chapter 6.

#### **Note to Chapter 4**

Note 1:

The eight institutions funded by the public through the University Grants Committee (UGC) are: City University of Hong Kong (CityU), Hong Kong Baptist University (HKBU), Lingnan University (LU), The Chinese University of Hong Kong (CUHK), The Hong Kong Institute of Education (HKIEd), The Hong Kong Polytechnic University (PolyU), The Hong Kong University of Science and Technology (HKUST), and The University of Hong Kong (HKU).



The ten self-financing institutions are: Caritas Institute of Higher Education, Centennial College, Chu Hai College of Higher Education, Hang Seng Management College, HKCT Institute of Higher Education, Hong Kong Nang Yan College of Higher Education, Hong Kong Shue Yan University, Tung Wah College, Technological and Higher Education Institute of Hong Kong, Vocational Training Council, and The Open University of Hong Kong.

## CHAPTER 5

### FINDINGS

Pienemann (1989, p. 60) hypothesized that learners can benefit most from teaching/tutorial if they are at one stage below the structure to be taught. This study tried to replicate the experimental studies of Teachability Hypothesis (Pienemann, 1984, 1989) in Hong Kong, and investigate the differences in stage change. First, I compared the individual pretest and post-test results; then, I presented stage change of individual informants, if any. Next, I examined the results along with results from Pienemann's Teachability Hypothesis. Before I present the findings from this study, I would like to recapitulate the research question: Will Cantonese L1 speakers in ESL learning progress in line with Pienemann's Teachability Hypothesis?

#### 5.1 Individual results of Pretest and Post-test

**5.1.1 Introduction.** As mentioned in the Data Analysis section (3.1), pretest and posttest data were collected and analyzed using emergence criterion and distributional analysis (Data Analysis section 3.2-3.3). In the pretest, learners (JS, ST), (SY, IP), and (BM, CW) were tested at Stage 3, 4, 5 respectively. There was a period of tutorial, which was designed according to PT's processing hierarchy. The following is a summary of the three levels of informants, and their pre-test posttest results.

Informants	Pretest	Posttest
(JS, ST)	Stage 3	Stage 4
(SY, IP)	Stage 4	Stage 5
(BM, CW)	Stage 5	Stage 6

**5.1.2 Informants: (JS, ST: Stage 3/Stage 4).** For beginners, the relevant processing procedures were:

Word/lemma>Category Procedure>Phrasal Procedure (Stage 1>2>3)

Beginning L2 learners were theorized as typically engaged in a default alignment by means of unmarked alignment hypothesis (UAH-section 2.4 this thesis), because this one-to-one linear relationship requires little procedural energy. This means: At stage 1, learners were expected to produce fragmented questions such as: *Where?* At stage-2 they were expected to produce questions in canonical word order such as: *He going where?*

In a default alignment (UAH), an argument, a functional, and a constituent structure (a-, f-, and c-structures) are joined together (Bresnan, 2001). The first NP in the c-structure aligns with the subject of the f-structure and the agent role of the a-structure (the highest semantic role). This alignment is later extended (Pienemann, Di Biase, & Kawaguchi, 2005, p. 229) by means of the Lexical Mapping Theory (LMT-section 2.4 this thesis).

In the pre-test, both JS and ST asked some Stage 2 questions.

In the pretest, **JS** asked a few stage 2 questions:

1. Rising intonations SVO: 22 *Mars very unfair planet?/*

34 *You mean it's daytime?*

5 *Ah...all the teenagers in the picture is playing this  
ballgame?*

28 *(Do you think) this machine means something other in  
(xxx)./*

2. Two Wh-fronted stage 3 questions:

*11 ...O.K....How many people seems taking part in games?/*

*24 Why they're setting up so much this kind of machine?/*

**ST** produced rising intonations SVO with formulaic chunk--do you think--for stage 2:

*11 If one night you see this coin machine in the street (do you think) this is magic?/*

*13(Do you think) something would happen if you put one dollar in it?/*

*30 (Do you think) there have two teams...its boys' team or girls' team./*

*32 (Do you think) they're playing this game until the school time or in school time?/*

*35 (Do you think) the boys who hold the basketball ...can...take...across the two  
people?/*

*37 (Do you think) the other teammates will help him?/*

*39(Do you think) this boy may be/...is the team leader of the team?/*

**Pretest (JS, ST).**

**ST at stage 3.** At Stage 3 Do-fronting was significant because the syntax signaled a yes-no answer, so do-fronting supported the mapping of grammar form onto interrogative meaning (Dyson, 2008). The formulator encodes *do* as a word preceding the subject. In argument structure, this type of question followed a linear SVO with unmarked semantic role alignment of SVO as Stage 2.

**ST** Stage 3 Do-fronting questions:

*15 Do you know any another musical instrument?/*

*19 Do you (like) perform the guitar when you have uh...you have free time?*

*21 Do you like to have a band and play the song together?*

Again, ST inserted her formulaic chunk “do you think” in her questions. When the phrase is taken out, the Wh-fronted syntax is there. If the wh-word operates as an object, it functionally links the focus and object entries and shows in Wh-fronted word followed by SVO order like ST #7 below:

**ST:**     7 *Why she want to do it?/*

41 *(Do you think) which team will win the game?/*

/43 *What season do you think it is now?/*

9 *And...O.K. What you think this is in night or day?*

28 *Hm...What (do you think) they're such as playing?*

41 *(Do you think) which team will win the game?/*

43 *What season (do you think) it is now?/*

1 *What (do you think) the woman are looking*

**JS at Stage 3.** Different from Stage 2, Stage 3 process requires non-linear form. The formulator (Levelt’s Speech model, Section 2.3 Figure 3) starts to process which requires exchange of information between two constituents within a noun phrase (noun phrase procedure), and the mapping of information questions takes place.

**JS** provided three non-targeted Wh-inverse questions, Yes–no inverse questions with no variation:

35 *Why did woman...Mm... is looking at the machine on the street?*

15 *Where is the game taking part in?/*

32 *When is the time that this woman see this machine?/*

3 *Are they playing some kind of ball game?/*

*7 Is that handball or something?/*

*13 Is there some kind of rules in the games?/*

*18 Is it in American?/*

*30 There is a woman in the picture...Is the woman stupid?/*

*37 Is this woman get married?/*

The non-varied and non-targeted inflections hinted that although JS had accessed Wh-inverse which would seem more sophisticated than the typical Stage 3 structure, his syntax structure was still on Stage 3. Both JS, ST are tested as in stage 3 in the pretest on the Processability Hierarchy.

***Posttest (JS, ST).***

**ST Posttest:** produced only Stage 4 Wh-questions in 2 variations, one non-targeted:

*1 How many family members do you have?/*

*3 What do you do if you have free time?/*

*5 Where do you like to go if you have a holiday?/*

*7 When did you start singing?/*

*10 Why did you want to be a singer?/*

**JS Posttest:** produced 4 stage 4 questions, with two of them non-targeted:

*19 Where did you born?/*

*21 ...why are you wearing this hat to-night?/*

*17 Are you going to have any concert next year?/*

*22 Was there any friend with you in the X'mas party?/*

*24 Since this is X'mas time, does anything say to your fans?/*

**5.1.3 Informants: (IP, SY: Stages 4/5).** For more matured learners, the relevant processing procedures were:

Noun Phrase Procedure> Verb Phrase Procedure> Sentence Procedure>Main –Sub Procedure (Stage 4>5>6)

**5.1.3.1 Inversion Question and Feature Unification.** At Stage 4, auxiliary second questions (e.g., why did she eat that?) and copula-second questions (e.g., Is she at home?) can be processed. These inverse questions can be processed because the formulator (Levelt, 1989) can analyze the argument structure of the modal as a verb (lexicon) with its own verbal argument (*have*) while identifying and interpreting the subject in second position (Pienemann, 1998). Feature unification, an exchange of grammatical information between phrases starts in the fourth stage as well. Exchange between crucial grammatical information must occur in order to produce inversion, *except in production of rote-memorized chunks* (italics mine) (Pienemann, 2003, p. 702).

**(IP, SY): Stage 4 / Stage 5.**

### ***Pretest***

From emerging Stage 4, at Pretest in September, **IP** progressed to Stage 5 at Post-test in December. IP made a strong case for the emergence criterion of PT as IP has shown that once the learner has *emerged* in a stage, s/he will progress and produce more structure of the stage (Pienemann, 1998).

**IP Pretest (September):**

13 ...will you do something just like this...?/

2 Is there some kind of machine that buys something?/

4 Is there a sentence on this machine reflects the situation nowadays?/

*32 Is there any meaningful theory behind this machine?/*

*10 (Do you think) is there anything that we cannot pay for?*

**(IP, SY): Stage 4 → Stage 5**

***Post-test***

**IP Post-test (December)**

Do-2<sup>nd</sup> and Aux-2<sup>nd</sup> (Stage 5):

*6 Do you have any difficulty when you're composing this song?*

*13 What have you planned about it?*

*16 What guests will you invite?*

*22 What have you planned for next year?*

**SY** acquired both question structures of stage 5 (Do-2nd and Aux 2nd) at posttest:

Stage 5- S procedure (Do2nd questions)

*7 Eh... Why do you choose this theme?*

*21 ...who do you invite to join your performance?*

*24 What do you want to talk to your fans in front of the camera?*

*42 What else do you do in that place?*

Stage 5 S procedure (questions with other aux)

*1 When will you have your next concert?*

*12 Which songs will you perform in the concert?*

*10 How old is your daughter now?*

*37 Where is Scandinavia?*



However, **SY** failed to recognize the Subordinate Clausal Relationship *oh* English and had not produced tokens in Cancel-inversion (stage 6) despite clear instruction given on the specific structure (Session 6 &7). **SY** produced the following:

**SY:**

*46 I asked her about when will she have her concert.*

*51 And when asking about what will she do after the concert,*

*52 she said that she is planning to have a...an album...*

*53 I asked her where did she go last year to sightseeing.*

*59 Melinda asked why didn't the government control the pollution.*

*54 She answered that she went to skiing in Scandinavian countries.*

Other than the pronoun change, SY ignored the tense and word order in the syntactic structures. **IP** did not acquire Cancel-inversion, although IP was aware of the cancel inversion word order, but was unable to produce the structure in spontaneous conversation. IP had got only 1 target structure in cancel inversion: #37. Other structures were not target-like:

**IP:**

*37 She asked why the government did not control the pollution.*

*25 I asked what brings the idea of making a new image in his new album (tense aspect).*

*26 I asked is there any difficulty he face when he's producing the new album. (verb beginning)*

*27 He said that he will prepare well and sleep well before the production of his new album. (tense aspect)*

29 *I asked that is there any difficulties when producing the film. (verb beginning)*

30 *He said that he will try doing stunts himself if it is all in control.(tense aspect)*

32 *I asked what have he planned this next year.(verb beginning)*

33 *He said that he will go to the USA and do some charity (tense change)...*

38 *She asked if the government will do anything about it in the future.*

**5.1.3.2 Information exchange at Stage 5 sentence level.** Pienemann (1998, 2005) showed that in a sentence involving 3<sup>rd</sup> person singular such as: *Peter sees a dog* (Chapter 2-section 2.4 Feature Unification) is first stored in the NP: 3<sup>rd</sup> person singular; the same information is also stored in the VP. Within the VP, additional information was also stored: “present, non-continuous” and these pieces of information cannot be unified until sentence level (S→NP+VP). The complexity of this process made this procedure acquired late on the hierarchy. The question structure of the sentence: *Peter sees a dog* not only requires the above feature unification process, but also the use of an inverted verb: *does*. *What does Peter see?* Or *Does Peter see a dog?*

#### **5.1.4 Informants: BM, CW: Stage 5 / Stage 6.**

##### **1. Pretest -BM Pretest (September)**

At Pre-test in September, BM produced five questions on **two** wh-question type-why, what, also produced **two** different structures-do2nd, aux2nd. BM could be considered to be at Stage 5--Sentence Procedure. BM produced only two different structural utterances, not the four contexts sufficient for acquisition of Stage 4, the Verb Phrase Procedure. Given the short and spontaneous situation at Pretest, BM may not have had the opportunities to produce the

sufficient number of contexts; BM had produced a variety of utterances covering Stage 2-stage 5, and had been well-aware of the different uses and contexts. BM tried to produce the 3<sup>rd</sup> singular (a stage 5 procedure) although they were not all target-like.

**Stage 4-BM Pretest (September):**

*28 Why does you want to give out disappointment...?*

*25 Why does you operate this machine?*

*30 What is the lesson?*

**Stage 5-BM Pretest (September):**

*3. So...why s she interested in this machine?*

*1. What's the woman looking at?*

*26. Why can't you put something in reward...?*

*11. What's the woman's job?*

*22. Why does she still put in a coin? /*

***CW Pretest (September)***

Stage 4 allows inverted expressions in asking questions: yes-no questions and wh-questions. CW knows the meaning and form of *can* as a modal auxiliary, his yes-no inversion showed that he could communicate both the meaning of modality and the word order of yes-no questions:

**CW Stage 4:**

Yes-no inversion questions and copula inversion:

*28 Eh, can you tell me how old are you?*

*22 Mm...mm... how old is your mother?*

**CW Stage 5: Do 2<sup>nd</sup>, Aux 2nd**

*14 What have you done there?/*

*6 What can you see there?/*

*16 What could you see there?/*

**(BM, CW: Stage 5 → Stage 6)**

## **2. Posttest**

**Stage 5-BM Posttest (December):**

*31. Which place do you think best?*

*24 What's your plan next year on either career or family? /*

*27. Where have you been?/*

*8 It seems you love your family, don't you?.*

**BM** had acquired the four stages (seven structures) in Post-test. He was one of the two who could produce targeted Cancel-inversion syntax, the other was CW. BM was a case that confirmed to have developed all four processing procedures (N P procedure > V P Procedure > S-procedure > Subordinate Clause procedure) hypothesized in PT with no skipping of stages.

**Stage 6--Cancel-inversion/Subordinate Clause Procedure.** The procedure requires different syntactic constraints than the previous stages. First, there is a choice for the tense aspect. Second, there is not always control between the embedded clause and the matrix one. Third, the embedded clause cannot start with a verb. Finally, if the embedded clause begins with a pronoun, then the pronoun has to change case (Pienemann, 1984, 1989, 1998).

Stage 6-**BM** Post-test (December):

- 26 *You mentioned that you traveled a lot./*
- 39 *I asked him where he had been./*
- 40 *I asked him which place was the best./and he said Fr(...)*
44. *I asked(...) if he had prepared a lot before this successful concert,/*
- 45 *...he said he did (pause) prepare a lot./*
38. *I asked him if he loved his family./*

**BM Posttest.** In December's Post-test, BM produced six utterances with four different contexts (Yes/No question, Wh-question, different verb tenses). BM could be said to have emerged into Stage 6. However, BM repeated and recast himself in several utterances: he had tried to remember what was instructed. His self-correction took several forms: the tense change, pronoun change, and inversion canceling.BM:

44. *I asked [ ... if]* ←Recast connective
- He (pause) [had prepared]* ←Recast tense change
- a lot before this successful concert,/*
- 45 *...he said he did (pause) [prepare]*←Recast tense change
- a lot./*
- 40 *.../and he said Fr(...) [France]* ←Partial repetition

**CW Posttest.** CW had acquired structures from all the lower stages. There was no stage skipping, except there was evidence for skipping some structures within a stage. At Pretest, he acquired the Yes/No Inversion and Copula Inversion, and had shown some emergence in

Aux 2<sup>nd</sup> of Stage 5. At Posttest, he showed emergence of Do-SVO (stage 3), emergence on stage 4 (yes/no inversion 1/1; copula inversion 2/2), acquisition of stage 5 (Do-2<sup>nd</sup> 6/6), stage 6 (cancel-inversion 6/6).

**CW Posttest-Cancel-inversion:**

*33 I asked him where he (pause) went to have his concert./*

*35 I asked him why he liked singing./*

*39 Then I asked him if he had a girlfriend./*

*37 He said that he would spend time with his family when he was not singing./*

*40 He answered that he didn't have a girlfriend and what he had to do is to work./*

**CW Posttest-Do 2nd:**

*1 Why do you like singing so much?/*

*4 Eh, where did you go to have your last concert?/*

*8 What do you like to do when you're not singing?*

*15 How much money do you make a month?*

*20 Who do you live with?*

*24 When did you decide to sign the contract with the professional company?*

In total, CW had acquired/shown emergence on the four stages, though not all the structures. He was one of the two who produced enough tokens of the Cancel-inversion

(stage 6) and had acquired the stage. Hence, we can say that CW had developed all four processing procedures of this study (N P procedure > V P Procedure > S-procedure > Subordinate Clause procedure) hypothesized in PT.

## 5.2 Findings on Teachability Hypothesis.

1. It was found that individual Cantonese L2 learners initially rely on the meanings of base lexical items, fixed word order, and intonation; at later stages, Cantonese learners add grammatical meaning by varying the word order, form, argument structure, to their grammatical memory store. There was a gradual development along the path of the processing hierarchy, with variations in individual progress.

2. Like Pienemann (1984) found in his study with the Italian learners, all six Cantonese informants in this study were exposed to the same tutorial. The effect to each of the six learners, however, was different. For example, although the structure of cancel-inversion was taught in the tutorial to all six learners, only two of the six learners produced the target cancel-inversion structure in the posttest. The unequal effect on the learners could be due to *learner readiness*.

3. Learners must be ready to learn the next stage of structure before they can learn. Learners tested at their current stage (stage 3,4,5) advanced only to the next stage (4,5,6) respectively. It was found that ST and JS were ready for stage 4, IP and SY were ready for stage 5, BM, CW were at a ready stage for stage 6. BM and CW were ready for the learning of cancel-inversion(stage 6), as they had learnt Do/Aux 2<sup>nd</sup> – the prerequisite of cancel-inversion (Pienemann, 1984). ST and JS were ready for the phrasal procedure(stage 4), and IP and SY were ready for the Sentence procedure (stage 5). A summary table of the progress is repeated below:

Informants	Pretest	Tutorial	Posttest
(JS, ST)	Stage 3	same	Stage 4
(SY, IP)	Stage 4	same	Stage 5
(BM, CW)	Stage 5	same	Stage 6

\*Results show that the learners progressed only to the next stage (X+1)

### 5.3 Findings on Next Stage (X+1) Gains.

As syntax processing is resulted from underlying linguistic elements acquired before, rules which require a high degree of processing by implication would be acquired late, it was predicted, therefore, that informants who were not at the stage just below the next stage would not acquire the next stage grammar, while those had acquired the stage right below would acquire the next stage (Pienemann 1989). This prediction was confirmed by the findings of this study despite that the learners are Cantonese speakers. The result indicated all six informants who made stage gains and the stage gain of each informant was one stage above his/her pretest stage. It was also found that individual learners progressed on the hierarchy step-by-step regardless of any tutorial given (Pienemann, 1989), and by implication, there was no skipping of stages by the learners.

The study's results are presented below in Tables 21 and 22: Of the 6 informants in the pretest, two tested as Stage 3 had advanced to Stage 4 (ST, JS); two tested as Stage 4 (IP, SY) had advanced to Stage 5; two tested as Stage 5 (CW, BM) had advanced to Stage 6.

Table 21

*Pretest Group Stage*



Informants	Stage 1	Stage 2	Stage 3	Stage 4	Stage5	Stage 6
ST	+	(-/+)	(+)	(-)	(-)	(-)
JS	+	(-/+)	(-/+)	(-)	(-)	(-)
SY	+	+	(-/+)	(-/+)	(-)	(-)
IP	+	+	(+)	(-/+)	(-/+)	(-)
CW	+	+	(+)	(+)	(-/+)	(-)
BM	(-/+)	(-/+)	(-/+)	(-/+)	(+)	(-)

Table 22

### 5.2 Posttest Group Stage

Informants	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Stage 6
JS	+	+	(-/+)	(-/+)	(-)	(-)
ST	+	+	(-/+)	(-/+)	(-)	(-)
SY	+	+	(-/+)	(-/+)	(+)	(-)
IP	+	+	(-/+)	(-/+)	(+)	(-)
CW	+	+	(-/+)	(-/+)	(+)	(+)
BM	+	+	(+)	(-/+)	(+)	(+)

Note 1: Implicational scaling has been used to represent the dynamic aspects of interlanguage (Pienemann 1998, p. 134). In the tables of this chapter, the + signs are filled in based on

implication scaling assumption, while the (-/+) and (+) in grey color indicate emerging structure and acquired structure respectively. A (-) means participants have not acquired the target language.

Note 2: The first column represents the informants, who are in order based on the stage they reached in the pretest, from the least advanced learner (ST/JS) to the more advanced (BM/CW). The next six columns show the stages in order (Stage 1-6). If a learner acquired a particular stage, it is marked in with a (+); if a learner showed emergence at a particular stage, it is marked with a (-/+). In a perfect implicational table, a thick line would signal stages of its left/right has been either acquired or has shown emergence by the particular participant, and stages to the right/left of the thick line has not.

## 5.4 Chapter 5 Summary

The findings confirmed the *readiness* as predicted by the Teachability Hypothesis occurred to Cantonese L1 speakers as well. That is, ST, JS acquired Stage 4 structure because they were ready for Stage 4 at the post-test. Similarly, IP and SY acquired Stage 5 because they had acquired the processing procedure of Stage 4. BM and CW were ready for the learning of cancel-inversion, as they had learnt the prerequisite of cancel-inversion, which was the Do/Aux 2<sup>nd</sup>. These findings are unique to Cantonese ESL learners and worth taking notes on. Chapter 6 discusses these findings.

## CHAPTER 6

### DISCUSSION ON FINDINGS

In examining the Research Question: Will Cantonese L1 speakers in ESL learning progress in line with Pienemann's Teachability Hypothesis? This study found the following:

- Cantonese L1 speakers in ESL developed and progressed gradually on the processing hierarchy with no skipping of stages.
- The effect of the tutorial varied to the six individual Cantonese speakers in this study.
- Learners must be at X stage before they can progress to the (X+1) stage.

The research question of this study is confirmed by the findings: Cantonese L1 speakers in ESL learning **indeed** progress in line with Pienemann's Teachability Hypothesis. Teachability Hypothesis states:

- Instruction benefits learners the most if it focuses on structures from the next stage of learners, and that
- Stages of acquisition are not skipped by learners

By virtue of confirming the research question of this study, the findings also have confirmed Teachability Hypothesis among Cantonese speakers. Although second language learners follow the same developmental order, they differ in their orientation toward learning the target language, which may lead to the difference in use of strategies.

The rest of this chapter will devote to *the variational hypothesis* as defined by PT, and a few observations from this study. I will first recapitulate the *variational hypothesis* of PT, (please also refer to section 1.1 Hypothesis Space under the Overview; section 2.1.1 the

Multidimensional Model; section 3.3.3. Coding for the study), then I will present some observations from this study.

## 6.1 Variational Hypothesis and Learner Variation

Variational hypothesis in PT predicts how learners differ systematically in responding to developmental conflicts. Individual learners are hypothesized to have their own strategies toward learning a second language i.e. English. In PT, learner orientations and strategies are defined along the concept of *Hypothesis Space* (Pienemann, 1998, p. 232). This means, before learners acquire a form, learners have a range of options within their *Hypothesis Space* to cope with their acquisition problems, because the *Hypothesis Space* is less constrained than the developmental order, learners have a range of options. PT has divided learners' orientations or strategies into three types: omission, avoidance, or violation (Meisel et al., 1981; Pienemann, 1998; Section 2.1).

**Omission and avoidance strategies.** Learners who tend to choose omission or avoidance strategies will develop a more simplified variation. Learners who engage in omission strategy have not acquired the correct function and leave out some structural elements, if they continue adopting this strategy of omission, they will feel the lack when they need the missing element at higher stages (Keßler, 2008, p. 77). Learners who avoid the use of some elements or structures for the purpose of avoiding making mistakes would limit their expressiveness, and are counter-productive (Pienemann, 1989) in language acquisition.

Both ST and JS used more formulaic chunk form of Inversion: *Do you think ...?* Formulae are the unvaried lexically based verb tokens, such as -do you think –with varied complements.

ST: formulaic Questions

*13 (Do you think ) something would happen if you put one dollar in it?/ 30*

30 (*Do you think*) *there have two teams...its boys' team or girls' team./*

32 (*Do you think*) *they're playing this game until the school time or in school time?*

JS: (*Do you think*) *is there anything that we cannot pay for?*

Although formulaic chunks are helpful to learners who are not yet able to produce Stage 4 structures systematically yet need to communicate in question form, this avoidance strategy limited their language learning especially at higher stage. In comparison, the more advanced learner (BM) of this study produced mostly target structures and on each of the six stages. His recordings also indicated that he was a standard learner who followed structure rules of English.

**Violation strategy.** Memory storage on the learned grammar is particularly important in the grammar encoding process (Kempen & Hoenkamp, 1987; Levelt, 1989; Pienemann, 1998; sections 2.3), and to generate speech. For Cantonese learners who are constrained by their current English processing capacity in exchanging grammatical information, to put the unfinished sentence to a coherent sentence form, the incomplete output has to be held in memory for the sentence generation. In coping with the exchange procedure which is not yet in her/his memory storage, the informants may have used whatever resources which were available to them (Corder, 1967) at the moment of speaking. Cantonese learners are more inclined to “violate” the inversion rule with overgeneralization/ substitution, and Subject-Verb Disagreement.

***Overgeneralization/ Substitution for English auxiliaries have, do, and be.***

Overgeneralization occurs when a learner fails to observe the boundaries of a rule.

### **Overgeneralization**

ST: Copula /auxiliary Inversion:

25 *Is you family like you to be a singer?*

Tense/aspect marking of Chinese is different from English, and Chinese does not have the equivalent auxiliaries of *have* and *do*, the substitution of *be*, *have* and *do* are used in an effort to construct the English language grammar. Cantonese learners were not only very aware of the different and complicated *be* system in English, but also tried to use *be* according to the English system, although it was sometimes overused.

**Substitution for English auxiliaries *have*, *do*, and *be*.**

JS: Copula /auxiliary Inversion:

35 *Why did woman (Mm) is looking at the machine on the street?*

*(do/did for be)*

37 *Is this woman get married?(be for did/does/do)*

19 *Where did you born?(be for do/did)*

ST: Copula /auxiliary Inversion:

30 *Where did you have been?(be for have)*

**Subject-Verb Disagreement.** At Stage 4, subject–verb agreement becomes available to learners (Pienemann, 1998, p. 171). An example is: [[NP *a hat with a wide brim*] [VP *protects you from the sun*]]. The subject must match the singular feature on *protects* in the verb phrase (VP) predicate. For Stage 4 inversion question and stage sentence procedure, the subject needs to agree with the verb use. A notable point: although Does-third person singular agreement is required, no “does” question structure has been supplied by SY.

**SY Pretest (September)**

Inversion Question:

18 *...why do Obama say this kind of thing?/*

14 *Senate don't allow it to pass...but if Obama want to pass some rubbish the Senate will.../*

5 *Is that man in the middle...eh...the people who're from the other party...George Bush?*

Despite this series of violation, Lee and Huang (2004)'s study suggested some developmental aspects with systematic and accountable variational strategies were carried out by the primary students in their study. KeBler (2008) pointed out as well, learners who “violate” tend to use a creative construction process in order to advance toward the standard end of the continuum( p.76). Learners who adopt the violation strategy tend to progress more quickly to the *standard* end of the simplified-standard continuum (p.77).

From the interlanguage (IL) spoken by the Cantonese learners in this study, their orientations and strategies can also be predicted, i.e. whether the IL are one of omission, avoidance, or violation. It was observed that the IL in the study were mostly the violation type, only a few were belonged to the omission type. This observation leads to the issue about the typological proximity and its influence on second language acquisition.

## 6.2 Typologically Distant L1

English is typologically distant from Chinese, and the distance could cause the semantic salience of some structures to be lower in this group. For Cantonese ESL learners, perceptions of a second language may be affected by the first language saliency on the relevant domains. “Cantonese requires its speakers to look for semantic information in vowels and their tones”, as such Cantonese participants may overlook the ending/final consonants in English words as lacking in salience, and miss the key grammatical element there (Holme, 2012). This may partly explain why the 3<sup>rd</sup> person singular rule is often

overlooked in production (e.g., SY and IP in the analysis) despite the fact that the feature has been taught and repeated since primary three (Chapter 4--Hong Kong SAR Education Bureau English Syllabus) in Hong Kong. This fact contrasts Pienemann's argument that the reason the 3<sup>rd</sup> person singular structure is acquired late in ESL processability hierarchy is that learners are constrained by the procedure, which is matching the 3<sup>rd</sup> person singular subjects with the required verbs with "-s", a process occurs only at stage 5. Thus, this study suggests the factor of Markedness and Perceptual saliency may be one reason for the non-acquisition of English 3<sup>rd</sup> person singular rule, which grammatical feature does not exist in Cantonese learners' L1. .

Another example of the typological distance between Chinese and English would be the tense aspect of English. Chinese, in this regard Cantonese as well, reflect the *time* element by adding the time-s yesterday, just then, etc.--at the beginning or end of a sentence, not via verb inflections like English. As such, acquiring tense and aspect of English requires acquiring both form and meaning. While tense means time expression in English, aspect in English refers to the correct use of forms. Both tense and aspect must be understood and matched correctly in speaking (Bardovi-Harlig, 2000), not to mention learners need to perform the retrieval from memory.

In regard to the Main-Subordinate Clausal procedure (stage 6) on the hierarchy, both English and Chinese languages have clausal phrase as clause. The difference lies in the marker. English clausal subjects are introduced by *that* or other relative pronouns to form the clausal structure. Chinese does not use any complementizer such as *that*. Thus, Cantonese learners often overlook *that* in connecting Main-Subordinate clausal relation. Therefore, Cantonese interlanguage can look like this:

(1) *He cheated on the exam disappointed his parents*



(Dropping the complementizer *that*)

Without the marker to show the main-subordinate relationship, there is no canceling of inversion and the word order for Stage 6 becomes #26, #53:

*IP: 26 I asked is there any difficulty he face when he's producing the new album.*

*SY: 53 I asked her where did she go last year to sightseeing.*

The relative distance between the relative elements of the sentence may have affected the processing. In Ghadessy's (1997) study, it was found that distance affects the morphological marking of tense or agreement; his Chinese ESL learners tended to forget morphological marking more often when the verb was separated from the subject than when the verb was close to the subject (Ghadessy, 1997, p. 139).

Not only the distance between elements in a complex sentence poses difficulties to learners, the typological proximity between L1 and L2 languages would cause hazards, too. These L1 influences in addition to the exigent moment of speaking make English development quite a traversal for Cantonese learners.

### 6.3 Chapter Six Summary

This chapter has presented the variational outcome from the learners and strategies they used in coping with the acquisition problems: omission, avoidance, and violation. Chinese/Cantonese, as a typologically distant language from English, may affect Cantonese learners in learning English, and in the use of strategy. It is on this variation that I would suggest the future research. In the next chapter, I present the limitations, the pedagogical significance and implications of the study, from which I suggest possible future research.

## CHAPTER 7

### CONCLUSION

#### 7.1 Limitations of this study

The scope and interest of this study is limited in three aspects: the choice of participants, the time gap difference for individual participants, and the lack of a longitudinal testing to complement this study.

The small number of participants provided a limited number of samples taken which, in turn, narrowed the scope and interest of this study and the possibility to add any conclusive evidence to Teachability Hypothesis research. Moreover, the participants were voluntary secondary students from Eastern and Western New Territories of Hong Kong. The samples from them may help increase validity if participants were recruited from secondary schools across Hong Kong, in random and diverse selection.

Second, there were issues with regard to the length of time between the readiness stage and instruction. Individual participants were tested at different stages of readiness, and grammar structure instruction at different stage levels were presented (according to the Schedule of Intervention--Chapter 3) at different times, therefore, causing a different time gap between instruction and individual learner production. This difference in time gaps may have affected participant production.

The third limitation is about a time gap between pre-test and post-test. The eight-week period was due to intensive instruction. While the short-term memory of participants was facilitated during this eight-week duration, it is doubtful that participants had stored the taught structures in their long-term memory. Longitudinal testing with one year or longer

after this study could have checked the long-term acquisition of participants, and the time gap difference between participants, thus, improve the quality of findings. In sum, this study could have been improved if the participants had been chosen randomly; the time between pretest and post-test had been the same among participants; and a longitudinal testing had been provided.

## **7.2 Limitations of Processability Theory and its Processing Hierarchy**

PT as a SLA theory is not without criticisms. Most criticisms are based on the ranking order of the processability (Alhawary, 1999, 2003; Charters, Da, & Jansen, 2011; Dyson, 2007).

Alhawary (1999, 2003) found that many of the English-speaking L1 Arabic learners examined in his study acquired subject–verb agreement before noun–adjective agreement, which is the opposite to the order predicted by PT. Dyson (2009) found evidence that morphological marking lagged behind syntax in the oral production of a Chinese-speaking learners of English. The development in morphology and syntax did not occur at the same time as predicted by PT.

Charters, Dao, and Jansen (2011) found that number agreement generally emerged in phrasal before lexical contexts, which is contrary to the order predicted by PT in the data from 36 Vietnamese learners of English, although they claimed that this pattern can be accounted for by the Developmentally Moderated Transfer Hypothesis (DMTH) (Pienemann, Di Biase, & Kawaguchi, 2005). DMTH states that L1 transfer of PT processing routines is possible if the learner’s processing system can process the L2 input at the time of transfer.

In research conducted with ESL learners of mixed L1s, Spinner’s (2013) findings suggested that the decoding of the grammatical features in reception does not emerge

incrementally like grammatical encoding in speech production, thus, it was found that PT had not predicted the order of emergence of forms and structures in a receptive task.

This result is puzzling given that the processing routines of Pienemann's (e.g., 1998) theorized to be necessary for grammatical encoding and decoding. Of course, one can also argue that PT was originally designed to explain grammatical encoding, not grammatical decoding. Yet, one cannot encode and not decode, and presumably encoding and decoding engage the same processing routine.

Each stage on the processing hierarchy consists of different structures. Testing learners' processing ability on the hierarchy could provide a general picture on learners' acquisition of the procedures. Some stage structures, however, need to be studied further for typologically distant languages such as Chinese. An example are auxiliaries in English, which although frequent in English language, they are not salient for Cantonese whose first language is Chinese, in which "auxiliaries" are null and of low salient significance. The emergence order may also differ for some learner groups. For example, 'Why daddy can go with us' is acceptable in French but English does not permit wh-questions without verb inversion (Spada & Lightbown, 1999). PT needs to fine-tune in its hierarchy and processing procedures to include more Asian ESL learners whose first language are typologically different from European languages.

However, after all that is said, the processing hierarchy and the processability procedures, thus far, has been a useful tool in understanding and describing ESL learners during their traversal between stages while learning English.

### **7.3 Pedagogical Significance of Teachability Hypothesis**

#### **7.3.1 Teaching Design.**

Teachability Hypothesis shows that a learner at stage 1 does not have the prerequisite to acquire structures of stage 3, but may benefit from instruction focusing on structures from the next developmental stage (stage 2). By implication, the Teachability Hypothesis also shows that stages cannot be skipped through instruction, but targeting learnable features can facilitate the acquisition process (Ellis 1989; Pienemann 1989; Mansouri & Duffy 2005; KeBler 2006).

**7.3.1.1 What/ When / Whom to Teach.** For language teachers, it is obvious that the developmental order of stages needs to be taken into account if the teaching were to be effective, and it *pays* to take developmental readiness into account in the teaching process. Teachers can combine task-based language teaching and focus on form, and design tasks for which the learners are developmentally ready. The following steps can be used: first, the tutor identifies individual levels of developmental readiness of the learners, followed by various tasks-pre-, during, and post-task. Different learners are encouraged to use different structures and different resources from different levels within the PT hierarchy, e.g., question, spot-the difference, tell the story, etc. in order to complete the task. Second, tutors can diagnose the level of individual learners. Language elements can then be cut into small blocks and organize their grammar structures accordingly. The learner acquires them one bit at a time, and is expected to re-synthesize these language bits into meaningful language. This gradual accumulation of small parts of language elements should facilitate acquisition (KeBler et al., 2011, p. 149), as teachers know which language elements to teach whom, and when.

**7.3.1.2 Teach as How Learner Process.** Design the course material according to how the specific linguistic processor works, which is how the mind would produce sentences. Break the sentence according to the stages on the processability hierarchy: 1. Word(s), 2.

Canonical order, 3. Noun Phrase Procedure, 4. Verb Phrase Procedure, etc. For the sentence: *The horses were running by the river*. Specific parts: 1. Word(s)-Horse/river; 3 Noun Phrase Procedure- be run/by river, 4. Verb Phrase Procedure -Were running. The step-wise procedures are broken down and synthesized, and re-synthesized in teaching /learning.

### **7.3.2 Learner Variation Prediction.**

The general aim of PT's hypothesis for variation is to provide an account in an *priori* manner (Pienemann, p.243). Thus it aims to predict how individual learners of any second language may vary linguistically on the basis of the options available to them at their current level of processing. Through the concept of *Hypothesis Space*, the L2 variations (Interlanguage) may be predicted along three learner orientations: omission, avoidance, and violation.

A strategy which is avoidance-oriented is not beneficial to learners' L2 development, as the learners are judged as having slid back one stage on the processability hierarchy. Learners who have adopted omission-oriented strategy miss element(s) as they cannot yet process the structure. The violation-oriented learners violate the rule(s), yet by applying their creative construction process in second language learning, which may eventually lead to a more standard-oriented variation. In terms of L2 development, and on a continuum between the amount of standard-orientation and simplification-orientation of the target language, omission strategy would be at the simplification end while the violation type would be at the standard end. The *variational hypothesis* enables teachers to predict learner variations and the IL learner produced and their second language development (KeBler 2008, p.76), despite the constrained developmental order.

### **7.4 Implications / Suggestions of Future Research**

The findings of this study suggest that intense teaching or delivery of lessons is not a guarantee for student learning or acquisition in second language learning. Multiple factors are in play in ESL, including learner's readiness to learn a particular structure, learner's L1 typological proximity with the L2 also affect learners through factors such as perceptual saliency. In this regard, the acquisition of complex English sentences could be an interesting structure to investigate for processability theory. Processing of complex sentences can vary among the four learner types: omission, avoidance, violation, and standard. A study of how each type process (memory, encoding decoding, etc) on the same set of complex sentences may allow us to know more about stage six on the processing hierarchy.

## **7.5 Chapter Seven Summary**

This chapter discussed the limitations of this study in terms of the number of informants, and the time lag between the stages taught and the posttest. The limitations of the processing hierarchical order of acquisition was also shown: the order of acquisition were found to be somewhat varied among languages, such as Arabic, Vietnamese and Chinese. Finally, the issue that the typological proximity between languages may and can influence learner processing and learner variation is proposed to be possible future study areas.

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## **APPENDICES TO CHAPTER 3**

### **APPENDIX A: CURRENT ENGLISH LANGUAGE CURRICULUM**

#### **S4-S6**

No reference on question structure

Curriculum Development Council. English Language Curriculum and Assessment Guide (Secondary 4-6). P. 13-21. Hong Kong: Government Printer.

#### **P1-P6**

This is quoted from the P1-P6 guide:

“Use interrogative sentences to ask questions:

Is Mr. Wong cooking? May I close the door? Are you hungry?

Are there many books? Is the dog playing in the garden?

Do you like swimming?”

Will May send you some flowers?

Have you brought yours?

Were the doors closed? (p. 49-50)”

However, no mention of Wh-question words, “Which, Who, Where” are referred to as interrogative pronouns.

Curriculum Development Council. English Language Curriculum and Assessment Guide (Primary 1-6) (2004). pp. 49-50. Hong Kong: Government Printer.

## APPENDIX B

### CONSENT FORM (PAGE 1)

THE HONG KONG INSTITUTE OF EDUCATION Department of Language  
Studies

#### CONSENT TO PARTICIPATE IN RESEARCH

Teachability Hypothesis and English as a Second Language (ESL)

I \_\_\_\_\_ hereby consent to participate in the captioned research  
supervised by Dr. Holme, Randal and conducted by Chan Mui Yuen Mabel.

I understand that information obtained from this research may be used in future  
research and may be published. However, my right to privacy will be retained, i.e.,  
my personal details will not be revealed.

The procedure as set out in the **attached** information sheet has been fully explained.  
I understand the benefits and risks involved. My participation in the project is  
voluntary.

I acknowledge that I have the right to question any part of the procedure and can  
withdraw at any time without negative consequences.

Name of participant

Signature of participant

\_\_\_\_\_  
\_\_\_\_\_

Date \_\_\_\_\_

---

## CONSENT FORM (PAGE 2)

### INFORMATION SHEET

#### Teachability Hypothesis and English as a Second Language (ESL)

You are invited to participate in a project supervised by Dr Holme, Randal and conducted by Ms Chan Mui Yuen Mabel, who are staff / students of the Department of Linguistics & Modern Language Studies in The Hong Kong Institute of Education.

*The aim of this study is to discover the effects, if any, of instruction to participants in learning English as a second language (ESL). There will be 2 interviews and free English lessons will be given in between these 2 interviews. Before the English lessons, a less than 5-minute interview will be conducted to determine the participant's pre-instruction stage. After the free lessons, a less than 10-minute interview will be conducted to determine the participant's post instruction stage. The 20 minutes used for each free lesson are extra time to the normal tutorial.*

You have every right to withdraw from the study at any time without negative consequences. All information related to you will remain confidential, and will be identifiable by codes known only to the researcher.

If you have any concerns about the conduct of this research study, please do not hesitate to contact the Human Research Ethics Committee by email at [hrec@ied.edu.hk](mailto:hrec@ied.edu.hk) or by mail to Research and Development Office, The Hong Kong

Institute of Education (Tel: 2948-6318).

If you would like to obtain more information about this study, please contact Chan Mui Yuen Mabel at telephone number 90116159 or her supervisor Dr. Randal Holme at telephone number 29488461.

Thank you for your interest in participating in this study.

Chan Mui Yuen, Mabel

Principal Investigator

## **APPENDIX C**

### **CARTOON PICTURES**

#### **Pretest Picture**

A middle aged-woman, in an office suit, holding a bag that looks like a brief case, is perusing a coin machine located at the corner of a main street, which is busy with traffic. The sun is setting but is hanging at the end of the street.

#### **Posttest Cartoon**

‘Asking questions about the idol’s life’

A man with a tall hat is facing some people who are busy writing and holding microphones trying to record what the man in tall hat says. There are blank speech bubbles around the man.



**APPENDIX D**  
**SAMPLE OF A TRANSCRIPTION**

CW

Posttest

Interviewing his idol Eason Chan

- |    |    |  |
|----|----|--|
| 1  | CW | Why do you like singing so much?   |
| 2  | I  | I've started singing since I was very small.                               |
| 3  |    | I just like to perform./   |
| 4  | CW | Eh, where did you go to have your last concert?/                           |
| 5  | I  | I had it in Spain./  |
| 6  | CW | Ah, who is your idol?/   |
| 7  | I  | I've always like Bach, who was a classical musician.                       |
| 8  | CW | What do you like to do when you're not singing?/                           |
| 9  | I  | When I'm not working, I'd like to stay with my family and friends.         |
| 10 | CW | (a long pause) Do you have a girlfriend?/                                  |
| 11 | I  | Not at the moment, at least not a steady one./                             |
| 12 | CW | Do you think you'll spend time on finding a girlfriend?                    |
| 13 | I  | I don't think I have time ...with so much work lining up-a concert in May. |
| 14 |    | I have work scheduled up to 2015.  |
| 15 | CW | How much money do you make a month?  |

- 16 I It is hard to say...but I'm O.K.
- 17 CW Which song you made you like best?
- 18 I Mm...I like most of them, you know the one song that impressed me most
- 19 is " See me Fly"./
- 20 CW Who do you live with?
- 21 I Now I'm living with my parents.
- 22 CW Mm...mm (XXX) how old is your mother?/
- 23 I Eh, ask her when you see her.
- 24 CW When did you decide to sign the contract with the professional company?
- 25 I Which company? You mean the company I'm working with now?
- 26 CW Yes.
- 27 I I have a good relationship with this company, and they're good to me.
- 28 CW Eh, can you tell me how old are you?/
- 29 I How do I look? I look older than I actually am./
- 30 CW Do you spend a lot of times with your friends when you're not working./
- 31 If I can...but I've been so busy lately./
- 32 CW I guess this is all I would ask.

## APPENDIX E

### TUTORIAL SESSION TASKS AND WRITTEN EXERCISES

#### A. Description of Tutorial sessions

Stages 3-6 according to Processing Hierarchy:

6	Cancel Inversion: Learners acquire statement word order in indirect questions
---	---

Indirect yes/no questions

λ “Are you ready to go swimming?”(direct question)

λ John asked Bill if/whether he was ready to go swimming.(indirect question)

When you report a yes/no question, you need to use if, whether or whether or not.

Don't forget to change any pronouns and time expressions too!

Indirect Wh-(Information) questions

λ “Where are you going?” asked Mary.(direct question)

λ Mary asked where we were going.(indirect question)

+Remember to use question word (where, when, who, why, what, how, etc. instead of that)

5	Do-2 <sup>nd</sup> (question with “does” after a Wh-word) e.g. Why does she read?
	Aux-2 <sup>nd</sup> (question with an aux other than “Do” after a Wh-word) e.g. Where are you going?

Yes/no questions

λ Does Mrs. Li like frog's leg?

Wh-(Information) questions

λ How much does it cost?

4	Learners form wh-questions and yes/no questions by inverting the subjects and auxiliaries, as well as wh-words and copulas.
---	---

Yes/no questions

λ Have you seen her?

Wh-(Information) questions

λ Where is she?

3	Learners acquire a “fronting” –do/ wh-word --before the subject, verb and complement.
---	---

Yes/no questions

λ You like chicken wings.(statement)

λ Do you like chicken wings?(question)

Short answers and negative verbs

λ Yes, I do. (affirmative)

λ No, I don't. (Negative +V =I do not like chicken wings.)

Wh-(Information) questions

λ I exercise everyday.(statement)

λ What do you do every day?(question)

## **Samples of exercises in tutorial**

### **B Change the following conversation from direct speech to reported speech.**

**Use sequence words (first, then, next, finally) where appropriate.**

Debby: Where do you work?

Jenny: I work in a studio in Central.

Debby: What do you do?

Jenny: I am a fashion designer.

Debby: Where did you study fashion?

Jenny: I graduated from St Martin's College, London.

Debby: What are your plans for next year?

Jenny: I am going to design a new menswear collection.

Debby: What kinds of clothes are you going to design?

Jenny: I am going to design smart casual clothes.

### **C. Change the following sentences from reported speech to direct speech.**

1. Jane suggested that I get some work experience in the fashion industry.
2. The police officer ordered the dangerous driver to get out of the car immediately.
3. Our teacher asked us to sit down and open our books.
4. Alexander congratulated the students on their excellent designs.
5. Peter apologized for being late.
6. Jane regretted buying a pair of bright pink boots.

#### D. The use of "Do" in Yes/No questions



## E. Unscrambling Question Structure

### Exercise 1

Mrs Green is Tommy's English teacher. She's asking Tommy a lot of questions. Look at the words in the speech bubbles. Then use the words to write Mrs Green's yes/no questions and Tommy's short answers. The first one has been done for you.



a)	you / live in Kowloon? Do you live in Kowloon?	Yes Yes, I do.
b)	your grandfather / speak English?	No
c)	you / like pizza?	No
d)	Miss Ho / teach Maths?	Yes
e)	I / know your sister?	No
f)	your classmates / study hard?	Yes



## F. Immediate Response

**Activity**

You are a reporter, and you must interview one of your classmates. Write down a list of questions you want to ask, using the question words and phrases below. Then interview your classmate, and note down his or her answers.

Questionnaire	
Questions	Answers
a) What _____?	
b) Where _____?	
c) Who _____?	
d) When _____?	
e) Why _____?	
f) Which _____?	
g) How long _____?	
h) How many _____?	
i) How much _____?	
j) What else _____?	