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Challenges Encountered by Chinese ESL Learners

Problems and Solutions from Complementary Perspectives

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Preface

The aim of this edited collection of articles is to present, analyse and discuss empirical research investigating the acquisition of English by native speakers of Mandarin Chinese and Cantonese. This research is based on a number of theoretical models and hypotheses of second language acquisition. The articles are written from various theoretical perspectives. They examine properties of English that are known to cause "problems" for Mandarin- and Cantonese-speaking learners. The purpose of the studies is twofold:

- to offer readers a comprehensive account of these problems;
- to outline possible pedagogical solutions for the language classroom.

This introduction consists of four sections: (i) a reflection on some of the key issues in second language acquisition relevant to the research reported in the articles; (ii) a short synopsis of the studies themselves; (iii) a brief outline of the main implications that can be drawn for theory and language pedagogy; and (iv) some suggestions for possible avenues of further research.

What are the Key Issues in Second Language Acquisition?

Second language acquisition is a research field that focuses on how L2 learners come to learn another language. There are two fundamental questions in the field:

- how L2 learners come to internalise the linguistic system of another language;
- how L2 learners make use of that linguistic system during comprehension and speech production.

Classroom findings on second language acquisition (VanPatten et al., 2020) indicate the following:

- L2 learners create an implicit and abstract system in the mind.
- This system exists outside of awareness.
- Input provides raw data for the system to develop and grow.

Is There an Initial State?

The initial state refers to the starting point for L2 learners. There have been quite some views on the initial state, one of which is *full transfer* position, indicating that L2 learners transfer all properties of the first language into the second language. Native speakers of Italian, for example, begin the acquisition of English by unconsciously assuming that English is +null subject and has the same null subject properties as Italian. They believe that *speak Italian* is a perfectly fine sentence in English. Then, learners have to reset the parameter during acquisition and eventually produce correct sentences such as "*I speak Italian*". Many other theories of second language acquisition consider the influence of the L1 properties in different ways such as form–function relationships and meaning (functional and usage-based approaches), and processing and parsing routines (how learners compute syntactic relationships in real time while listening or reading). The main point is that the L1 is the starting point and L2 learners must "overwrite" the properties to create a new system.

An alternative view called *no transfer* position suggests that L2 learners do not transfer any properties from the L1 as they have access to universals of language. They begin acquisition much like children learning their first language. Returning to the example of null subject from above, L2 learners begin acquisition without making any assumptions; that is, they are "open" to the language being +null subject or -null subject. Rather than "reset" the parameter, they simply "set" it based on the evidence received. Errors made by learners do not necessarily reflect the influence from the L1, and tests for probing their underlying competence should likewise not reveal any L1 influence. For researchers not using the universal grammar (UG) perspective, the universals may be related to computational complexity (O'Grady, 2003) and subject *who* appears in speech before object *who*. Thus, processing accounts are more concerned about how learners compute syntactic relations during comprehension and how this affects acquisition (remembering that acquisition is input dependent; thus, learners have to process the input before they can actually acquire anything). Computational complexity falls under universals because complexity is the same for all learners regardless of the first language; that is, learners have more difficulty computing grammatical information that crosses multiple syntactic boundaries compared to computing those that cross only one, for example.

Scholars working from a linguistic perspective believe that there is L1 transfer, but it is partial (Vanikka & Young-Scholten, 1996). According to them, L2 learners might transfer lexicon and its syntactic properties but not the functional features of

language related to things such as tense, person number and agreement. Pienneman and Kessler (2011) argued that L1 output procedures (how people put together syntax and lexicon in real time while speaking) are not fully transferred to second language acquisition.

The role of L1 transfer is still very much debated in second language acquisition. L2 learners seem to go through predictable and specific orders of acquisition of morphemes despite their L1s. The errors they make are not simply the result of L1 interference. There are other linguistic and cognitive processes explaining why L2 learners make errors.

What are the Main Characteristics of Language Growth?

Language learners develop an internal language system. This system is of neither the first language nor the second language, but something in between that learners build from environmental data (input). Language development requires making connections between language forms and functions. The forms are morphological inflections and word order patterns. The functions are grammatical functions with specific semantic properties. A language system is slow to develop as learners' minds constantly work on various aspects of language simultaneously. Only over time an internal system builds up and begins to resemble a second language. Language development is also stage-like and ordered-like. In the acquisition of structure, there are stages that learners go through regardless of their L1. There is no evidence that stages can be skipped or orders can be altered. Both stage-like and ordered second language development offer clear evidence that learners must possess internal mechanisms that process and organise language material over time in a systematic manner. Language learners create a language system in an organised way that seem little affected by external factors such as instruction and correction. The system is implicit and is principally guided by learners' interaction with L2 input (Carroll, 2001).

Explicit knowledge of language is defined as conscious knowledge (VanPatten, 2016). It is often verbalisable knowledge about language such as to talk about something in the past, you add *–ed* to the stem at the end of the verb. Implicit knowledge is defined as unconscious knowledge and is not verbalisable. It can be described as the ability to understand or supply *played* and not *play* in contexts that require the use of the past tense in English, and to do so without a conscious effort to retrieve the form. Explicit knowledge does not turn into implicit knowledge (VanPatten et al., 2020).

The acquisition of grammatical properties is implicit. Language is too abstract and complex to teach and learn explicitly. L2 learners create linguistic systems in an organised way that seems little affected by external forces such as instruction and correction. In short, language is not the rules and paradigms that appear on textbook pages. Explicit rules and paradigm lists cannot become an abstract and complex system because the two things are completely different. What winds up in the human mind has no resemblance to anything on textbook pages or what teachers say. This

implication stems from the fact that there are no internal mechanisms that can convert explicit textbook rules into implicit mental representation.

What are the Main Linguistic and Processing Constraints in Second Language Acquisition?

The development of formal features of language may be constrained by universal properties of language (Chomsky, 1965). Two kinds of linguistic constraint have been studied in second language acquisition: universal grammar and typological universals.

From a universal grammar (UG) perspective, the idea is that language is composed of abstract principles and these principles constrain the way in which acquisition happens. L2 learners may not be allowed to make certain errors because UG does not allow the options that the errors might imply. In the case of the *Structure Dependence Principle,* for example, all syntactic operations are structure dependent. What this principle does is to keep learners from thinking that syntactic operations happen in words or the order of elements in a sentence. Instead, words are part of syntactic structures such as phrases which are the foci of syntactic operations. Therefore, L2 learners come to "know" certain things about what languages can and cannot do and these things are the principles of UG (Schwartz & Sprouse, 1996; White, 2003).

Typological universals are those aspects of language that are derived from the study of a large sampling of languages and exist as implicational statements; that is, if languages have object relative clauses, then they will have subject relative clauses. The term markedness refers to how typical something is relative to something else. How do typological universals and markedness affect second language acquisition? It has been shown that more marked things are more difficult to acquire. They either appear later in acquisition than less marked things or are more difficult to master.

There are also cognitive constraints on second language acquisition. The more difficult the processing operation is for a feature or structure, the more difficult it is to acquire that feature or structure (O'Grady, 2003). Empirical findings have demonstrated that there is asymmetry in the acquisition of subject *wh*-questions and object *wh*-questions, with subject questions being easier than object questions to acquire. Pienemann and Kessler (2011) suggested that output processing has constraints. The way L2 learners can string together elements to produce a sentence is constrained by processing procedures, with some being simpler than others.

Second language acquisition is constrained by the quantity and quality of input (Krashen, 2009). The input L2 learners are exposed to in a classroom environment is not the same as the one of natural context. Context may constrain acquisition because it constrains access to the amount and type of input L2 learners are exposed to. It is also constrained by access to interaction (Gass & Mackey, 2006). An L2 learner living abroad and attending a language course has good access to native speakers and opportunities to interact. Second language acquisition is complex, and a variety

of linguistic, processing and contextual factors interact that shape and constrain the course of acquisition.

What is the Role of Instruction?

Instruction has a limited and constrained role in second language acquisition (Long, 2007). However, it can be beneficial under certain conditions. Acquisition is an unconscious and implicit process, and learners acquire a second language through exposure to comprehensible and meaning-bearing input rather than learning grammar consciously through explicit grammatical rules. Language learners acquire grammatical features (e.g. morphemes) of a target language in a predictable order regardless of their first language or the context in which they acquire them. Instruction is also constrained by developmental stages, as language learners follow a very rigid route in the acquisition of grammatical features. If instruction is targeted to grammatical features for which language learners are developmentally ready, then instruction can be beneficial in helping them to move faster along their natural route of development. Instruction might also have a facilitative role in helping learners to pay selective attention to form and form-meaning connections in the input (VanPatten, 2015). Learners make form-meaning connections from the input they receive as they connect particular meanings to particular forms (grammatical or lexical). Evidence in second language research shows that the route of acquisition cannot be altered. However, instruction might in certain conditions speed up the rate of acquisition (Benati, 2021). What are the conditions that might facilitate the speed at which languages are learned? The first condition is that L2 learners must be exposed to sufficient input. The second condition is that L2 learners must be developmentally ready for instruction to be effective. The third condition is that instruction must take into consideration how L2 learners process input. Input plays a key role in the acquisition of a second language.

Using different theoretical models and hypotheses of second language acquisition, how can this edited collection of articles better our understanding of the key issues of second language acquisition?

What are the Main Contributions and Who are the Main Contributors in This Volume?

In this volume, Suying Yang discusses the constraints on Chinese ESL learners in relation to the acquisition of meanings and forms of English tense–aspect morphology. With reference to empirical findings, she outlines linguistics and processing constraints: typological differences between Chinese and English; universal tendency of the primacy of aspect; information structure; the type of input; the structure

of sentences and the developmental sequence. This paper also provides useful suggestions for language pedagogy.

Derek Ho Leung Chan and Yasuhiro Shirai present the results of a study examining the use and appropriateness of the English present perfect in L1 Cantonese ESL learners. The main findings from the study indicate the following: (i) L2 learners strongly associate the present perfect with accomplishments than with states; (ii) prototypical pairings of morphology and lexical aspect are used more appropriately than non-prototypical combination; (iii) there is evidence of L1-based lexicon-grammatical pairing between present perfect progressive and state verbs modified by durative adverbials. Implications for theory and practice are provided.

Chi Wui Ng outlines how traditional grammar instruction which conceptualises grammar as "rules of thumb dissociating syntax from semantics and segregating language use from human cognition" is totally inadequate "in providing second and foreign language learners with comprehensive, accurate or systematic knowledge on language systems such as the English tense system".

Zoe Pei-sui Luk presents the main results of a study investigating whether lexical aspect of the predicate of a sentence affects the supply of English past marking by native Cantonese-speaking learners of English. As argued in this paper, the main findings show that lexical aspect affects the supply of English past marking. This chapter also discusses the potential advantages of pedagogical approaches such as processing instruction and cognitive-grammar-inspired instruction over traditional grammar explanation in mitigating these effects.

Alessandro G. Benati reviews the findings of two empirical studies investigating the effects of processing instruction in altering two processing strategies (the lexical preference principle and the first noun principle) and facilitating the acquisition of passive constructions and English causative forms by Chinese L1 speakers.

Junhua Mo and Jinting Cai discuss the results of a study exploring between-verb variations in Chinese learners' acquisition of English alternating unaccusatives. They found that there are significant between-verb variations in Chinese learners' acquisition of English alternating unaccusatives. Both theoretical and pedagogical implications of their findings are outlined.

Hai Xu investigates the acquisition of English ditransitives by Mandarin Chinese learners. Three main outcomes are outlined from this study: (i) L2 proficiency does not play a key role in the usage of English ditransitives; (ii) the dativisable verb type plays a significant role; (iii) the "top-down" approach of instruction seems more effective than the "bottom-up" approach.

Hye K. Pae, Jing Sun and Detong Xia examined how Chinese learners of English formulate verbal phrases in expository writing using a learner corpus. Their findings provide important evidence for language pedagogy.

Mable Chan carried out a study investigating the perception of local English teachers and Cantonese ESL learners towards learning and pedagogy of English articles. The main results of this study provide the following insights: (i) Cantonese ESL learners understand the important roles played by English articles; (ii) more advanced L2 learners are better at articulating specific roles, functions and usages of English articles; (iii) there are difficulties common to all L2 learners of different

proficiency levels involving linguistics concepts such as generality, referentiality, specificity and noun countability; (iv) teachers' own understanding of English article use is significant.

Helen Zhao and Yasuhiro Shirai present the results of a study investigating the usage patterns of articles by Chinese learners of English. Results showed that (i) learners expanded their variation in article usages as they accumulated language experiences in college. Their overall (ii) accuracies of supplying articles also increased. However, (iii) there was a clear avoidance of using idiosyncratic usages which was accompanied by a serious overuse of other types of determiner such as quantifiers and possessives. Pedagogical implications from this study are outlined.

Elaine Lopez, Yuhuan An and Heather Marsden examine if article choice in L1-Mandarin influences use of the definite and indefinite articles in high-proficiency L2-English. Results show that the participants were highly accurate in supplying English articles in obligatory contexts and the L1 does not seem to have a role to play. According to the writers, proficiency and task type are the two factors which may account for such findings. Theoretical and pedagogical implications are discussed.

Snape Neal conducted a comparative study measuring production of articles between two different populations of ESL (L1 Chinese L2 learning English in China vs. L1 Chinese learning English in Canada). The aim of the study is to find out whether both groups of learners supply and/or delete articles. The main finding indicates that despite high suppliance of articles in obligatory contexts, suppliance is far from target-like. The main conclusion is that L2 learners continue to have full access to universal grammar post-critical period as further restructuring of prosodic structures is still possible.

Ziming Lu and Yicheng Wu outline that in two typologically different languages, one of the main differences between English and Chinese lies in their grammatical strategies for plurality. The main finding of their study is that the main challenge facing Chinese ESL learners of the English plural system is the cross-linguistic differences in the conceptualisation and lexicalisation of countability of entities.

Jing Sun, Haiyang Ai, Yeon-Jin Kwon and Hye K. Pae examined how the typological characteristics of the first language affect the motion-path formulation of motion events in English as a second language (L2) among native speakers of Chinese and Korean, compared to native English speakers' encoding. Results showed that both native speakers of equipollently framed Chinese and verb-framed Korean were less likely to use satellites to encode the path of motion than native speakers of satellite-framed English. Chinese speakers used more satellites to encode the path of motion than their Korean counterparts. Five pivotal features—underuse, replacement, misuse, pragmatic inadequacy and confusion of word class—emerged in the use of multi-verbal phrases in Chinese and Korean speakers' expressions of motion events.

What are the Main Theoretical and Pedagogical Implications?

Findings from the research works from this edited collection of articles on second language acquisition provide the following insights:

- Language is not learned the same way as other complex mental phenomena. Humans are hardwired to learn a language and have special cognitive mechanisms specifically designed to deal with it. Language is not a set of rules or patterns, but something much more abstract and generative in nature.
- Language is abstract and complex and should not be taught and learnt explicitly. There is no mechanism that turns explicit rules into an abstract and complex mental representation we call "language". A linguistic system evolves in the mind over time.
- Language development is slow and piecemeal. L2 learners do not acquire one thing and then move on to another, as suggested by typical syllabi and textbooks. L2 learners' minds are constantly working on various aspects of language simultaneously. Only over time, an internal system builds up and begins to resemble a second language.
- Language development is stage-like and ordered-like. The acquisition of formal features of language (grammatical aspects of language) is ordered. In the acquisition of structure, there are stages that learners go through regardless of their L1. There is no evidence that stages can be skipped or orders can be altered.
- The acquisition of formal features of language is constrained. Such things as markedness, universal grammar and perhaps general learning mechanisms all work to push and guide acquisition in particular directions. The role of the L1 is also constrained.
- Language input provides the data for acquisition. Languages that L2 learners hear and see in communicative contexts form the data on which internal mechanisms operate.
- How we measure acquisition (i.e. the type of data we examine) influences how we talk about acquisition and how we make of the conclusions. There is a qualitative difference between explicit and implicit knowledge of a language. Researchers are interested in the development of implicit knowledge.

Language pedagogy cannot ignore the findings on second language research (Benati, 2020, 2022) and must be informed by them. For example, if we know that particular linguistic structures are acquired in a particular order over time, what is the purpose of instruction on those structures? If an instructor believes he or she can get learners to learn something early that is normally acquired later, is that instructor making the best use of his or her time? When researchers in the field of second language acquisition choose to examine the effects of formal instruction, how do they select the linguistic features and why do they select them? These are important questions, and it is second language research that can help inform instructors and researchers about the choices they make.

Our perspective is that even though a significant gap exists between research on second language acquisition and teacher expectations, there is still enough research on second language acquisition research useful for general teacher edification. The traditional practice of grammar teaching is that language teachers (i) instruct L2 learners about specific grammatical forms (often using paradigms for explicit information); (ii) L2 learners practise target forms through mechanical practice; (iii) language teachers assess learners using paper–pencil tests.

There are two problems with this type of instruction aiming at developing explicit knowledge: (1) it does not correspond to the way languages develop in our mind/brain; (2) it does not correspond to the way L2 learners process information. Practices of the kind used in traditional grammar instruction do little to foster the development of mental representation and tend to develop a learning-like behaviour.

Instruction does not have an effect on L2 learners' acquisition of implicit knowledge unless it is of a particular type that can facilitate acquisition. Instruction must therefore be devised in a way that, on the one hand, enhances the grammatical features in the input, and on the other hand, provides L2 learners with opportunities to focus on meaning (e.g. processing instruction). L2 learners must be exposed to input, and input must be comprehensible and message-oriented in order to facilitate language development. Languages that L2 learners hear and see in communicative contexts form the data on which internal mechanisms operate. The only effective way to facilitate language development (implicit knowledge) is the provision of quality input.

What are the Future Avenues of Research?

Second language research investigating the acquisition of English by Chinese and Cantonese L1 speakers and, more in general second, language acquisition research must continue to investigate the nature of language itself by researching the following:

(i) how language is represented in the mind/brain (theoretical linguistics);
(ii) how language is produced and comprehended (applied language research, psycholinguistics);
(iii) how universality/constraints imposed by the human mind/brain along with the effects of bilingualism affect acquisition (first, second and third language acquisition);
(iv) how languages can be replicated, modelled and evaluated through technology. Future research on SLA should make use of new technology (e.g. EEG, eye tracking, computational modelling and assessment) to track what happens within language learners' brains in real teaching/acquisition contexts.

While behaviour studies can track only the automatisation of (second) language knowledge, multidisciplinary and high-tech research can track the internalisation of this knowledge. This research significantly widens the horizons of language acquisition research and will have a major impact on the speed at which we learn languages

(people skills), the way languages are taught (teacher skills), and the way languages are taught and assessed (educational policies, policy-makers).

The empirical research measuring the effects of instruction is not always clear. One of the problems with the research is the way scholars measure outcomes. Just how do we know acquisition has happened after an intervention? Some scholars have argued that there is a huge bias towards explicit testing and tapping of explicit knowledge in the research on the role of instruction. What is more, given what we know about the slow and piecemeal nature of acquisition, it is hardly probable that instruction causes instantaneous acquisition of a particular property of a language. In fact, it is probably impossible. That is, if we conduct one experiment, what do we really show in that one experiment? What is the nature of the treatment? How does the treatment reflect what we know about language development? What are we trying to alter in the learner? But researchers and teachers cling to the idea that we can make a difference in acquisition in some way by focusing on grammar. After all, isn't that what instruction is supposed to do? Since language acquisition is an implicit, complex, abstract and long process, instruction must be designed to help the L2 learner effectively.

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This book is developed out of genuine interest in the challenges encountered by Chinese English as a second language (ESL) learners in L2 acquisition, and ways to address the gap between theoretical research and pedagogy.

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The co-editor of this book, Professor Alessandro G. Benati, is well known for his research in processing instruction and Second Language Acquisition (SLA). I am very glad that he accepted my invitation to be the co-editor of this book. I learned a lot from his research experience and insights.

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I am very glad that I finally made it. In order to explain from different linguistic perspectives the constraints or difficulties Cantonese ESL learners encountered and how they might be dealt with in this book, I needed expertise from different contributing authors and I am grateful to have had all of them on board.

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Contents

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About the Editors

Mable Chan (Ph.D., Language and Linguistics, The University of Essex, UK) is currently a Senior Lecturer at the Language Centre, Hong Kong Baptist University. Before joining Hong Kong Baptist University, she taught in the Department of English of The Hong Kong Polytechnic University for close to 20 years. Her main research interests include second language acquisition (SLA) at the interface with language education and professional/workplace communication. She has published widely in the areas of second language acquisition, professional communication, and language learning and teaching in international journals such as *System*, *Journal of Educational Research,* and *Business and Professional Communication Quarterly*. She received the Faculty Award for Outstanding Teaching twice (2004/2005; 2010/2011). She also secured key external grants from: University Grants Committee (GRF: $677,300), and Standing Committee of Language Education and Research ($882,286.9). She published in January 2020 an authored book entitled *English for Business Communication* with Routledge: https://www.routledge.com/English-for-Business-Communication-1stEdition/Chan/p/book/9781138481688?fbclid=IwAR15Mh0RxWYbyW_VscXX9kKlzN2q1dKZ40TF53XHZrKgSB6zmH-R8wC34X0. There are two other books she is now working on: (a) an edited book entitled *Perspectives on teaching workplace English in the 21st century* with Routledge; and (b) an authored book entitled *Teaching Business English* with Routledge.

Alessandro G. Benati is known for his research in second language acquisition. He has researched how L2 learners process information and what internal strategies they use in language processing across romance and non-romance languages. Most recently, his groundbreaking research on the pedagogical framework called processing instruction has been driven by the use of new online measurement/technology (e.g. eye tracking, self-paced reading, and reaction times) to track what happens within language learners' brains in real teaching/acquisition contexts. He has coordinated high-impact research projects funded by the EU, Leverhulme

Trust, British Academy, and other research bodies. He is Co-Editor of a new series for Cambridge University Press called *Elements in Second Language Acquisition* and Member of the UK-REF Panel 2021. He is currently Director of CAES at The University of Hong Kong (HKU) and an Honorary/Visiting Professor in various institutions in Europe and the USA.

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The Acquisition of the English Tense-Aspect System by Cantonese ESL Learners

Suying Yang

Abstract The effect of lexical aspect has been observed in learners' tense-aspect marking, and it has been shown that there are three stages in learners' development of the tense-aspect system. However, these observations have been challenged with discussion on new foci of first language (L1) influence and input biases. In the present study, production data of five groups of Hong Kong English as a Second Language (ESL) learners were examined to address the challenges. The results of the study show that lexical aspect indeed affects learners' tense-aspect marking but the developmental path suggested in previous studies should be modified with added factors of relevant L1 features and classroom input patterns. The results also indicate that learners' development of the tense-aspect system is a continuum rather than a process with three stages. Pedagogical implications of the findings are also discussed.

Keywords Tense-aspect acquisition · Aspect hypothesis · Three-stage sequence · L1 transfer · Input biases

1 Introduction

In previous studies on systematic variation in tense use, beginning learners have been found to associate past perfective marking with [+telic] verbs and progressive marking with [-telic] verbs. This widely observed tendency was first referred to as "primacy of aspect" and later summarised as the Aspect Hypothesis (AH) (Shirai & Andersen, 1995). Along another line of research focusing on how the concept of time is expressed, learners have been observed to follow a three-stage sequence in using linguistic devices to express temporality from pragmatic to lexical and then to grammatical devices (Bardovi-Harlig, 1999). Although both the AH and the three-stage sequence have been attested in various studies, there have also been research findings showing that input biases or typological differences are more important contributing factors to the acquisition process of tense-aspect morphology.

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There are two reasons of particular interest to study the English tense-aspect acquisition process of Hong Kong ESL learners. First, there are correspondences between Hong Kong learners' first language properties and the learner tendencies observed in previous studies, so a study of Hong Kong learners' acquisition processes should shed light on the effects of language typologies on tense-aspect acquisition. In Chinese/Cantonese, the first language of Hong Kong learners, aspect marking is sensitive to lexical aspect just as learners' tense-aspect marking is sensitive to lexical aspect. And as a tenseless language, Chinese relies more on pragmatic and lexical devices to express temporality just as learners do during the first two stages of the three-stage acquisition sequence. Second, Hong Kong learners depend mainly on classroom instruction to learn English, so a study of their English production should allow us to examine the effect of language input in classroom settings.

There have been only a limited number of studies focusing on the tense-aspect acquisition by Hong Kong students. For example, Chan (2019) examined the roles of three different forms of classroom intervention, namely Processing Instruction, Traditional Instruction and Implicit Instruction, in the acquisition of the English simple past. Hong (2008) focused on the impact of lexical aspect and L1 transfer on the acquisition of the English simple past by Hong Kong secondary students. However, these studies have not dealt with the aforementioned correspondences between Chinese, the AH and the three-stage acquisition sequence. By focusing on the correspondences, the present research aims at identifying the roles of lexical aspect, typological differences, different linguistic devices of temporality and language input. The study will have direct implications for English language teaching in Hong Kong and second language acquisition theories in general.

2 The AH and the Three-Stage Sequence

2.1 The Aspect Hypothesis

A number of studies of the 1970s found that children tend to, at the beginning stages of learning their mother tongue, restrict their use of the simple past to [+telic] verbs, namely achievements and accomplishments such as *win the game*, *write a letter*; and restrict their use of imperfective aspect (progressive in English) to durative activities such as *run*, *work* (Antinucci & Miller, 1976; Bloom et al., 1980; Bronckart & Sinclair, 1973). These tendencies have come to be known as "primacy of aspect" (Andersen, 1989, 1991; Robison, 1990), according to which the semantic distinctions of aspectual prototypes of state and process, between telicity and atelicity, and also between punctuality and non-punctuality, are cognitively determined and early verbal morphology encodes these distinctions rather than distinctions of different time locations.

The ideas of "primacy of aspect" have also been applied to analyses of L2 tense-aspect acquisition and found support in many studies (Anderson, 1989, 1991;

Robison, 1990; Bardovi-Harlig & Bergström, 1996; Collins, 2002; among others). Shirai and Andersen (1995) summarised the learner tendencies in their Aspect Hypothesis, which makes two key predictions: (1) learners will initially restrict past or perfective marking to achievements and accomplishments, and later gradually extend the marking to activities and then statives; and (2) in languages that have progressive aspect, progressive marking begins with activities and then extends to accomplishments and achievements.

Although the AH has gained widespread support, there have also been studies that challenge the claims of the AH. One early criticism levelled against the ideas of "primacy of aspect" arose from Andersen's (1993) Distributional Bias Hypothesis (DBH), which suggests that the learner tendencies of associating the past perfect to telic situations and the progressive to durative activities can also be found in the interaction among adults. The skewed distribution in learners' use of tense-aspect morphology may be the effect of bias in input. To avoid input bias, Mueller (2018) carried out an experimental study to teach 40 English native speakers an artificial language in which "types and tokens of lexical aspect and past and present morphology were balanced". His results showed that the interaction between lexical aspect and morphological marking is non-significant. Mueller suggested that the effects of lexical aspect may be absent in the early stages of second language acquisition or may be caused by distributional biases in second language input. Bertinetto et al. (2015) also challenged the AH and argued for a typologically oriented and morphologically sensitive approach. They believed that children do not have a predefined strategy and it is the morphological structure of individual languages that children rely on for relevant information. They provided data to show that the explicitly marked categories are learned before latent categories. For example, temporality morphology may be developed earlier than aspect-related morphology in German because German "first and foremost provides overt marking of the past/present/future contrast" (p. 1163). Ayoun and Salasberry (2008) also showed the strong impact of input biases. Their learners' data show that states are consistently past-tense marked more often than telic events, which, they argued, is the result of the fact that states are, in input data, not only few and frequent, but also consistently past-tense marked.

2.2 The Three-Stage Acquisition Sequence

The AH describes learners' systematic variation in tense use. Along another line of research, how the concept of time is expressed by L2 learners has been examined. It is found that pragmatic and lexical devices are used to express temporality in learner varieties that lack verbal morphology or even verbs (von Stutterheim & Klein, 1987; among others). Schumann (1987) studied the language of five uninstructed basilang (the earliest stage of second language development) speakers and his findings showed that "there is a stage prior to either aspect or tense where learners rely solely on the pragmatic functions of adverbs, calendric expressions, sequentiality, and context (implicit reference) to express temporality" (Schumann, 1987, p. 38).

Trévise (1987) and Véronique (1987) also noted that beginning learners tend to use conjunctions, chronological ordering and adverbials rather than tense morphology to express temporality. As Bardovi-Harlig (1999) summarised, studies along this line "basically agree as to the linguistic devices employed and the order in which they apply: The expression of temporality exhibits a sequence from pragmatic to lexical to grammatical devices".

The term "three stages" has been used to describe this sequence. However, as Bardovi-Harlig (2000) suggested, the characteristic use of a certain kind of device is not equal to the exclusive use of that kind and the shift from relying more on pragmatic devices and lexical devices to relying more on grammatical devices is gradual. The term "three stages" does not provide an accurate description of the gradual and overlapping shift from pragmatic to lexical and then to grammatical devices.

Scholars from different theoretical standpoints have developed different theories to account for the staged tense-aspect acquisition process. Schumann (1987) distinguished the pragmatic component (general cognition) from the computational component (specialised for the acquisition of morphosyntax) in the human cognitive system and assumed that basilang speakers may have acquired their language by applying the pragmatic component rather than the specialised computational component to linguistic input (Schumann, 1987, p. 38). Giacaline Ramat (1992) explained the staged development by paralleling the language-learning process and the grammaticalisation process of historical language change. In terms of historical language change, the expressions of temporality have not been grammaticalised into the tenses in Chinese, and the Chinese relies more on pragmatic and lexical devices to express time. There has been no research on how a tenseless first language affects the "staged" development.

3 The Present Study

As discussed in the above subsections, the AH faces the challenges of input biases and the effect of typological differences, and there has been no research on how a tenseless first language affects the "three-stage" sequence. To address these challenges, a study of Hong Kong ESL learners' production data is needed for two reasons. First, the typological differences of English and Chinese will shed light on our understanding of the roles of lexical aspect, L1 transfer and different linguistic devices of temporality. Second, the learning setting of Hong Kong students also allows examination of the role of input.

3.1 Research Questions

To examine the roles of lexical aspect, typological differences, different linguistic devices of temporality and classroom input in the tense-aspect acquisition of Hong Kong ESL learners, a cross-sectional study was designed to answer the following questions:

- What are the developmental features of Cantonese ESL learners' acquisition of the English tense-aspect system?
- In what ways do typological differences affect the predictions of the Aspect Hypothesis?
- In what ways do typological differences affect the three-stage development of temporality expressions?
- In what ways does classroom input affect the tense-aspect acquisition process?

Answers to these questions will enhance our understanding of Cantonese ESL learners' development of the English tense-aspect system and shed new light on tense-aspect teaching and learning.

3.2 Participants

The present cross-sectional study involved five groups of Hong Kong learners: Grade Five (10 years old) in primary schools, Form One (12 years old), Form Three (14 years old) and Form Five (16 years old) in secondary schools, and university year one (19 years old) (hereafter P5, F1, F3, F5 and U1, respectively). The five groups represented five English proficiency levels from the late beginning to the advanced. As practical constraints did not allow us to administer placement tests, the participants were chosen with much deliberation to ensure their representativeness. The secondary school participants were chosen from two different Band 3 schools (out of a scale of five bands with Band 1 having the highest scoring students and Band 5 the lowest scoring students).[1] Primary schools have no banding, so several classes were chosen from three different government-funded schools. The university participants were from two University English I classes from a middle ranking university. University English I at this university is offered to students from different departments: History, Humanities, Geography and so on (not including students from the English Department). The deliberate selection of participants, together with the large sample size and statistical support, was sufficient in ensuring the representativeness of the sample population.

P5 was chosen as the lowest level because an examination of textbooks and the government language education guide has shown that some major tense-aspect forms have not yet been taught to students before P5. Hong Kong students mainly depend on

[1] Each of the final three years of primary schools concludes with examinations, which determines the secondary school banding.

Table 1 Details of the data

Level	No. of students involved	No. of sentences coded
P5	270	2235
F1	49	519
F3	56	1212
F5	30	686
U1	48	823

classroom instruction to learn English. English textbooks introduce language features from the simpler to the more complex. For P1 and P2, only the simple present and the present continuous are used. The simple past is introduced in the final chapters of P3 textbooks. The past continuous and the present perfect are introduced in P5 (Yang et al., 2000; *CDC English Language Curriculum Guide*, 2004; *CDC English Language Education Key learning Area Curriculum Guide*, 2017).

3.3 Data

To identify the developmental features of Cantonese ESL learners' acquisition of the English tense-aspect system, written data produced by the participants during class time of 50–60 min were collected. To elicit more variety in tense-aspect marking, the genre of narration was chosen because it usually requires more past tense-aspect forms (Biber et al., 1999). The participants were asked to narrate a personal story or a news story. Only the P5 participants were given the beginning of a story and asked to continue the story. The researchers were told that the P5 participants had no experience of writing narratives in English and that they could not think of anything interesting to write during a given period of time. The given beginning goes like this: "*Once upon a time, in a faraway place, there lived a queen who was mean and greedy. One Day a stranger knocked at the castle door*…." (Table 1).[2]

Although we did not obtain equal numbers of participants for the five levels due to practical constraints,[3] we managed to involve at least 30 students for each group and obtain at least 500 coded sentences for each level. More importantly, with the help of χ^2 statistic, the significance levels of the figures were tested as presented in Sect. 4.

[2] The given introductory sentences were not coded for examination.

[3] First, more P5 students were recruited to make up for their inability to write much. Second, the classes involved for other levels were of different sizes.

3.4 Data Processing

All data collected were entered into computer, and sentences were coded in different ways for different purposes. We excluded from data analysis: i. formulaic expressions like *hello*, *how are you* and *bye*; ii. imperative sentences like *come in*, *go away* and *sit down*; iii. verb-less sentences like *Now that man in prison*; and iv. sentences containing verbs whose past tense form and present tense form are the same orthographically, such as *put*, *cut* and *read*; because all these are not useful indicators of tense-aspect use.

The data, either personal stories or news stories, were all about narratives of past events, so in the majority of cases only past tenses (including largely the simple past, the past progressive and the past perfect) were required. When the sentences were examined in context, it was not difficult to figure out whether a sentence was describing a past situation, but there were difficulties in dealing with morphological tense marking. For example, there were cases where the regular past form *–ed* was used for irregular verbs like *understanded* for *understood*; there were also cases where either the simple past tense or another past tense-aspect form was acceptable because different factors interacted in determining the choice of temporal marking. To solve these problems, two principles were followed: (1) whenever a regular past tense ending *–ed* is used for an irregular verb, *understanded* for example, consider it "the simple past tense intended" but not "the simple past tense correctly used"; and (2) whenever a sequence of clauses describes situations/events in chronological order, assume that the English simple past is appropriate for the finite verbs in them. Other past tense-aspect forms were considered required only when they were used by the students in an acceptable way or when they were definitely needed due to reverse-order report or juxtaposition of one foreground event against the background of one on-going event.

All the finite verbs[4] in the past time sentences were examined to: (1) find out what past tense-aspect form was actually used; and (2) determine what tense-aspect form should be appropriate.

To examine the impact of aspect, the aspectual class of each verb was coded. Several linguistic tests developed or used by Verkuyl (1972, 1989), Dowty (1979) and Smith (1997) were used to determine the membership of a verb in its linguistic context.

To find out what linguistic devices were more relied upon to express temporality, the sentences in our database were divided into two types:

> Type (a): sentences that contain temporal adverbials, including deictic temporal expressions like *long ago* and *yesterday*; anaphoric adverbials like *then*, *after*, *at that time* and *on that*

[4] In any recognisable clause, only one verb was considered to be finite unless two finite verbs were conjoined by *and* as in *The police arrived and caught the robbys* (1026:01–12).

Table 2 Different past tense-aspect forms required at different levels

Levels	Sp		Ppr		Pp		Pppr		Other	
	f	%	*f*	%	*f*	%	*f*	%	*f*	%
P5	1908	99.3	10	0.5	2	0.1	0	0	2	0.1
F1	544	95.1	13	2.3	12	2.1	0	0	3	0.5
F3	1447	97.1	28	1.9	15	1	0	0	0	0
F5	717	91.8	22	2.8	28	3.6	0	0	14	1.8
U1	1027	90.6	30	2.7	52	4.6	2	0.2	22	1.9

f = frequency; Sp = simple past; Ppr = past progressive; Pp = past perfect; Pppr = past perfect progressive; Other = past tense-aspect forms other than the above listed

day; calendric temporal phrases like *in 1993*; temporal adverbial clauses introduced by *when*, *before*, *while*, etc.; and other temporal expressions like *in my primary school years*.[5]

Type (b): sentences that contain no temporal adverbials.

The coding was done by two researchers independently. Disagreements were solved by discussions among members of the research group.

4 Tense-Aspect Developmental Features

Table 2 summarises what past tense-aspect forms are required for all the finite verbs in past contexts.

Table 2 shows a gradual change in the participants' narrative structure. At the lowest level, namely P5, the students relied on chronological ordering and created few obligatory contexts (less than 1%) for tense-aspect forms other than the simple past. At F1 and F3, the percentages are much higher at 4.9% and 2.9%, respectively. At higher levels, namely P5 and U1, more and more obligatory contexts (close to 10%) were created for tense-aspect forms other than the simple past because the participants constructed more varied narrative structures with some cases of reverse-order report and more temporal adverbial clauses to provide background information therein. The differences between P5 and F1 and between P5 and F3 were significant (P5 versus F1:$\chi^2 = 46.22$, $p < 0.001$; P5 versus F3: $\chi^2 = 23.78$, $p < 0.001$). The difference between F3 and F5 + U1 was also significant ($\chi^2 = 51.349$, $p < 0.001$).

The following table presents what tense-aspect forms were actually supplied by the participants (Table 3).

While past forms were predominantly required, they were seriously underused. Three important patterns can be observed:

- High percentages of the verbs were not tense-aspect marked;

[5] Temporal adverbials of these types were selected because they help organise temporal sequences or indicate temporal location in narratives. Frequency adverbials, like *always* and *often*, were not included because they do not help indicate temporal sequences.

Table 3 Different tense-aspect forms supplied by the students

Form / Levels	Base	%	SP	%	Prp	%	Pp	%	Prc	%	Pc	%	Oth	%	Total No. of finite verbs
P5	1023	53.2	838	43.6	0	0	3	0.16	32	1.7	4	0.2	22	1.2	1922
F1	274	47.9	248	43.4	14	2.4	3	0.5	4	0.7	2	0.3	27	4.7	572
F3	586	39	797	53.5	6	0.4	17	1.1	0	0	25	1.7	59	4	1490
F5	158	20	476	61	22	2.8	28	3.6	18	2.3	13	1.6	66	8.4	781
U1	154	14	859	75.8	14	1.2	35	3	2	0.17	29	2.6	40	3.5	1133
Total	2195	37.2	3218	54.5	56	0.95	86	1.5	56	1	73	1.2	214	3.6	5898

* Base = simple present or base form, Sp = simple past; Prp = present perfect, Pp = past perfect; Prc = present continuous; Pc = past continuous; Oth. = other forms

- The percentages of tense-aspect marked verbs grew with proficiency levels;
- Of the tense-aspect marked verbs, the simple past was the most frequently used form. The percentages of complex tense-aspect forms were very low and only slowly increased with proficiency levels.

The above two tables give a general view of patterns in the development of tense-aspect acquisition of Cantonese ESL learners. The learners indeed had serious problems using appropriate tense-aspect forms. They also seriously underused tense-aspect morphology. Even when they did tense-aspect mark verbs, they used mostly the simple past. The other tense-aspect forms only added up to small percentages of the total tensed verb tokens.[6]

5 Lexical Aspect and Tense-Aspect Marking

5.1 Lexical Aspect and Perfective Past Marking

Table 4 shows the relationship between different types of verb constellation and the use of perfective past morphology (simple past and past perfect). In addition to the traditional four aspectual types, modal verbs were added because they appear frequently and show special characteristics.

The five types of verb can be roughly put into three groups: i. modals; ii. telic types, namely states and activities; and iii. atelic types, namely accomplishments and achievements. The following are the tendencies observed for the three groups:

- Correct rates with modals were low from P5 to F5, and there was a great improvement for U1;
- Correct rates of the atelic group (states and activities) were much lower than those of the telic group (accomplishments and achievements).

It is also worth noting that the second and third groups were not monolithic. There were differences among their members:

- Of the atelic group, correct rates of activities were in general lower than those of states.
- Of the telic group, correct rates for accomplishments were consistently lower than those for achievements.

To sum up, the findings suggest an expansion path of tense-aspect morphology like this:

$$\text{achievements} > \text{accomplishments} > \text{states} > \text{activities} \quad (1)$$

[6] In the data examined, there were instances of overused *be*s (ungrammatically inserted before verbs of various kinds, e.g. *Then the queen is shouted*.). See Yang (2014) for an in-depth discussion on the reasons and functions of overused *be*s.

Table 4 Lexical aspect and perfective past marking

Levels	Modal		State[7]		Activity		Accomplishment		Achievement	
	Inst.*	Cor. rates** (%)	Inst	Cor. rates (%)	Inst	Cor. rates (%)	Inst	Cor. rates (%)	Inst	Cor. rates (%)
P5	35	43	487	39.8	90	34.1	417	48.4	628	82.4
F1	20	45	119	36	56	43	179	55	102	70
F3	50	46	333	63.7	181	50.3	392	72.4	337	86.9
F5	65	51.1	189	61.5	73	54.8	239	74.5	138	87.7
U1	117	77.8	379	83.9	138	82.6	257	87.9	128	87.5

* Inst. = Instances that require perfective past marking (including simple past tense and past perfect tense)
** Cor. Rate = rate of correct past marking tokens supplied

[7] Passive voice sentences and sentences with overused *be*s were excluded because the kind of *be* in them becomes the main carrier of tense and the nature of the main verb is no longer important.

Table 5 Distribution of temporal adverbials across levels

Levels	Type (a) sentences (with temporal adverbials)	%	Type (b) sentences (without temporal adverbials)	%
P5	165	9.7	1538	90.3
F1	174	34.9	325	65
F3	254	21.5	925	78.5
F5	153	26.7	419	73.3
U1	228	30.9	509	69

Finally, it is worth noticing that there was a very long non-acquisition period for past marking on modals, states and activities and only at university level. The participants' marking of these verbs reached or was close to the generally recognised acquisition level (80–90% of appropriate use).

5.2 Lexical Aspect and Progressive Marking

The participants used a limited number of progressive tokens. In total, only 128 tokens were found: 5 on states, 80 on activities, 44 on accomplishments and 1 on achievements. The overall picture seems to support the AH, but the spread of the progressive form from activities to accomplishments as hypothesised by Shirai and Andersen (1995) is not obvious. The numbers of tokens will not be pursued any further as they are too small to carry much statistical significance.

6 The Presence/Absence of Temporal Adverbials and Tense-Aspect Marking[8]

All the data sentences were put under two categories: Type (a) with temporal adverbials and Type (b) without temporal adverbials. The following table presents their distribution (Table 5).

The following observations can be made: (1) at P5, a very low percentage (9.7%) of sentences contained temporal adverbials; (2) at F1, many more sentences contained temporal adverbials (34.9%); (3) at the higher levels (from F3 to U1), the percentages seemingly stabilising within the range from 21.5 to 30.9%. χ^2 values showed that there was a significant increase of Type (a) sentences from P5 to F1 ($\chi^2 = 187.87$, $p < 0.001$) and there was a significant decrease of Type (a) sentences from F1 to F3

[8] Sections 6 and 7.4 are parts of a published paper by Yang and Huang (2004). They were revised and incorporated into this chapter to present a more comprehensive view of Hong Kong ESL learners' tense-aspect acquisition process.

Table 6 Presence/absence of temporal adverbials and tense-aspect use

Levels	Type (a) sentences			Type (b) sentences			Overall past marking
	Finite verbs	Verbs with acceptable past marking*	%	Finite verbs	Verbs with acceptable past marking	%	%
P5	206	67	32.5	1716	778	45.3	44
F1	172	66	38.4	400	187	46.8	44.2
F3	293	170	58	1197	675	56.4	56.7
F5	165	136	82.4	616	391	63.5	67.5
U1	298	255	85.6	835	676	81	82.2

* Including different past tense-aspect forms

($\chi^2 = 32.77$, $p < 0.001$). Differences between F3 and F5 ($\chi^2 = 5.848$, $p > 0.01$) and between F5 and U1 ($\chi^2 = 2.74$, $p > 0.05$) were not very significant.

Table 6 summarises the relationship between appropriate or acceptable past marking and the presence/absence of temporal adverbials in past contexts.

At P5, significantly fewer finite verbs in Type (a) sentences (**with** temporal adverbials) bore past marking than finite verbs in Type (b) sentences (**without** temporal adverbials) (32.5 versus 45.3%, $\chi^2 = 754.87$, $p < 0.001$). A similar phenomenon occurred to F1 with 38.4% of the finite verbs in Type (a) sentences and 46.8% of the finite verbs in Type (b) sentences bearing past marking ($\chi^2 = 77.45$, $p < 0.001$). However, from F3 up, the reverse of what was found between P5 and F1 was observed: significantly more finite verbs in Type (a) sentences were past-tense marked than finite verbs in Type (b) sentences (F3: 58 versus 56.4%, $\chi^2 = 179$, $p < 0.001$; F5: 82.4 versus 63.5%, $\chi^2 = 21.9$, $p < 0.001$; U1: 85.6 versus 81%, $\chi^2 = 22.26$, $p < 0.001$).

7 Discussion

7.1 L1 Reinforcement of the Aspect Hypothesis

The study results presented in Sect. 5.1 showed a clear spread of the appropriate use of the perfective past marking from the telic group to the atelic group. At P5, correct rates for accomplishments and achievements (48.4% and 82.4% respectively) were much higher than those of states and activities (39.8% and 34.1% respectively). For the higher levels, the correct rates of the atelic group rose gradually and the gap between the two groups narrowed. The results in general support the AH. However, compared with the results of the previous studies, the participants' non-acquisition period of the atelic group seems much longer. At F5, after the students had received

formal instruction of English for 11 years (at least 1760 class hours), the correct rates of states and activities were still low at 61.5% and 54.8%, respectively. Even at U1, correct rates of states and activities were still significantly lower than those of accomplishments and achievements.

The tendency predicted by the AH is generally regarded as a phenomenon in early stages of language acquisition. For example, in Bardovi-Harlig and Reynolds's (1995) study of 182 speakers of different first languages, only the learners at the beginning level (Level 1 out of a seven-level programme) performed more poorly than the F5 students in the present study.

A study by Zhao and Shen (1984) showed that 75% of the use of the Chinese perfective marker *le/jo* matched the English simple past, so it is highly likely for the participants to take *le/jo* as the equivalent of the English simple past. While the English simple past freely occurs on any kind of verbs, *le/jo* occurs only in sentences that present situations with endpoints (Yang, 2011). Accomplishments and achievements are telic situations containing intrinsic natural endpoints, and *le/jo* can freely occur with them, whereas states and activities are atelic events and *le/jo* usually does not co-occur with them. The occurrence pattern of *le/jo* in Chinese corresponds to the universal learner tendency of marking telic verbs only in the early stages of language acquisition. As both the learner tendency and the constraint on *le/jo* occurrences reflect a natural tendency in morphology attachments as captured in Bybee's Relevance Principle (1985), they seem to reinforce each other. It is this reinforcement that leads to a delay in the spread of the past tense marking to atelic verb types.

7.2 The Expansion Path of Perfective Past Marking

The two key predictions of the AH lump achievements and accomplishments together as the ([+telic]) group, and activities and states together as the ([-telic]) group. Are these two groups truly monolithic? Conflicting answers can be found in different studies. Bardovi-Harlig and Bergström (1996) found that the [+telic] group showed the same level of past marking (46.4% and 47.1% of appropriate marking, respectively), and the [-telic] group showed similar levels of past marking (15% and 17.2% appropriate marking, respectively). Bardovi-Harlig and Reynolds' study (1995) produced similar findings. However, Andersen's (1986) study found that both [punctual] and [dynamic] were important features to distinguish achievements ([+punctual]) from accomplishments ([-punctual]) in the [+telic] group and activities ([+dynamic]) from states ([-dynamic]) in the [-telic] group. He suggested that the perfective past spreads from achievements, to accomplishments, then to activities and finally to states; and the imperfective past spreads in the opposite direction from states, to activities, to accomplishments and finally to achievements. Bardovi-Harlig's (1998) oral data also showed that many more achievements received perfective past marking than accomplishments, although her written data suggested that achievements and accomplishments seemed to pattern together. Andersen and Shirai (1996)

proposed a four-stage expansion path of the perfective past:

achievements > accomplishments > activities > states (2)

The findings of the present study support the path in (1) repeated in (3) below:

achievements > accomplishments > states > activities (3)

The first half of (3) is the same as (2) but the second half is different in which states go before activities. In Bardovi-Harlig and Bergström's (1996) study, states also showed higher appropriate past marking than activities. As their study emphasised only the spread of past marking from telic verbs to activities, the differences between states and activities were not pursued.

In the following subsections, it will be argued that the four-stage expansion path suggested by Andersen and Shirai (1996) is theoretically sound but it should be modified.

7.2.1 The Modified Four-Stage Expansion Path of Perfective Past Marking

The difference between achievements and accomplishments is the presence/absence of the feature [punctual], and the difference between states and activities is the presence/absence of the feature of [dynamic]. The function of perfective past marking is to locate a situation in the past and provide an entirety view of the situation, so its basic meanings are [+past] and [+entirety]. Punctuality is not one of the basic meanings. It is only indirectly relevant to the basic meanings because punctual events are more likely to view in their entirety. As an indirectly relevant feature, punctuality creates a shorter distance between achievements and accomplishments than that between the telic group and the atelic group. This distance can be shortened or even erased by the factors discussed in the later part of this subsection.

Like the [±punctual] feature, [±dynamic] is not one of the meaning components of the perfective past either. It may be argued that dynamic events are more likely to terminate than states and thus easier to view in their entirety, because it takes energy to maintain them while states can sustain without provision of energy. However, this argument is not strong, and it is very likely that the distance between activities and states is even shorter than that between achievements and accomplishments.

Of the three features that distinguish aspectual verb classes, [±telic] is the most important one in determining the expansion path of perfective past marking. The other two features are only indirectly relevant to the meanings of the perfective past, and the distinctions created by them can be weakened or even erased. That is why the distinction between the [+telic] group and the [-telic] group is always attested, but the distinction among members within each of the two groups is not always there. Andersen and Shirai's (1996) expansion path can be maintained with some modifications as shown below:

(Achievements ≥ Accomplishments) > (Activities ≥ States) (4)

First, the path in (4) acknowledges the two stages: the telic group > (precedes) the atelic group. Then within each of the two groups, the symbol " ≥ " is used to indicate that there may be two separate stages, namely Type A > Type B; or the two stages may merge, namely Type A = Type B. Either " > " or " = " will obtain in learner language depending on two factors.

7.2.2 The Factors that Affect the Order Within the [+telic] Group and the [-telic] Group

The first factor is the types of language production. The inconsistent findings in the previous studies resulted partly from the fact that different types of language production data were examined. One of the strengths of the present study is the use of free production data, but this strength also led to one of its limitations: the verbs available for investigation were not evenly distributed. The uneven distribution may be a factor that affected the judgement of the expansion path of perfective past marking.

First, the verbs were not evenly distributed across different aspectual classes (Table 7).

The numbers of different activity verbs were more than twice as many as those of states, and the same was true of accomplishments verbs against achievements verbs.

Second, more states and achievements were found among the top most frequently used verbs.

A total of 10 out of the 19 different verbs listed in Table 8 were either states (*be*, *have*, *feel, want* and *know*) or achievements (*say*, *see*, *ask*, *shout* and *find*). The top two most frequent verbs were *be* (state) and *say* (achievement). The past marking of these two verbs as shown in Table 9 may affect the overall correct rates presented in Table 4.

A comparison of Tables 9 with 4 shows that the correct past marking rates of either *be* or *say* were higher than the overall rates of states and achievements.

According to Giacalone Ramat (1992), *be* seldom occurs untensed. As Table 9 shows, there was a higher percentage of past marking on *be* than on other stative verbs. This higher percentage may counterbalance the disadvantageous [-dynamic]

Table 7 Numbers of different verbs in each aspectual class at different levels

Level	States	Activities	Accomplishments	Achievements
P5	13	32	49	19
F1	11	33	47	18
F3	15	43	47	20
F5	17	56	82	21
U1	30	66	99	32

Table 8 Top 8 most frequently used finite verbs

Levels	Verbs and numbers of tokens							
P5	Say (397)	Be (377)	See (83)	Go (95)	Open (74)	Want (41)	Ask (50)	Give (37)
F1	Be (88)	Go (87)	Say (57)	Come (15)	Wait (14)	Take (12)	Find (9)	Give (9)
F3	Be (188)	Say (134)	See (93)	Go (117)	Run (60)	Ask (46)	Tell (33)	Catch (26)
F5	Be (142)	Say (53)	Go (41)	think (35)	Have (25)	know (22)	want (21)	see (19)
U1	Be (314)	Have (34)	Feel (28)	Go (38)	Know (25)	See (27)	get (24)	Think (18)

Note Auxiliary and overused *bes* are not included. Auxiliary *haves* are not included either.

Table 9 Perfective past marking for *be* and *say*

Levels	Tokens of *be* requiring perfective past marking	Correct rate (%)	Tokens of *say* requiring perfective past marking	Correct rate
P5	337	45	389	91.4
F1	72	48.8	52	84.6
F3	170	74	129	86.6
F5	138	74	51	98
U1	274	89.5	10	90

Table 10 Distribution of different verbs in the textbooks

States	Activities	Accomplishments	Achievements
30	90	93	46

feature of states and cause the order change of activities and states in the four-stage expansion.

The second factor is the uneven distribution in classroom input. The uneven distribution of verbs in our data may be a true reflection of the language input to the students. To test this, we examined all finite verbs in one set of popular English textbooks[9] used in Hong Kong primary schools and identified the distribution patterns (Table 10):

[9] To identify the most commonly used English textbooks, we randomly selected 50 schools and phoned each of them. The results showed that all of them used one or two of the six sets of textbooks. Then one from the six sets was chosen for examination here.

Table 11 Top 8 most frequent verbs in the textbooks

Textbooks		
Verb	Frequency	Verb type
be	984	State
say	431	Achievement
go	135	Accomplishment
take	134	Accomplishment
have	105	State
get	89	Accomplishment
want	77	State
like	60	State

Similar to what was found in the participants' production data, there were also more different activities and accomplishments than different states and achievements in the textbooks. Also similar to what was found in the participants' production data, more states and achievements appeared on the list of top 8 most frequent verbs. *Be* and *say* greatly outnumbered the other verbs on the top list.

The outstanding similarities between our data and the textbooks make it reasonable to say that the verb distribution patterns in our data reflect the patterns of the classroom input. As Table 11 shows, a few states and achievements such as *be* and *say* occurred very frequently in the textbook input so that the participants might get more familiar with their different tense-aspect forms. High rates of repetition may have deeply ingrained the past tense form of these verbs (*was, were, had*, *liked*, *said*, *found*, *stopped*, etc.) in the minds of the learners. Therefore, when they write, they may provide more correct verbal marking for these familiar verbs. On the other hand, the participants might have encountered only a few times many of the larger numbers of activity and accomplishment verbs. They might have had just enough time to process the core meanings and basic forms of these verbs and so they tended to ignore the past inflections for them. We formulated this phenomenon as the Frequency Effect:

(5) A number of states and achievements such as *be* and *say* are highly frequent in language input to students; their different morphological forms may be the first thing learned by learners.

The Frequency Effect explains the higher correct rates of copula *be* and some other states and achievements. The higher correct rates may raise the overall correct rates of states and achievements to a lesser or greater extent, depending on the nature of tasks students perform. For free production, especially when learners have a limited vocabulary to manoeuvre because of low language proficiency, students may use certain familiar states and achievements frequently (like the participants of lower levels in our study), and the overall correct rates of states and achievements will rise to a greater extent. For cloze tests, if the test verbs distribute evenly across the four aspectual types, the Frequency Effect will not obtain.

Our argument here is also partially supported by Ayoun and Salaberry's (2008) findings. Their cloze test results supported the AH, but the results of their narrative

data showed that states were consistently marked with perfective past more often than even telic events. They suggested this be the result of a distributional bias in input: states were few, frequent and consistently marked with perfective past while accomplishments and achievements were more open-ended and were marked with both perfective past and progressive. However, their narrative data size was small with only 21 learners, and no detailed analysis of the input was given in their paper.

7.3 Lack of Past Marking for Modal Verbs and L1 Transfer

The correct rates for modal verbs were consistently low. Even at university level, the students did not achieve 80% of appropriate past marking for modal verbs. The Chinese perfective marker *le/jo* may be mistaken as the equivalent of the English simple past. In English, tense marking is compulsory for all finite verbs; however, in Chinese, aspect markers are grammatically optional and their use is subject to various constraints, one of which is that modal verbs never take aspect markers. The participants might have transferred this constraint from Chinese to their use of English modal verbs and therefore had persistent difficulties in appropriately marking modal verbs with past tense morphology. In past contexts, they often used *can* instead of *could*, *will* instead of *would*, etc.

7.4 Developmental Stages of Tense-Aspect Acquisition

As Table 5 shows, at the lowest level (P5), a very low percentage of sentences contained temporal adverbials (9.7%). There may be two reasons for it. First, the given beginning could have reduced the chances of participants' writing an introductory sentence that contained a temporal adverbial. Second, the students relied heavily on context and chronological ordering (pragmatic devices) to locate events temporally. The fact that they created, in narrating past events, a small percentage of contexts (less than 1%, Table 2) for tense-aspect forms other than the simple past is strong evidence that they indeed relied heavily on context and chronological ordering to express temporality. Only a couple of reverse-order report sentences were found. And there were only a few complex sentences that contained adverbial clauses introduced by *when*, *while*, *before*, *after* or other kinds of subordinate clause. The rates of appropriate tense-aspect marking were low for both Type (a) and Type (b) sentences (32.5% and 45.3% respectively). In general, the participants at this level relied heavily on pragmatic devices to make temporal references.

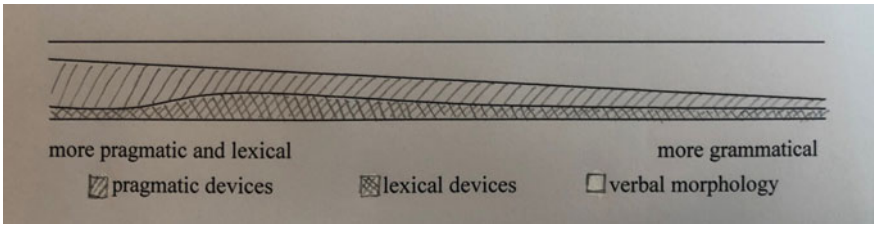
The F1 participants used more temporal adverbials (34.9% Type (a) sentences) and more finite verbs in past time contexts that required different past tense-aspect forms other than the simple past (4.9%). They produced more complex sentences containing temporal adverbial clauses or other kinds of subordinate clause. The correct past marking rates were higher, 38.4% with Type (a) sentences and 46.8%

with Type (b) sentences. Compared with the P5 students, the students at this level seemed to rely heavily on lexical means to make temporal references.

At the even higher levels, namely F3, F5 and U1, the rates of Type (a) sentences (with temporal adverbials) ranged from 21.5% to 30.9% (Table 5) and the overall rates of past marking went steadily higher: 56.7% at F3 and 67.5% at F5. At the highest level U1, the participants showed a fairly good command of the tense-aspect system with an overall past marking rate of 82.2% (Table 6), and they also created many more contexts (9.36%, Table 2) for different past tense-aspect forms other than the simple past.

The picture that emerges from the figures in Tables 2, 5 and 6 seems to match the developmental sequence from pragmatic to lexical and then to morphological devices. However, the sequence is not one of the three stages. It is more like a continuum with three parallel streams, "the stream of pragmatic devices" being the widest at the beginning; "the stream of lexical devices" being wider towards the middle, and "the stream of morphological devices' being the widest at the end, as shown in (6):

(6) Continuum of tense-aspect system acquisition



To sum up, there are no three clear stages from pragmatic to lexical and to grammatical devices. Rather, there is a slow shift from relying more on pragmatic devices to more on lexical devices and then to more on morphological devices. Our data argue strongly for a continuum description rather than a three-stage description of the tense-aspect system development.

In addition to the continuum, the results lead to three more observations. First, even at the lowest level, when the learners relied heavily on pragmatic devices to make temporal references, they also used tense morphology to mark 32.5% of the (a) type sentences and 45.3% of the (b) type sentences (Table 6). Second, the presence of temporal adverbials was related to the lower past marking rates at the lower levels (P5 and F1) and the reverse happened at the higher levels (F3, F5 and U1) (Table 6). Third, the shift from relying more on pragmatic and lexical devices to relying more on grammatical devices was very slow. There should be an extended "more pragmatic and lexical" period from P5 to F5, a span of 6 years. These special observations will be explained in the following subsections.